Liquid small-size aluminum electrolytic capacitor

Shanghai Yongming Electronics Co., Ltd.

2025 / 2026

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project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10	5×9	1.10	56	5×9	1.10	71	5×9	1.10	91	5×9	1.40	101
15	5×9	1.10	76	5×9	1.10	91	5×9	1.10	111	5×9	1.10	121
22	5×9	0.40	91	5×9	0.40	111	5×9	1.10	121	5×9	1.10	160
33	5×9	0.40	106	5×9	0.40	121	5×9	0.40	151	5×9	0.40	215
39	5×9	0.26	136	5×9	0.40	151	5×9	0.40	181	5×9	0.40	345
47	5×9	0.26	143	5×9	0.26	161	5×9	0.26	211	5×9	0.37	345
56	5×9	0.26	151	5×9	0.26	171	5×9	0.26	310	5×9	0.37	414
68	5×9	0.26	161	5×9	0.26	181	5×9	0.24	345	5×11	0.34	443
68										6.3×9	0.34	486
82	5×9	0.26	171	5×9	0.26	211	5×9	0.34	414	5×11	0.28	486
82										6.3×9	0.28	540
100	5×9	0.26	181	5×9	0.24	345	5×9	0.34	443	6.3×9	0.28	550
120	5×9	0.26	211	5×9	0.24	345	5×11	0.34	486	6.3×9	0.28	550
120							6.3×9	0.28	486			
150	5×9	0.26	345	5×9	0.34	414	6.3×9	0.28	540	6.3×11	0.21	660
150										8×9	0.21	660
180	5×9	0.26	345	5×11	0.34	443	6.3×9	0.28	550	8×9	0.21	900
180				6.3×9	0.34	486						
220	5×9	0.34	414	6.3×9	0.28	540	6.3×11	0.21	660	8×9	0.15	945
220							8×9	0.21	660			
270	5×11	0.34	443	6.3×9	0.28	540	8×9	0.15	900	8×11.5	0.1200	1250
270	6.3×9	0.34	486							10×9	0.1200	1250
330	6.3×9	0.15	540	6.3×11	0.21	550	8×9	0.1500	945	8×14	0.0900	1330
330				8×9	0.21	550				10×12.5	0.0900	1330
390	6.3×9	0.15	540	8×9	0.15	660	8×11.5	0.0980	1250	8×16	0.076	1420
390							10×9	0.0980	1250	10×12.5	0.076	1760
470	6.3×11	0.15	545	8×9	0.15	900	8×11.5	0.0980	1330	10×14	0.0590	1850
470	8×9	0.15	550				10×9	0.0980	1330			
560	6.3×11	0.12	880	8×9	0.15	900	8×14	0.0760	1420	10×14	0.0590	1960
560	8×9	0.12	900				10×12.5	0.0760	1760			
680	8×9	0.12	900	8×11.5	0.0980	1250	8×16	0.0590	1500	10×16	0.0520	2120
680				10×9	0.0980	1330	10×12.5	0.0590	1760	12.5×14	0.0520	2120
820	8×9	0.12	1180	8×14	0.0760	1420	10×14	0.0460	1850	12.5×14	0.0520	2360
820				10×12.5	0.0760	1760						
1000	8×11.5	0.0980	1250	8×16	0.0590	1500	10×16	0.0420	1960	12.5×16	0.0420	2480
1000	10×9	0.0980	1330	10×12.5	0.0590	1850	12.5×14	0.0420	2120			
1200	8×14	0.0760	1420	10×14	0.0460	1850	10×20	0.0320	2120	12.5×20	0.0380	2900
1200	10×12.5	0.0760	1760				12.5×14	0.0320	2120			
1500	8×16	0.0590	1500	10×16	0.0420	1960	10×20	0.0280	2480	12.5×20	0.0380	2900

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Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1500	10×12.5	0.0590	1760	12.5×14	0.0420	2120	12.5×16	0.0280	2480	16×16	0.0380	3250
1800	10×14	0.0460	1850	10×20	0.0380	1960	12.5×16	0.0280	2480	12.5×25	0.0350	3450
1800				12.5×14	0.0420	2120				14.5×16	0.0210	3180
1800										16×20	0.0350	3630
2200	10×16	0.0420	1960	10×20	0.0380	2480	12.5×20	0.0270	2900	12.5×30	0.0320	3630
2200	12.5×14	0.0420	2120	12.5×16	0.0380	2480	14.5×16	0.0270	2620	14.5×20	0.0160	3215
2200							16×16	0.0270	3250	16×20	0.0320	3630
2700	10×20	0.0320	2250	12.5×16	0.0380	2480	12.5×25	0.0265	3450	14.5×23	0.0160	3320
2700	12.5×14	0.0320	2250				16×20	0.0265	3630	16×25	0.0230	3890
2700										18×20	0.0230	4010
3300	10×23	0.0280	2480				12.5×30	0.0260	3630			
3300	12.5×16	0.0280	2480	12.5×20	0.0280	2900	14.5×20	0.0250	3180	14.5×25	0.0150	3400
3300				14.5×16	0.0268	2620	14.5×23	0.0240	3270	16×31.5	0.0100	4080
3300							16×20	0.0260	3630	18×25	0.0100	4080
3900	12.5×16	0.0280	2900	12.5×25	0.0230	3250	14.5×25	0.023	3350	14.5×27	0.0140	3520
3900				16×16	0.0230	3450	16×25	0.0171	3890			
3900							18×20	0.0171	3650	18×25	0.0100	4080
4700	12.5×20	0.0230	3250	12.5×25	0.0210	3450	14.5×27	0.0220	3460			
4700	14.5×16	0.0280	2450	14.5×20	0.0255	3110	16×25	0.0121	3890			
4700	16×16	0.0230	3450	16×20	0.0210	3630	18×20	0.0110	4010			
5600				14.5×23	0.0250	3200						
6800	14.5×20	0.0180	2780	14.5×25	0.0246	3270						
8200	14.5×23	0.0170	2920									
8200	14.5×25	0.0160	3160									
10000	14.5×27	0.0150	3280	14.5×27	0.0238	3450						

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×9	5.50	21	5×9	5.00	23	5×9	6.05	24	5×9	6.05	24
1.0	5×9	5.50	31	5×9	5.00	35	5×9	6.05	37	5×9	6.05	37
1.2				5×9	5.00	35	5×9	6.05	37	5×9	6.05	37
1.5				5×9	5.00	41	5×9	6.05	43	5×9	6.05	43
1.8	5×9	5.50	32	5×9	5.00	41	5×9	6.05	43	5×9	6.05	43
2.2	5×9	1.50	39	5×9	1.50	45	5×9	1.50	47	5×9	1.60	47
2.7				5×9	1.50	52	5×9	1.50	55	5×9	1.60	55
3.3	5×9	1.50	54	5×9	1.50	59	5×9	1.50	62	5×9	1.60	62
3.9	5×9	1.50	54	5×9	1.50	78	5×9	1.50	81	5×9	1.60	81
4.7	5×9	1.50	89	5×9	1.50	98	5×9	1.50	101	5×9	1.60	101
5.6	5×9	1.50	91	5×9	1.50	100	5×9	1.50	106	5×9	1.40	106
6.8	5×9	1.50	94	5×9	1.50	103	5×9	1.50	111	5×9	1.40	111
8.2	5×9	1.50	98	5×9	1.50	109	5×9	1.50	121	5×9	1.40	121
10	5×9	1.50	101	5×9	1.50	111	5×9	1.40	150	5×9	0.80	220
12				5×9	1.50	121	5×9	1.40	163	5×11	0.80	267
12										6.3×9	0.80	267
15	5×9	1.50	121	5×9	1.50	150	5×9	1.10	200	5×11	0.80	267
15										6.3×9	0.80	267
18				5×9	1.1	173	5×9	0.86	240	6.3×9	0.63	267

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■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ω max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ω max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ω max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ω max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
22	5×9	1.10	238	5×9	0.86	228	5×11	0.73	250	6.3×9	0.63	290
22							6.3×9	0.63	267			
27	5×9	0.86	286	5×9	0.58	250	6.3×9	0.63	267	6.3×11	0.63	420
27										8×9	0.63	450
33	5×9	0.58	314	5×11	0.39	300	6.3×9	0.63	267	8×9	0.40	450
33				6.3×9	0.39	344						
39	5×11	0.36	344	6.3×9	0.39	344	6.3×11	0.63	400	8×9	0.28	565
39	6.3×9	0.36	344				8×9	0.63	420			
47	5×11	0.36	344	6.3×9	0.39	385	6.3×11	0.63	420	8×11.5	0.28	585
47	6.3×9	0.34	385				8×9	0.63	470	10×9	0.28	624
56	6.3×9	0.34	385	6.3×11	0.24	492	8×9	0.63	470	8×14	0.25	624
56				8×9	0.24	525				10×9	0.25	624
68	6.3×9	0.34	390	6.3×11	0.24	724	8×9	0.49	520	8×16	0.21	735
68				8×9	0.24	724				10×12.5	0.21	750
82	6.3×11	0.24	487	8×9	0.24	724	8×11.5	0.38	624	8×16	0.19	780
82	8×9	0.24	724				10×9	0.25	668	10×14	0.19	900
100	6.3×11	0.18	687	8×9	0.24	902	8×14	0.21	735	10×14	0.14	1040
100	8×9	0.18	724				10×9	0.19	744			
120	8×9	0.18	800	8×11.5	0.19	902	8×16	0.19	744	10×16	0.12	1170
120				10×9	0.19	979	10×12.5	0.19	892	12.5×14	0.12	1240
150	8×11.5	0.14	950	8×14	0.19	950	10×14	0.15	980	12.5×14	0.0930	1368
150	10×9	0.14	975	10×12.5	0.19	1130						
180	8×14	0.11	1190	8×16	0.19	1190	10×14	0.15	980	12.5×16	0.0660	1530
180	10×12.5	0.11	1230	10×14	0.19	1190						
220	8×14	0.0950	1190	10×14	0.14	1200	10×16	0.13	1040	12.5×20	0.0660	1620
220	10×12.5	0.0950	1230				12.5×14	0.13	1040			
270	8×16	0.0740	1420	10×16	0.0860	1300	10×20	0.0940	1240	12.5×20	0.0560	1750
270	10×14	0.0740	1420	12.5×14	0.0902	1500	12.5×16	0.0940	1240	16×16	0.0640	1750
330	10×14	0.0740	1450	10×16	0.0860	1580	12.5×16	0.0940	1368	12.5×25	0.0470	2140
330				12.5×14	0.0902	1650				16×20	0.0480	2210
390	10×16	0.0580	1580	10×20	0.0660	1870	12.5×20	0.0640	1640	12.5×30	0.0400	2210
390	12.5×14	0.0580	1650	12.5×16	0.0660	1870	16×16	0.0640	1750	16×20	0.0480	2210
470	12.5×14	0.0580	2050	12.5×16	0.0500	2100	12.5×20	0.0640	1750			
470							14.5×16	0.076	1460	16×25	0.0480	2400
470							16×16	0.0480	1750	18×20	0.0420	2270
560	12.5×16	0.0500	2050	12.5×20	0.0473	2410	12.5×25	0.0480	2110	16×25	0.0320	2600
560				16×16	0.0473	2500	16×20	0.0480	2110			
680	12.5×16	0.0500	2250	12.5×25	0.0473	2410	12.5×30	0.0420	2270			
680				14.5×16	0.0560	1620	14.5×20	0.0630	1720			
680							14.5×23	0.0570	1860	16×31.5	0.0300	2860
680				16×16	0.0385	2730	16×20	0.0420	2270	18×25	0.0300	2860
820	12.5×20	0.0390	2410	12.5×30	0.0360	2620				14.5×25	0.0520	1990
820	14.5×16	0.0580	2480				16×25	0.0320	2600	18×31.5	0.0290	3510

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Voltage (V)	50			63			80		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
820	16×16	0.0390	2730	16×20	0.0350	2730	18×20	0.0420	2270
1000	12.5×25	0.0390	2860	14.5×20	0.0480	2180	14.5×27	0.0480	2080
1000				14.5×23	0.0440	2300	16×31.5	0.0300	2860
1000	16×16	0.0390	3010	16×20	0.0350	2860	18×25	0.0340	2470
1200	12.5×25	0.0340	3280	14.5×25	0.0420	2420			
1200	14.5×20	0.0480	2580	16×25	0.0340	2990			
1200	16×20	0.0340	3300	18×20	0.0340	3300	18×25	0.0300	2860
1500	12.5×30	0.0260	3280						
1500	14.5×23	0.0390	2620						
1500	14.5×25	0.0300	2680	14.5×27	0..0390	2540			
1500	16×25	0.0340	3300	16×25	0.0280	3280	18×31.5	0.0290	3510
1800	16×25	0.0280	3300	16×31.5	0.0280	3570			
1800	18×20	0.0280	3300	18×25	0.0280	3570			
2200	14.5×27	0.0280	2780						
2200	18×25	0.0280	3570	18×31.5	0.0260	3670			
2700	18×31.5	0.0260	3670						

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×9	6.05	24									
1.0	5×9	6.05	37	5×9	28.00	68	5×9	28.00	50	5×9	28.00	56
1.2	5×9	6.05	37	5×9	28.00	68	5×9	28.00	55	5×9	28.00	56
1.5	5×9	6.05	43	5×9	28.00	95	5×9	28.00	60	5×9	28.00	56
1.8	5×9	6.05	43	5×9	28.00	95	5×9	28.00	65	5×9	28.00	65
2.2	5×9	1.60	47	5×9	28.00	95	5×9	28.00	75	5×9	28.00	98
2.7	5×9	1.60	55	5×9	28.00	95	5×9	28.00	80	5×9	28.00	98
3.3	5×9	1.60	62	5×9	28.00	95	5×9	28.00	95	5×9	28.00	98
3.9	5×9	1.60	81	5×9	28.00	95	5×9	28.00	95	5×11	23.00	114
3.9										6.3×9	15.60	135
4.7	5×9	1.60	101	5×9	23.00	95	5×11	23.00	104	6.3×9	15.60	135
4.7							6.3×9	15.60	125			
5.6	5×9	1.60	106	5×11	23.00	104	6.3×9	15.60	125	6.3×9	15.60	140
5.6				6.3×9	23.00	110						
6.8	5×11	1.40	111	6.3×9	18.00	125	6.3×9	15.60	140	6.3×11	14.90	140
6.8										8×9	14.90	140
8.2	5×11	1.40	127	6.3×9	18.00	125	6.3×11	14.90	140	6.3×12	12.50	150
8.2							8×9	14.90	140	8×9	12.50	170
10	6.3×9	1.10	220	6.3×11	15.00	132	6.3×12	12.50	160	8×9	10.00	210
10				8×9	15.00	140	8×9	12.50	170			
12	6.3×9	1.10	220	6.3×12	12.50	140	8×11.5	7.00	210	8×11.5	7.00	270

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Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
12				8×9	12.50	150						
15	6.3×11	0.80	267	6.3×12	12.50	140	8×11.5	4.90	256	8×11.5	4.90	270
15	8×9	0.80	267	8×9	12.50	150	10×9	4.90	280	10×9	4.90	280
18	8×9	0.80	267	8×11.5	9.70	160	8×14	3.58	280	8×14	3.58	280
18				10×9	12.50	160	10×12.5	3.58	320	10×12.5	3.58	320
22	8×9	0.80	290	8×11.5	7.90	160	8×16	3.58	320	8×16	3.58	320
22				10×9	7.90	250	10×12.5	3.58	320	10×12.5	3.58	320
27	8×11.5	0.63	420	8×14	7.90	250						
27				10×12.5	7.90	250						
33	8×11.5	0.49	450	8×16	5.90	350	8×23	1.78	603	8×23	1.78	603
33	10×9	0.49	450	10×12.5	5.90	360	10×16	1.78	708	10×16	1.78	708
39	8×14	0.38	565	8×20	5.55	580						
39	10×12.5	0.38	565	10×14	5.55	635						
47	8×16	0.28	585	8×23	5.55	635	10×20	1.46	745	10×20	1.46	850
47	10×12.5	0.28	624	10×16	5.55	680	12.5×16	1.46	960	12.5×16	1.46	960
56	8×20	0.25	624	10×16	5.55	850	10×23	1.46	960	10×23	1.46	960
56	10×14	0.25	624	12.5×14	5.55	850	12.5×16	1.46	960	12.5×16	1.46	960
68	8×23	0.21	735	10×20	5.55	850	12.5×20	1.35	1270	12.5×20	1.35	1270
68	10×16	0.21	750	12.5×14	5.55	850	16×16	1.35	1270	16×16	1.35	1270
82	10×16	0.19	780	10×20	4.36	1020	12.5×20	1.35	1270	12.5×20	1.35	1270
82	12.5×14	0.19	900	12.5×16	4.36	1155	16×16	1.35	1270	16×16	1.35	1270
100	10×20	0.14	1040	12.5×16	4.36	1155	12.5×20	1.35	1360	12.5×25	1.32	1360
100	12.5×16	0.14	1040				16×16	1.35	1270	16×20	1.32	1410
120	10×23	0.12	1170	12.5×20	3.41	1390	12.5×25	1.25	1360	16×20	1.25	1500
120	12.5×16	0.12	1240	16×16	3.01	1420	16×20	1.32	1660			
150	12.5×20	0.0930	1368	12.5×25	3.01	1520	16×20	1.20	1850	16×25	1.25	1800
150				16×20	2.31	1850				18×20	1.25	1920
180	12.5×25	0.0660	1530	12.5×30	2.31	1850	16×25	0.95	2020	16×31.5	0.95	2250
180				16×20	2.31	1850	18×20	0.95	2020	18×25	0.95	2250
220	16×20	0.0660	1620	16×25	1.88	2400	18×25	0.91	2380	18×31.5	0.91	2625
220				18×20	1.88	2320						
270	12.5×30	0.0560	1750	16×31.5	1.80	2715						
270	16×20	0.0640	1750	18×25	0.98	2660						
330	16×25	0.0470	2140	18×25	0.98	2660						
330	18×20	0.0480	2140									
390	16×31.5	0.0400	2210	18×31.5	0.91	2715						
390	18×25	0.0400	2210									
470	16×31.5	0.0400	2270									
470	18×25	0.0400	2270									
560	16×35.5	0.0320	2600									
560	18×31.5	0.0320	2600									
680	18×35.5	0.0300	2860									

LKM

■ List of Standard Products

Voltage (V)	350			400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	5×9	55.00	73	5×9	55.00	73	5×9	55.00	73	6.3×9	52.00	45
1.2	5×9	36.00	90	5×9	36.00	76	5×9	52.00	78	6.3×9	52.00	45
1.5	5×9	36.00	90	5×9	36.00	76	5×11	52.00	81	6.3×9	52.00	45
1.5							6.3×9	52.00	90			
1.8	5×9	36.00	95	5×9	36.00	87	6.3×9	52.00	95	8×9	45.00	80
2.2	5×11	36.00	104	6.3×9	29.00	105	6.3×9	42.00	100	8×9	45.00	80
2.2	6.3×9	36.00	125									
2.7	6.3×9	26.00	125	6.3×9	26.00	125	6.3×9	42.00	100	8×11.5	18.50	85
3.3	6.3×9	23.00	131	6.3×9	25.00	131	6.3×12	25.00	120	8×11.5	18.50	85
3.3							8×9	25.00	120			
3.9	6.3×11	17.00	131	6.3×11	25.00	140	8×9	25.00	135	8×14	13.00	85
3.9	8×9	17.00	131	8×9	23.50	140						
4.7	6.3×11	17.00	140	6.3×12	23.50	140	8×11.5	18.50	135	8×16	13.00	130
4.7	8×9	17.00	140	8×9	23.50	140	10×9	18.50	135			
5.6	8×9	17.00	140	8×11.5	15.00	200	8×14	15.00	140	10×14	13.00	130
5.6				10×9	15.00	220	10×9	13.50	140			
6.8	8×11.5	15.00	200	8×11.5	15.00	210	8×16	8.05	220	10×14	13.00	130
6.8	10×9	17.00	210	10×9	15.00	250	10×12.5	12.00	200			
8.2	8×14	11.25	220	8×14	11.00	250	8×16	8.05	220	10×14	11.00	240
8.2	10×9	15.00	250	10×9	11.00	270	10×12.5	12.00	200			
10	8×14	8.05	250	8×16	8.05	270	8×20	8.05	260	8×23	11.00	240
10	10×12.5	11.00	270	10×12.5	11.00	270	10×14	8.05	350	10×16	10.00	260
12	8×20	9.00	360	10×14	9.00	340	10×16	7.90	370	12.5×14	9.50	265
15	8×20	6.50	360	10×14	8.50	340	10×16	7.70	370	12.5×16	8.00	270
15	10×14	6.50	460				12.5×14	7.70	370			
18	10×16	6.50	480	10×16	6.50	360	12.5×16	6.70	410	12.5×16	7.00	470
18	12.5×14	6.50	585	12.5×14	6.50	360						
22	10×20	6.50	585	10×20	6.50	570	12.5×16	6.70	450	12.5×20	7.00	470
22	12.5×14	6.50	585	12.5×16	6.50	570						

LKM

■ List of Standard Products

Voltage (V)	350			400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
33	12.5×16	6.50	960	12.5×20	3.25	850	12.5×20	3.05	710	12.5×25	5.50	700
33				16×16	3.25	900	16×16	3.05	740	16×20	3.50	700
47	12.5×20	2.25	1115	12.5×25	2.25	1100	12.5×30	1.60	1215	16×25	2.50	720
47	16×16	2.25	1060	16×20	2.25	1155	16×20	1.60	1215			
56	12.5×25	2.25	1115	12.5×25	2.25	1155	16×25	1.60	1215	16×31.5	2.30	840
56	16×20	2.25	1155	16×20	2.25	1400	18×20	1.60	1215	18×25	2.30	840
68	12.5×30	2.25	1115	16×25	1.60	1460	16×31.5	1.60	1215	18×25	2.30	840
68	16×20	2.25	1400	18×20	1.60	1530	18×25	1.60	1300			
82	16×25	1.60	1550	16×31.5	1.60	1740	16×35.5	1.35	1675	18×31.5	1.80	1100
82	18×20	1.60	1530	18×25	1.60	1740	18×25	1.45	1700			
100	16×25	1.60	2230	18×25	1.60	1740	18×31.5	1.35	1800	18×35.5	1.50	1150
120	18×25	1.60	2305	18×31.5	1.50	2305	18×35.5	1.25	1930	18×40	1.40	1200
150	18×31.5	1.50	2720	18×35.5	1.50	3330	18×40	1.15	2350			

LKG

◆Long lifespan, high frequency and high ripple current resistant, high frequency and low impedance, dedicated power supply product

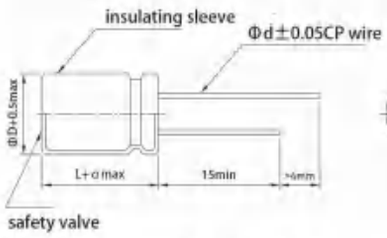
◆8000~12000 hours at 105℃

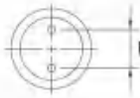
◆Compliant with AEC-Q200 RoHS directive

■ Main technical parameters

project	characteristic
Operating Temperature Range	≦120V －55~+105℃ ; 160~500V －40~+105℃
Nominal Voltage Range	10~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~120WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V) 10 16 25 35 50 63 80 100 tg δ 0.19 0.16 0.14 0.12 0.10 0.09 0.09 0.09 Rated voltage (V) 120 160 200 250 350 400 450 500 tg δ 0.09 0.09 0.08 0.08 0.10 0.10 0.12 0.20 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V) 10 16 25 35 50 63 80 100 Impedance ratio Z(－40℃)/Z(20℃) 6 4 3 3 3 3 3 3 Rated voltage (V) 120 160 200 250 350 400 450 500 Impedance ratio Z(－40℃)/Z(20℃) 5 5 5 5 7 7 7 8
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below the specified value Load life: 10~120WV: Φ5 8000h; Φ6.3 10000h; ≧Φ8 12000h; 160~500WV: Φ5~Φ6.3 10000h ≧Φ8 12000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)





L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

D	5	6.3	8	10	12.5~13	12.5~13(h≧30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

Note: Products ≥ Φ6.3 have a safety valve.

■ Ripple current compensation coefficient

① Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

② Temperature correction factor

Ambient temperature (° C)	50℃	70℃	85℃	105℃
Correction factor	2.1	1.8	1.4	1.0

LKG

■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10	5×9	1.05	57	5×9	1.05	72	5×9	1.05	92	5×9	1.50	102
15	5×9	1.05	77	5×9	1.05	92	5×9	1.05	112	5×9	1.50	122
22	5×9	0.40	92	5×9	0.4	112	5×9	0.40	122	5×9	1.50	170
33	5×9	0.40	107	5×9	0.4	122	5×9	0.40	152	5×9	0.40	220
39	5×9	0.40	137	5×9	0.4	152	5×9	0.40	182	5×11	0.36	240
47	5×9	0.25	144	5×9	0.25	162	5×9	0.25	212	5×11	0.32	350
56	5×9	0.25	152	5×9	0.25	172	5×9	0.25	320	6.3×9	0.32	495
68	5×9	0.25	162	5×9	0.25	182	5×11	0.23	350	6.3×11	0.260	550
68										8×9	0.260	580
82	5×9	0.25	172	5×9	0.25	212	6.3×9	0.20	550	6.3×11	0.250	550
82										8×9	0.250	580
100	5×9	0.25	182	5×11	0.23	350	6.3×9	0.20	550	6.3×11	0.250	550
100										8×9	0.250	580
120	5×9	0.25	320	5×11	0.23	550	6.3×11	0.0980	550	8×9	0.250	864
120							8×9	0.0980	580			
150	5×11	0.23	350	6.3×9	0.20	550	6.3×11	0.0980	550	8×11.5	0.0980	960
150							8×9	0.0980	580	10×9	0.0980	980
180	5×11	0.23	350	6.3×9	0.1600	550	8×9	0.0980	864	8×11.5	0.0980	960
180										10×9	0.0980	980
220	6.3×9	0.20	550	6.3×11	0.0980	550	8×11.5	0.0608	960	8×11.5	0.0980	1270
220				8×9	0.0980	580	10×9	0.0608	980			
270	6.3×9	0.1600	550	8×9	0.0980	580	8×11.5	0.0608	960	8×16	0.0700	1270
270							10×9	0.0608	980	10×12.5	0.0629	1330
330	6.3×11	0.0980	550	8×9	0.0980	864	8×14	0.0532	960	10×12.5	0.0629	1330
330	8×9	0.0980	580									
390	8×9	0.0980	580	8×11.5	0.0608	960	8×16	0.0485	1270	8×20	0.0550	1720
390				10×9	0.0608	980	10×12.5	0.0485	1270	10×16	0.0550	1850
470	8×9	0.0980	864	8×11.5	0.0608	960	10×12.5	0.0429	1330	10×16	0.0550	1850
470				10×9	0.0608	980				12.5×14	0.0550	1890
560	8×11.5	0.0608	960	8×16	0.0485	1270	8×20	0.0313	1530	10×20	0.0480	2250
560	10×9	0.0608	980	10×9	0.0485	1330	10×14	0.0313	1850	12.5×16	0.0480	2330
680	8×11.5	0.0608	960	8×16	0.0485	1270	10×16	0.0308	1850	10×23	0.0398	2330
680	10×9	0.0608	980	10×12.5	0.0429	1330				12.5×20	0.0350	2330
820	8×14	0.0585	1170	8×20	0.0313	1530	10×20	0.0280	2250	12.5×20	0.0280	2480
820	10×12.5	0.0608	1270	10×14	0.0313	1850	12.5×16	0.0350	2330			
1000	8×16	0.0485	1270	8×20	0.0313	1530	10×20	0.0280	2330	12.5×20	0.0280	2480
1000	10×12.5	0.0429	1330	10×16	0.0308	1850	12.5×16	0.0350	2330			
1200	8×20	0.0313	1530	10×16	0.0308	1960	12.5×20	0.0280	2480	12.5×25	0.0265	2900
1200	10×14	0.0308	1760							14.5×16	0.0580	1467

LKG

■ List of Standard Products

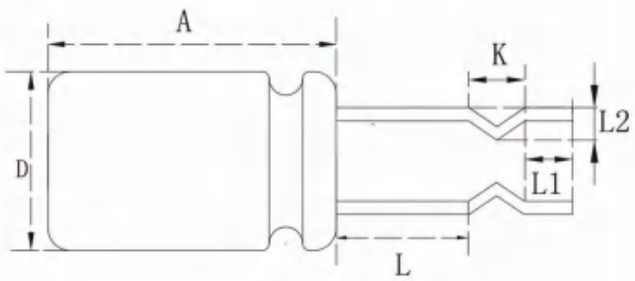
Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1500	8×20	0.0313	1530	10×20	0.0280	1960	12.5×20	0.0280	2480	12.5×30	0.0243	3450
1500	10×16	0.0308	1850	12.5×16	0.0350	2330				14.5×20	0.0450	1620
1500										16×20	0.0265	3250
1800	10×20	0.0280	1960	10×20	0.0280	2250	12.5×25	0.0230	2900	12.5×35	0.0220	3570
1800	12.5×16	0.0201	2330	12.5×16	0.0280	2480	14.5×16	0.1350	1944	14.5×23	0.0320	1845
1800										16×25	0.0243	3630
2200	10×20	0.0280	1960	12.5×20	0.0280	2480	12.5×25	0.0143	3450	14.5×25	0.0180	2088
2200	12.5×16	0.0201	2330				14.5×20	0.1120	2124	16×25	0.0243	3630
2200							16×20	0.0165	3250			
2700	10×23	0.0198	2250	12.5×20	0.0218	2900	12.5×35	0.0132	3570	14.5×27	0.0120	2385
2700	12.5×20	0.0280	2480	14.5×16	0.0810	1935	14.5×23	0.0950	2358	16×35.5	0.0210	4010
2700							16×25	0.0143	3630	18×31.5	0.0210	4180
3300	12.5×20	0.0280	2480	12.5×25	0.0165	3450	12.5×40	0.0121	3890	16×40	0.0210	4220
3300				14.5×20	0.0680	2232	14.5×25	0.0800	2520	18×35.5	0.0160	4220
3300							16×25	0.0143	3630			
3900	12.5×25	0.0165	2900	12.5×30	0.0143	3450	14.5×27	0.0660	2718	18×35.5	0.0160	4500
3900	14.5×16	0.0720	1890	16×20	0.0165	3250	16×31.5	0.0121	3890			
3900							18×25	0.0132	3650			
4700	12.5×30	0.0143	3450	12.5×30	0.0143	3570	16×31.5	0.0110	4010			
4700	14.5×20	0.0600	2160	14.5×23	0.0580	2475	18×25	0.0110	4180			
4700	16×20	0.0165	3450	16×25	0.0143	3630						
5600	12.5×30	0.0143	3570	14.5×25	0.0480	2745	18×35.5	0.0100	4220			
5600	14.5×23	0.0480	2385	16×31.5	0.0121	3890						
5600	16×20	0.0165	3250	18×25	0.0132	3650						
6800	12.5×35	0.0132	3570	14.5×27	0.0350	2880	18×40	0.0100	4500			
6800	14.5×25	0.0400	2592	16×31.5	0.0121	3890						
6800	16×25	0.0143	3630	18×25	0.0132	3650						
8200	14.5×27	0.0320	2745									
8200	16×31.5	0.0121	3890	16×35.5	0.0110	4010						
8200	18×25	0.0132	3650	18×31.5	0.0110	4010						
10000	16×31.5	0.0121	3890	18×35.5	0.0100	4080						
10000	18×25	0.0132	3650									

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×9	4.00	22	5×9	3.00	24	5×9	3.00	25	5×9	3.00	25
1.0	5×9	4.00	32	5×9	3.00	35	5×9	3.00	36	5×9	3.00	36
1.2	5×9	4.00	32	5×9	3.00	35	5×9	3.00	36	5×9	3.00	36
1.5	5×9	4.00	38	5×9	3.00	42	5×9	3.00	44	5×9	3.00	44
1.8	5×9	4.00	38	5×9	3.00	42	5×9	3.00	44	5×9	3.00	44

Cutting and braiding product specifications

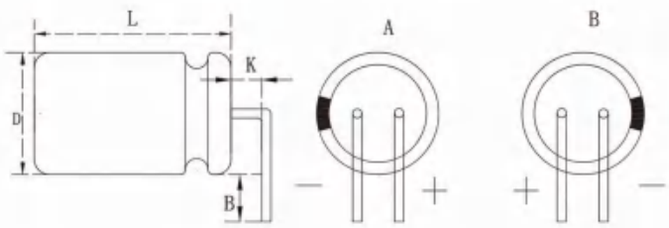
This specification applies to the lead-cutting and tape-forming aluminum electrolytic capacitor products manufactured by our company, including technical requirements, judgment criteria, and acceptance specifications.

Lead cutting and shaping diagram E



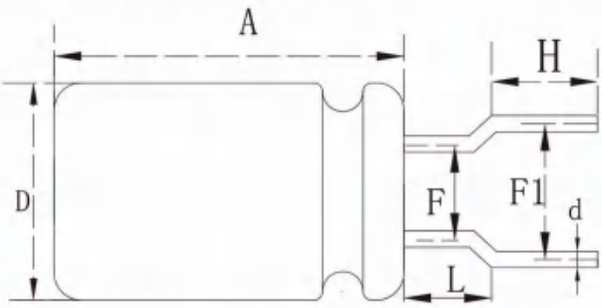
D	A	L±0.5	K±0.5	L2±0.3	L1±0.5	Notes
≤Φ12.5	≤25	2.5~22	2.5	1.5	2.0~5.0	Internal K-forming

Lead wire cutting and forming diagram F (forming bend 90°)



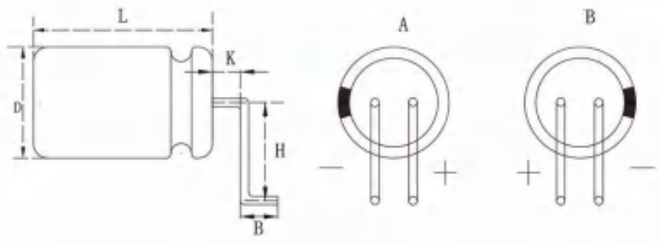
D	Φ5~Φ14.5	Φ16~Φ18	error
K	2.0	2.5	±0.5
B	2.0~10		±0.5
type	A/B		/

Lead cutting and shaping diagram G



D	Φ5			Φ6.3		Φ8	error
d	0.5			0.5		0.6	±0.05
F	2.0			2.5		3.5	±0.5
F1	2.5	3.5	5.0	3.5	5.0	5.0	±0.5
L	2.5			2.5		2.5	±0.5
H	2.0~10						±0.5

Lead wire cutting and forming H diagram (forming double bend 90°)



D	Φ5	Φ6.3	Φ8	Φ10	Φ12.5	error
K	2.0	2.0	2.0	2.0	2.0	±0.5
H	7.0	7.0	7.0	7.0	7.0	±0.5
B	2.0~10					±0.5
type	A/B					/

LKG

■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
2.2	5×9	1.50	40	5×9	3.00	46	5×9	3.00	48	5×9	3.00	48
2.7	5×9	1.50	40	5×9	3.00	56	5×9	3.00	56	5×9	3.00	56
3.3	5×9	1.50	55	5×9	3.00	60	5×9	3.00	63	5×9	3.00	63
3.9	5×9	1.50	55	5×9	3.00	79	5×9	3.00	82	5×9	1.35	82
4.7	5×9	1.50	90	5×9	3.00	99	5×9	3.00	102	5×9	1.35	102
5.6	5×9	1.50	92	5×9	3.00	101	5×9	3.00	107	5×11	1.12	107
6.8	5×9	1.50	95	5×9	3.00	105	5×9	3.00	112	5×11	1.12	112
8.2	5×9	1.50	97	5×9	3.00	110	5×9	1.35	127	5×11	0.88	127
10	5×9	1.50	102	5×9	3.00	112	5×11	1.35	170	6.3×9	0.88	275
12	5×9	1.50	122	5×9	3.00	122	5×11	0.78	248	6.3×11	0.78	300
12										8×9	0.78	300
15	5×9	1.50	122	5×9	1.35	170	6.3×9	0.61	275	6.3×11	0.78	400
15										8×9	0.78	416
18	5×9	1.05	170	5×11	0.78	278	6.3×9	0.61	275	6.3×11	0.61	400
18										8×9	0.61	416
22	5×11	0.95	180	6.3×9	0.74	356	6.3×11	0.78	400	8×11.5	0.39	462
22							8×9	0.78	416	10×9	0.39	500
27	5×11	0.95	180	6.3×9	0.61	356	6.3×11	0.78	400	8×11.5	0.27	585
27							8×9	0.78	416	10×9	0.27	624
33	6.3×9	0.74	356	6.3×11	0.38	400	6.3×11	0.61	400	8×11.5	0.27	585
33				8×9	0.38	482	8×9	0.61	416	10×9	0.27	624
39	6.3×9	0.62	356	6.3×11	0.38	400	8×11.5	0.39	462	8×16	0.27	585
39				8×9	0.38	482	10×9	0.61	500	10×12.5	0.27	624
47	6.3×11	0.32	356	6.3×11	0.32	520	8×11.5	0.39	462	8×16	0.27	585
47	8×9	0.26	395	8×9	0.24	520	10×9	0.61	500	10×12.5	0.27	624
56	6.3×11	0.21	666	8×9	0.24	520	8×11.5	0.27	585	10×12.5	0.25	750
56	8×9	0.21	666				10×9	0.28	585			
68	8×9	0.21	666	8×11.5	0.23	520	8×16	0.27	585	8×20	0.20	770
68				10×9	0.24	535	10×12.5	0.25	624	10×14	0.19	780
82	8×11.5	0.15	740	8×11.5	0.17	722	8×20	0.25	624	10×16	0.19	780
82	10×9	0.15	666	10×9	0.17	650	10×12.5	0.25	624	12.5×14	0.18	858
100	8×11.5	0.15	740	8×16	0.17	722	8×20	0.20	800	10×20	0.13	1040
100	10×9	0.15	666	10×12.5	0.17	722	10×16	0.19	780	12.5×16	0.14	975
120	8×14	0.13	970	8×16	0.17	722	10×16	0.19	780	10×23	0.12	1170
120	10×12.5	0.13	985	10×12.5	0.17	722	12.5×14	0.18	858	12.5×20	0.0930	1430
150	8×16	0.11	970	8×20	0.12	890	10×20	0.13	1040	12.5×20	0.0930	1430
150	10×12.5	0.11	985	10×16	0.12	998	12.5×16	0.14	975			
180	8×20	0.10	1220	10×16	0.12	998	10×20	0.13	1040	12.5×25	0.0660	1620
180	10×14	0.10	1370				12.5×16	0.14	975			
220	8×20	0.0500	1220	10×20	0.0860	1200				12.5×25	0.0660	1620
220	10×16	0.0460	1370	12.5×16	0.0804	1250	12.5×20	0.0940	1430	14.5×16	0.35	1040
270	10×20	0.0420	1580	10×20	0.0860	1200	12.5×20	0.0940	1430	12.5×30	0.0560	1950
270	12.5×14	0.0500	1752	12.5×16	0.0804	1250				14.5×20	0.31	1098
270										16×20	0.0640	1750
330	10×20	0.0420	1580	10×23	0.0760	1410	12.5×20	0.0660	1620	12.5×35	0.0470	2140
330							14.5×16	0.0760	945	14.5×23	0.23	1206

LKG

■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
330	12.5×16	0.0500	1752	12.5×20	0.0660	1570				16×25	0.0480	2210
390	10×20	0.0420	1870	12.5×20	0.0660	1570	12.5×30	0.0560	1950	12.5×40	0.0400	2340
390							14.5×20	0.0630	1044	14.5×25	0.1900	1314
390							16×20	0.0640	1750	16×25	0.0480	2210
470	12.5×20	0.0560	2050	12.5×25	0.0470	1990	12.5×35	0.0470	2140	14.5×27	0.1500	1422
470				14.5×16	1.12	1350	14.5×23	0.0570	1125	16×31.5	0.0360	2400
470							16×25	0.0480	2210	18×25	0.0420	2270
560	12.5×20	0.0560	2410	12.5×30	0.0390	2410	12.5×40	0.0400	2340	16×35.5	0.0320	2600
560				14.5×20	0.9500	1422	14.5×25	0.0520	1188	18×31.5	0.0340	2470
560				16×20	0.0390	2410	16×25	0.0480	2210			
680	12.5×25	0.0560	2410	12.5×30	0.0360	2620	14.5×27	0.0480	1260	16×40	0.0300	2860
680	14.5×16	0.1350	1485	14.5×23	0.7800	1449	16×31.5	0.0360	2400	18×35.5	0.0300	2860
680				16×25	0.0350	2730	18×25	0.0420	2270			
820	12.5×25	0.0450	2960	12.5×35	0.0300	2940	16×35.5	0.0320	2600	18×40	0.0285	3510
820	14.5×20	0.1120	1737	14.5×25	0.6000	1530	18×25	0.0420	2270			
820	16×20	0.0420	2730	16×25	0.0350	2730						
1000	12.5×30	0.0350	2960	14.5×27	0.4500	1665	16×40	0.0300	2860			
1000	14.5×23	0.0950	1908	16×31.5	0.0260	2990	18×31.5	0.0340	2470			
1000	16×25	0.0350	3010	18×25	0.0340	2800						
1200	14.5×25	0.0700	2034	16×31.5	0.0260	2990	18×35.5	0.0300	2860			
1200	16×31.5	0.0247	3280	18×25	0.0340	2800						
1200	18×25	0.0323	3060									
1500	14.5×27	0.0500	2088	16×35.5	0.0230	3040	18×40	0.0285	3510			
1500	16×31.5	0.0247	3280	18×31.5	0.0280	3300						
1500	18×25	0.0323	3300									
1800	16×35.5	0.0218	3040	16×40	0.0210	3570						
1800	18×31.5	0.0266	3300	18×35.5	0.0220	3570						
2200	18×35.5	0.0210	3570	18×40	0.0285	3900						
2700	18×40	0.0200	3900									

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×9	3.00	25									
1.0	5×9	3.00	38	5×11	27.00	52	5×11	27.00	52	6.3×9	26.00	72
1.2	5×9	3.00	38	5×11	27.00	57	5×11	27.00	57	6.3×9	26.00	72
1.5	5×9	3.00	44	5×11	27.00	64	5×11	27.00	64	6.3×9	26.00	72
1.8	5×9	3.00	44	5×11	27.00	70	5×11	27.00	70	6.3×9	26.00	108
2.2	5×9	3.00	48	5×11	27.00	77	5×11	27.00	77	6.3×9	26.00	117
2.7	5×9	3.00	56	5×11	27.00	85	5×11	27.00	85	6.3×9	26.00	117
3.3	5×9	3.00	63	5×11	27.00	95	6.3×9	26.00	108	6.3×9	10.15	140
3.9	5×11	1.35	82	5×11	21.00	108	6.3×9	16.00	108	6.3×11	10.15	140
3.9										8×9	10.15	144
4.7	5×11	1.35	102	6.3×9	21.00	108	6.3×11	10.15	130	6.3×11	10.15	144

LKG

■ List of Standard Products

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ω max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ω max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ω max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ω max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
4.7							8×9	10.15	153	8×9	10.15	144
5.6	6.3×9	1.12	107	6.3×9	12.78	130	6.3×11	10.15	130	8×9	10.15	144
5.6							8×9	10.15	153			
6.8	6.3×9	1.12	112	6.3×11	12.78	130	8×9	10.15	153	8×9	10.15	160
6.8				8×9	12.78	117						
8.2	6.3×9	1.12	127	8×9	12.78	140	8×9	10.15	160	8×11.5	10.15	160
8.2										10×9	10.15	144
10	6.3×11	0.88	275	8×9	12.78	140	8×11.5	10.15	170	8×11.5	9.50	290
10							10×9	10.15	180	10×9	9.50	365
12	8×9	0.80	300	8×11.5	10.15	168	8×14	8.5	270	8×14	8.5	270
12				10×9	10.15	168						
15	8×11.5	0.78	358	8×11.5	10.00	261	8×16	3.65	290	8×16	3.65	290
15	10×9	0.78	358	10×9	10.00	261	10×12.5	4.50	365	10×12.5	3.24	380
18	8×11.5	0.61	358	8×14	7.50	290	8×20	3.24	370	8×20	3.24	370
18	10×9	0.61	358	10×9	7.50	261	10× 14	3.24	380	10×14	3.24	400
22	8×14	0.48	450	8×14	7.50	350	8×20	3.24	370	8×20	3.24	370
22	10×9	0.48	450	10×12.5	7.50	380	10×14	3.24	400	10×14	3.24	400
27	8×16	0.37	550	8×16	2.65	350						
27	10×12.5	0.37	550	10×12.5	2.65	380						
33	8×16	0.37	585	8×20	2.65	650	10×20	1.65	650	10×20	1.65	650
33	10×12.5	0.37	585	10×14	2.65	760	12.5×14	1.65	760	12.5×14	1.65	760
39	8×20	0.28	624	10×16	2.65	650						
39	10×14	0.28	624	12.5×14	2.65	760						
47	10×14	0.28	624	10×20	2.65	750	12.5×20	1.38	980	12.5×20	1.38	980
47				12.5×14	2.65	760						
56	10×16	0.25	750	10×20	2.65	920	12.5×20	1.38	980	12.5×20	1.38	980
56	12.5×14	0.25	750	12.5×16	2.27	1180						
68	10×20	0.21	770	12.5×16	2.27	1280	12.5×25	1.25	1300	12.5×25	1.25	1300
68	12.5×14	0.21	780				16×20	1.25	1420	14.5×16	1.98	558
68										16×20	1.25	1420
82	12.5×16	0.19	900	12.5×20	2.27	1280	12.5×25	1.25	1390	12.5×30	1.15	1390
82							14.5×16	1.98	612	14.5×20	1.85	612
82							16×20	1.18	1420	16×20	1.18	1420
100	12.5×20	0.13	1040	12.5×20	2.27	1280	12.5×30	1.15	1390	14.5×23	1.70	675
100				14.5×16	4.20	770	14.5×20	1.60	675	16×25	1.18	1950
100							16×20	1.18	1420	18×20	1.02	1950
120	12.5×20	0.12	1240	12.5×25	1.43	1550	12.5×30	1.15	1420	14.5×25	1.30	747
120				14.5×20	3.85	882	14.5×23	1.52	738	16×31.5	0.98	1990
120				16×20	1.25	1420	16×25	1.18	1950	18×20	1.02	1950
150	12.5×25	0.0930	1430	12.5×30	1.43	1960	14.5×25	1.35	855	14.5×27	1.20	819
150	16×20	0.0930	1430	14.5×23	3.61	972	16×25	1.18	1950	16×31.5	0.98	2030
150				16×25	1.43	1890				18×25	0.98	2030
180	16×20	0.0930	1530	16×25	1.43	1890	14.5×27	1.22	918	16×35.5	0.80	2300
180							16×35.5	0.80	2300	18×31.5	0.80	2300
180							18×31.5	0.80	2300			

LKG

■ List of Standard Products

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
220	16×25	0.0660	1750	16×31.5	1.14	2450	18×31.5	0.80	2300	18×35.5	0.74	2680
220	18×20	0.0660	1750	14.5×25	3.42	1044						
220				18×25	1.14	2370						
270	16×31.5	0.0560	1950	14.5×27	3.15	1107						
270	18×25	0.0640	1950	16×31.5	1.14	2450						
330	16×31.5	0.0470	2210	18×31.5	1.10	3200						
330	18×25	0.0480	2210									
390	16×35.5	0.0400	2430	18×35.5	0.95	3450						
390	18×31.5	0.0400	2430									
470	18×35.5	0.0320	2600									
560	18×40	0.0320	2860									

Voltage (V)	350			400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	6.3×9	55.00	81	6.3×9	55.00	77	6.3×9	55.00	81	6.3×12	55.00	48
1.2	6.3×9	34.00	99	6.3×9	34.00	81	6.3×9	50.00	81	6.3×12	50.00	48
1.5	6.3×9	34.00	99	6.3×9	34.00	81	6.3×9	50.00	81	6.3×12	50.00	48
1.8	6.3×9	34.00	99	6.3×9	34.00	81	6.3×11	45.00	86	8×11.5	45.00	84
1.8							8×9	38.00	86			
2.2	6.3×9	34.00	130	6.3×9	28.00	100	8×9	38.00	95	8×11.5	16.50	90
2.7	6.3×11	23.00	144	8×9	23.00	144	8×9	38.00	126	8×14	12.00	110
2.7	8×9	23.00	144									
3.3	8×9	16.00	144	8×9	16.00	160	8×11.5	28.00	140	8×14	12.00	110
3.3							10×9	28.00	150			
3.9	8×9	16.00	155	8×11.5	16.00	160	8×11.5	28.00	140	8×16	12.00	130
3.9				10×9	16.00	220	10×9	28.00	150			
4.7	8×11.5	16.00	155	8×11.5	16.00	160	8×14	21.80	175	8×20	12.00	130
4.7	10×9	16.00	180	10×9	16.00	220	10×9	18.50	180			
5.6	8×11.5	12.50	200	8×14	12.50	240	8×16	12.50	190	10×16	12.00	140
5.6	10×9	16.00	170	10×12.5	12.50	250	10×12.5	12.50	200			
6.8	8×14	10.50	220	8×16	10.50	270	8×20	9.80	230	10×16	11.00	250
6.8	10×9	12.50	240	10×12.5	10.50	280	10×14	9.80	210			
8.2	8×16	7.50	290	8×20	7.50	290	8×20	6.20	230	10×20	11.00	250
8.2	10×12.5	12.50	315	10×14	7.50	315	10×14	6.20	280			
10	8×20	12.50	290	8×20	7.50	315	10×16	6.20	280	10×20	10.00	280
10	10×14	7.50	350	10×14	7.50	350	12.5×14	6.20	360	12.5×14	7.00	320

LKG

■ List of Standard Products

Voltage (V)	350			400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
12	10×16	6.20	370	10×20	6.20	490	10×20	6.20	410	12.5×16	6.50	420
15	10×16	6.20	370	10×20	6.20	490	10×20	6.20	410	12.5×20	6.00	480
15	12.5×14	6.20	490	12.5×16	6.20	550	12.5×16	6.20	460			
18	10×20	6.20	490				12.5×20	4.50	500	12.5×25	6.00	480
18	12.5×14	6.20	510	12.5×16	6.20	550						
22	10×20	6.20	550	12.5×20	6.20	1000	12.5×20	4.25	500	12.5×25	4.50	520
22	12.5×16	6.20	1060									
27										14.5×16	3.10	558
33	12.5×20	2.25	1060	12.5×25	4.00	1060	12.5×30	2.82	770	12.5×35	2.20	740
33				16×20	3.00	1150	14.5×16	3.10	630	14.5×20	2.90	572
33							16×20	3.00	730	16×25	2.20	740
39				14.5×16	3.10	657	14.5×20	2.80	684	14.5×23	2.50	585
47	12.5×25	2.25	1150	12.5×30	2.00	1180	14.5×23	2.50	729	14.5×25	2.30	594
47	16×20	2.25	1150	14.5×20	2.82	720	16×25	2.82	1240	16×31.5	2.00	850
47				16×25	2.00	1180	18×20	2.82	1200			
56	12.5×30	2.02	1220	14.5×23	2.35	774	14.5×25	2.20	855	14.5×27	2.15	612
56	16×25	2.02	1320	16×25	1.82	1580	16×31.5	1.50	1240	16×35.5	2.00	850
56				18×20	1.82	1530	18×25	1.50	1200	18×31.5	2.00	850
68	16×25	1.38	1580	14.5×25	1.65	828	14.5×27	2.00	900	18×31.5	1.80	1200
68	18×20	1.38	1530	16×31.5	1.38	1580	16×35.5	1.25	1400			
68				18×25	1.38	1530	18×31.5	1.25	1460			
82	16×31.5	1.38	1580	14.5×27	1.35	882	16×40	1.25	1460	18×35.5	1.50	1200
82	18×25	1.38	1530	16×35.5	1.25	2280	18×31.5	1.25	1460			
82				18×31.5	1.25	2280						
100	16×35.5	1.25	1945	18×31.5	1.07	2580	18×35.5	0.90	1970	18×40	1.25	1200
100	18×31.5	1.25	2280									
120	18×31.5	1.25	2780	18×35.5	0.95	2850	18×40	0.90	1970	18×45	0.98	1268
150	18×35.5	0.97	2850	18×40	0.95	2980	18×45	0.85	2080			

LKZ

◆Long lifespan, high frequency, low impedance, low temperature start-up; ideal for streetlights, outdoor lights, and high-end power supplies.

◆12,000~15,000 hours of operation at 105℃.

◆Compliant with AEC-Q200 RoHS directive.

■ Main technical parameters

project	characteristic
Operating Temperature Range	≤120V －55~+105℃；160~500V －40~+105℃，550~600V －25~+105℃
Nominal Voltage Range	10~600V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~120V, I≤0.01CV or 3μA (whichever is greater), C: Nominal capacitance (μF), V: Rated voltage (V), Reading after 2 minutes. 160~500V I≤0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes 550~600V I≤0.05CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Rated voltage (V)	10	16	25	35	50	63	80	100	120
tg δ	0.19	0.16	0.14	0.12	0.12	0.12	0.10	0.10	0.10
Rated voltage (V)	160	200	250	350	400	450	500	550	600
tg δ	0.12	0.15	0.15	0.18	0.20	0.20	0.24	0.25	0.30

Rated voltage (V)	10	16	25	35	50	63	80	100	120
Impedance ratio Z(－40℃)/Z(20℃)	6	4	3	3	3	3	3	3	5
Rated voltage (V)	160	200	250	350	400	450	500	550	600
Impedance ratio Z(－40℃)/Z(20℃)	5	5	5	7	7	7	8	16	18

Durability

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

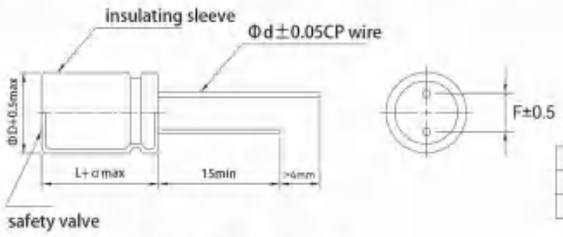
Capacity change rate	Within ±20% of the initial value	
Loss tangent	Below 200% of the specified value	
Leakage current	Below the specified value	
Load life	Φ8~Φ10	12000h
	≧Φ12.5	15000h

High Temperature Storage

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)



L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

D	8	10	12.5~13	12.5~13(h≧30)	14.5	16	18	20	22	25
d	0.6	0.6	0.7	0.6	0.8	0.8	0.8	0.8	1.0	1.0
F	3.5	5.0	5.0	5.0	7.5	7.5	7.5	10	10	10

Note: Products ≥ Φ6.3 have a safety valve.

■ Ripple current compensation coefficient

① Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

② Temperature correction factor

Ambient temperature (° C)	50℃	70℃	85℃	105℃
Correction factor	2.1	1.8	1.4	1.0

LKZ

■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ω max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ω max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ω max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ω max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
150										8×11.5	3.600	1008
150										10×9	3.500	1029
180										8×14	2.820	1008
180										10×9	2.820	1029
220							8×11.5	3.600	1008	8×16	2.500	1334
220							10×9	3.500	1029	10×12.5	2.500	1334
270							8×11.5	3.500	1008	8×16	1.9530	1334
270							10×9	3.500	1029	10×12.5	1.9530	1397
330							8×14	2.200	1008	10×12.5	1.9530	1397
390				8×11.5	3.600	1008	8×16	0.2800	1334	10×16	1.5258	1943
390				10×9	3.500	1029	10×12.5	0.2800	1334			
470				8×11.5	2.820	1008	10×12.5	0.2800	1397	10×16	1.1920	1943
470				10×9	2.820	1029						
560	8×11.5	0.2180	1008	8×16	0.2800	1334	8×20	0.2500	1607	10×20	0.1150	2363
560	10×9	0.2180	1029	10×12.5	0.2800	1397	10×16	0.2500	1943	12.5×16	0.1150	2447
680	8×11.5	0.2180	1008	8×16	0.2800	1334	10×16	0.2500	1943	10×23	0.1100	2447
680	10×9	0.2180	1029	10×12.5	0.2800	1397				12.5×16	0.1150	2447
820	8×14	0.1702	1229	8×20	0.2188	1607	10×20	0.1953	2363	12.5×20	0.0950	2604
820	10×12.5	0.1702	1334	10×16	0.2188	1943	12.5×16	0.1953	2447			
1000	8×16	0.1330	1334	8×20	0.1708	1607	10×23	0.1526	2447	12.5×20	0.0950	2604
1000	10×12.5	0.1330	1397	10×16	0.1708	1943	12.5×16	0.1526	2447			
1200	8×20	0.1039	1607	10×20	0.0730	2058	12.5×20	0.0800	2604	12.5×25	0.0810	3045
1200	10×14	0.1039	1848	12.5×16	0.0730	2447						
1500	8×20	0.0934	1607	10×20	0.0730	2058	12.5×20	0.0650	2604	12.5×30	0.0752	3623
1500	10×16	0.0934	1943	12.5×16	0.0730	2447				16×20	0.0452	3413
1800	10×20	0.0730	2058	10×23	0.0570	2363	12.5×25	0.0500	3045	12.5×35	0.0430	3749
1800	12.5×16	0.0730	2447	12.5×20	0.0570	2604				16×25	0.0430	3812
2200	10×20	0.0730	2058	12.5×20	0.0570	2604	12.5×30	0.0456	3623	16×25	0.0410	3812
2200	12.5×16	0.0570	2447				16×20	0.0456	3413			
2700	10×23	0.0446	2363	12.5×25	0.0400	3045	12.5×35	0.0412	3749	16×35.5	0.0400	4211
2700	12.5×20	0.0446	2604				16×25	0.0412	3812	18×31.5	0.0400	4389
3300	12.5×20	0.0446	2604	12.5×30	0.0380	3623	12.5×40	0.0380	4085	16×40	0.0280	4431
3300				16×20	0.0380	3413	16×25	0.0380	3812	18×35.5	0.0280	4431
3900	12.5×25	0.0400	3045	12.5×30	0.0380	3623	16×31.5	0.0340	4085	18×40	0.0218	4725
3900				16×20	0.0380	3413	18×25	0.0340	4085			
4700	12.5×30	0.0390	3623	12.5×35	0.0360	3749	16×35.5	0.0310	4211			
4700	16×20	0.0390	3623	16×25	0.0360	3812	18×31.5	0.0310	4389			
5600	16×25	0.0380	3749	16×31.5	0.0340	4085	18×35.5	0.0280	4431			
5600	18×20	0.0380	3749	18×25	0.0340	4085						
6800	16×31.5	0.0340	3812	16×35.5	0.0310	4211	18×40	0.0218	4725			
6800	18×25	0.0340	3812	18×31.5	0.0310	4389						

LKZ

■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
15										8×11.5	2.70	485
15										10×9	2.70	525
18										8×11.5	2.70	485
18										10×9	2.70	525
22										8×11.5	2.70	485
22										10×9	2.70	525
27										8×16	2.00	614
27										10×12.5	2.00	655
33							8×11.5	2.60	485	8×16	2.00	614
33							10×9	2.60	525	10×12.5	2.00	655
39							8×11.5	2.09	485	8×16	1.56	614
39							10×9	2.09	525	10×12.5	1.56	655
47				8×11.5	2.6	546	8×11.5	1.50	485	10×12.5	1.56	655
47				10×9	2.6	562						
56				8×11.5	2.6	546	8×16	1.20	614	10×12.5	1.20	788
56				10×9	2.6	562	10×12.5	1.20	614			
68				8×11.5	2.09	546	8×16	1.20	614	8×20	1.00	809
68				10×9	2.09	562	10×12.5	1.20	655	10×16	1.00	819
82	8×11.5	2.60	777	8×16	1.50	758	10×12.5	1.20	655	10×16	1.00	819
82	10×9	2.60	699	10×12.5	1.50	683						
100	8×11.5	2.09	777	8×16	1.50	758	8×20	1.00	840	10×20	0.78	1092
100	10×9	2.09	699	10×12.5	1.50	758	10×16	1.00	819	12.5×16	0.78	1024
120	8×16	1.5000	1019	10×12.5	1.50	758	10×16	1.00	819	10×23	0.500	1229
120	10×12.5	1.5000	1034				8×20	1.00	819	12.5×20	0.500	1502
150	8×16	1.5000	1019	8×20	1.20	935	10×20	0.80	1092	12.5×20	0.500	1502
150	10×12.5	1.5000	1034	10×16	1.20	1048	12.5×16	0.80	1024			
180	8×20	1.3400	1281	10×16	1.20	1048	10×20	0.80	1092	12.5×25	0.4600	1701
180	10×16	1.3400	1439				12.5×16	0.80	1024			
220	8×20	1.3400	1281	10×20	0.9300	1260	10×23	0.60	1229	12.5×25	0.4600	1701
220	10×16	1.3400	1439	12.5×16	0.9300	1313	12.5×20	0.60	1502			
270	10×20	0.9300	1659	10×20	0.9300	1260	12.5×20	0.60	1502	12.5×30	0.4400	2048
270	12.5×16	0.9300	1840	12.5×16	0.8040	1313				16×20	0.4400	1838
330	10×20	0.9300	1659	10×23	0.7600	1481	12.5×25	0.5400	1701	12.5×35	0.4000	2247
330	12.5×16	0.8000	1840	12.5×20	0.5000	1649				16×25	0.4000	2321
390	10×23	0.7600	1964	12.5×20	0.5000	1649	12.5×30	0.4900	2048	12.5×40	0.3200	2457
390	12.5×20	0.5000	2153				16×20	0.4900	1838	16×25	0.3200	2321
470	12.5×20	0.5000	2153	12.5×25	0.4500	2090	12.5×35	0.4500	2247	16×31.5	0.1000	2520
470							16×25	0.4500	2321	18×25	0.1000	2384
560	12.5×25	0.3900	2531	12.5×30	0.4400	2531	12.5×40	0.4400	2457	16×35.5	0.0920	2730

LKZ

■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
560				16×20	0.4400	2531	16×25	0.4400	2321	18×31.5	0.0920	2594
680	12.5×25	0.3050	2531	12.5×35	0.4300	2751	16×31.5	0.4300	2520	16×40	0.0840	3003
680				16×25	0.4300	2867	18×25	0.4300	2384	18×35.5	0.0840	3003
820	12.5×30	0.2380	3108	12.5×40	0.4200	3087	16×35.5	0.4200	2730	18×40	0.0660	3686
820	16×20	0.2380	2867	16×25	0.4200	2867	18×25	0.4200	2384			
1000	12.5×35	0.0500	3108	16×31.5	0.4100	3140	16×40	0.4100	3003			
1000	16×25	0.0500	3161	18×25	0.4100	2940	18×31.5	0.4100	2594			
1200	16×31.5	0.0390	3444	16×31.5	0.4100	3140	18×35.5	0.4000	3003			
1200	18×25	0.0390	3213	18×25	0.4100	2940						
1500	16×35.5	0.0350	3192	16×35.5	0.4000	3192	18×40	0.3900	3686			
1500	18×31.5	0.0350	3465	18×31.5	0.4000	3465						
1800	16×35.5	0.0350	3192	16×40	0.3900	3749						
1800	18×31.5	0.0350	3465	18×35.5	0.3900	3749						
2200	18×35.5	0.0318	3749	18×40	0.3800	4095						
2700	18×40	0.0290	4095									

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
6.8										8×11.5	10.15	168
6.8										10×9	10.15	151
8.2							8×11.5	10.15	168	8×11.5	10.15	168
8.2							10×9	10.15	189	10×9	10.15	151
10							8×11.5	10.15	179	8×14	9.50	305
10							10×9	10.15	189	10×12.5	4.50	383
12				8×11.5	10.15	176	8×14	8.75	240	8×16	4.05	305
15	8×11.5	4.00	429	8×11.5	10.00	274	8×16	3.24	305	8×16	3.65	305
15	10×9	4.00	455	10×9	10.00	274	10×12.5	4.50	383	10×14	3.24	399
48	8×11.5	4.00	429	8×14	7.50	305	8×20	3.24	389	8×20	3.24	389
18	10×9	4.00	455	10×12.5	7.50	274	10×14	3.24	399	10×16	3.24	420
22	8×14	3.60	478	8×20	4.27	368	8×20	3.24	389	10×16	3.24	420
22	10×9	4.00	519	10×12.5	7.50	399	10×16	3.24	420			
27	8×16	3.00	543	8×20	2.65	368	10×20	2.53	466	10×20	2.53	466
27	10×12.5	3.00	579	10×12.5	2.65	399	12.5×14	2.53	665	12.5×16	2.53	665
33	8×16	3.00	543	10×16	2.65	683	10×20	1.65	683	10×20	1.65	683
33	10×12.5	3.00	579	12.5×14	2.65	798	12.5×14	1.65	798	12.5×16	1.65	798

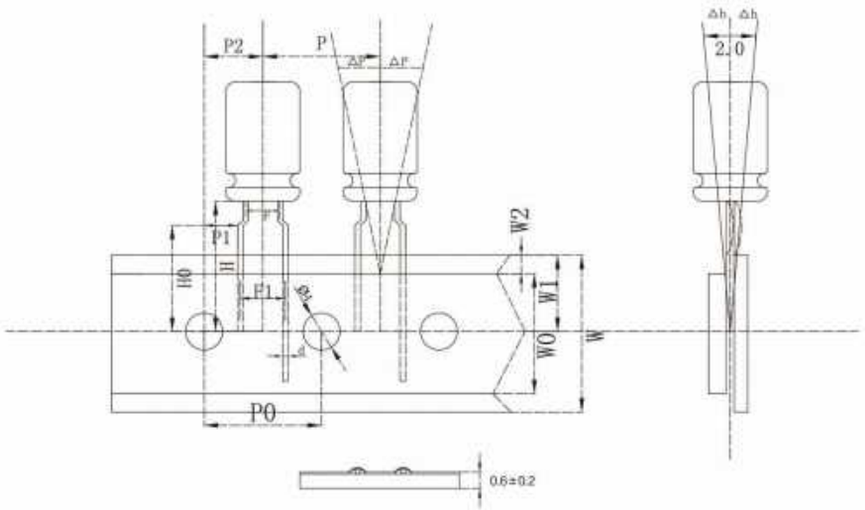
LKZ

■ List of Standard Products

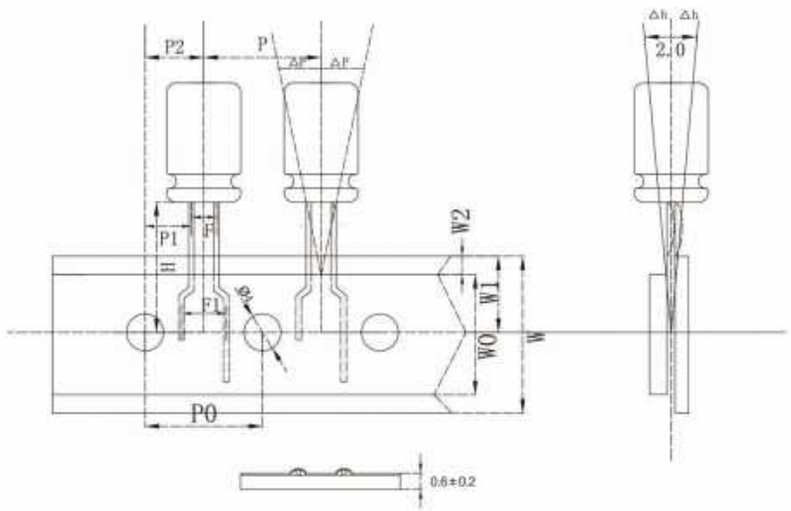
Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
39	8×20	2.65	597	10×16	2.65	683	12.5×20	1.50	958	12.5×20	1.5	958
39	10×14	2.65	636	12.5×14	2.65	798						
47	10×14	2.65	636	10×20	2.65	788	12.5×20	1.50	1029	12.5×20	1.38	1029
47				12.5×14	2.65	798						
56	10×16	2.21	720	10×20	2.65	966	12.5×20	1.38	1029	12.5×20	1.38	1029
56	12.5×14	2.20	756	12.5×16	2.27	1239						
68	10×20	2.00	792	12.5×20	2.27	1344	12.5×25	1.25	1365	12.5×25	1.25	1365
68	12.5×14	2.20	792				16×20	1.25	1491	16×20	1.25	1491
82	12.5×16	2.00	880	12.5×20	2.27	1344	12.5×30	1.25	1460	12.5×30	1.15	1460
82							16×20	1.18	1491	16×20	1.18	1491
100	12.5×20	1.80	1161	12.5×20	2.27	1344	12.5×25	1.15	1460	16×25	1.18	2048
100										18×20	1.02	2048
120	12.5×20	1.80	1340	12.5×25	1.43	1628	16×20	1.18	2048	16×25	1.02	2048
120				16×20	1.25	1491				18×20	1.02	2090
150	12.5×25	1.60	1463	12.5×25	1.43	2058	16×25	1.18	2252	16×31.5	0.98	2132
150	16×20	1.60	1524				18×20	1.18	2252	18×25	0.98	2132
180	16×20	1.43	1731	16×20	1.43	1985	16×35.5	0.92	2415	18×25	0.80	2415
180							18×25	0.92	2415			
220	16×25	1.19	2078	16×25	1.14	2573	16×35.5	0.80	2415	18×31.5	0.74	2814
220	18×20	1.19	2078	18×20	1.14	2489	18×31.5	0.80	2415			
270	16×31.5	1.10	2490	16×31.5	1.14	2573	16×40	0.74	2656			
270	18×25	1.10	2490				18×31.5	0.74	2656			
330	16×31.5	1.10	2520	16×31.5	1.10	3360	16×40	0.74	2898			
330	18×25	1.10	2520	18×25	1.10	3360	18×31.5	0.74	2898			
390	16×35.5	1.00	2730	16×35.5	0.95	3623	16×45	0.62	3188			
390	18×31.5	1.00	2730	18×31.5	0.95	3623	18×35.5	0.62	3188			
470	18×35.5	0.90	3003	18×35.5	0.90	3819	18×40	0.56	3623			
560	18×40	0.84	3686	18×40	0.85	3919	18×45	0.44	3969			

This specification applies to the lead-cutting and tape-forming aluminum electrolytic capacitor products manufactured by our company, including technical requirements, judgment criteria, and acceptance specifications.

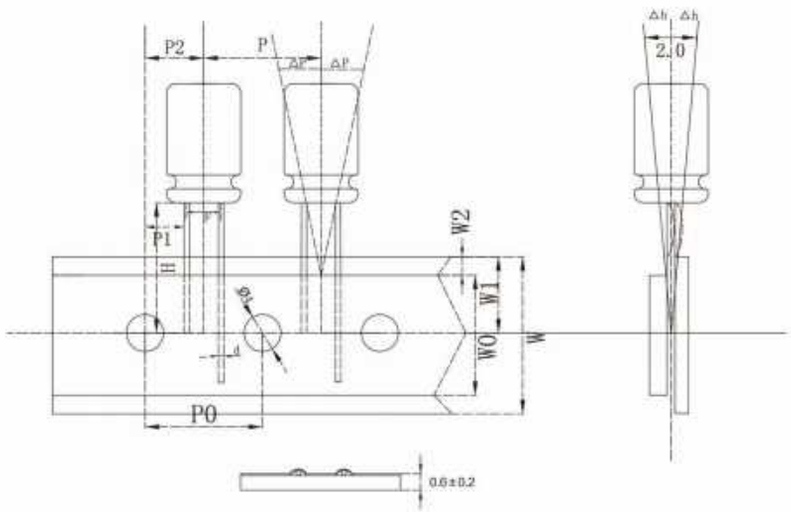
BRAIDED TAPE EXTERNAL DIMENSIONS DIAGRAM A



BRAIDED TAPE EXTERNAL DIMENSIONS DIAGRAM B



Φ4-Φ8



Φ10-Φ12.5

LKZ

■ List of Standard Products

Voltage (V)	350			400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
2.2										8×14	16.50	95
2.7										8×16	12.00	116
3.3				8×11.5	16.00	168	8×11.5	28.00	147	8×16	12.00	116
3.3				10×9	16.00	189	10×9	28.00	158			
3.9	8×11.5	16.00	163	8×11.5	16.00	168	8×11.5	28.00	147	8×20	12.00	137
3.9	10×9	16.00	179	10×9	16.00	231	10×9	28.00	158	10×16	12.00	137
4.7	8×11.5	16.00	163	8×11.5	16.00	168	8×14	21.80	184	8×20	12.00	137
4.7	10×9	16.00	189	10×9	16.00	231	10×12.5	21.80	189	10×16	12.00	137
5.6	8×14	12.50	210	8×14	12.50	252	8×16	12.50	200	10×16	12.00	147
5.6	10×9	16.00	179	10×12.5	12.50	263	10×12.5	12.50	210			
6.8	8×16	10.50	231	8×16	10.50	284	8×20	9.80	242	10×20	11.00	263
6.8	10×12.5	12.50	252	10×12.5	10.50	294	10×14	9.80	221	12.5×14	11.00	263
8.2	8×20	7.50	305	8×20	7.50	305	10×16	6.20	242	10×20	11.00	263
8.2	10×12.5	12.50	331	10×14	7.50	331				12.5×16	10.00	294
10	8×20	12.50	305	10×16	7.50	368	10×16	6.20	242	10×23	10.00	294
10	10×14	7.50	368				12.5×14	6.20	378	12.5×20	7.00	336
12	10×20	7.00	375	10×20	6.20	420	12.5×16	6.20	483	12.5×25	6.00	504
15	10×20	6.20	389	10×20	6.20	515	10×23	6.20	431	12.5×25	6.00	504
15	12.5×14	6.20	515	12.5×16	6.20	578	12.5×16	6.20	483	16×20	6.00	462
18	10×20	6.20	515	10×20	6.20	515	12.5×20	4.50	525	12.5×25	6.00	504
18	12.5×16	6.20	536	12.5×16	6.20	578				16×20	6.00	462
22	10×23	6.20	578	12.5×20	6.20	693	12.5×20	4.25	525	12.5×30	4.50	546
22	12.5×20	6.20	693							16×25	2.80	735
27	12.5×20	4.84	833	12.5×25	4.84	833						
27				16×20	5.84	1113						
33	12.5×20	2.25	1113	12.5×25	4.00	1113	12.5×30	2.82	809	16×31.5	2.20	777
33				16×20	3.00	1208	16×20	3.00	767	18×25	2.20	777
39	12.5×25	2.25	1208	16×25	2.00	1239						
39	16×20	2.25	1208	18×20	2.00	1239						
47	12.5×25	2.25	1208	16×25	2.00	1239	16×25	2.82	1302	16×35.5	2.00	893
47	16×20	2.25	1208	18×20	2.00	1239	18×20	2.82	1260	18×31.5	2.00	893
56	12.5×30	2.02	1281	16×31.5	1.82	1659	16×31.5	1.50	1302	18×31.5	2.00	1070
56	16×25	2.02	1386	18×25	1.82	1607	18×25	1.50	1260			
68	16×31.5	1.38	1659	16×31.5	1.38	1659	16×35.5	1.25	1470	18×35.5	1.50	1260
68	18×20	1.38	1607	18×25	1.38	1607	18×31.5	1.25	1533			
82	16×31.5	1.38	1659	16×35.5	1.25	2394	18×31.5	1.25	1533	18×35.5	1.50	1260
82	18×25	1.38	1607	18×31.5	1.25	2394						
100	16×40	1.25	2042	18×35.5	1.07	2919	18×40	0.90	2069	18×40	1.30	1329
100	18×31.5	1.25	2394									
120	18×35.5	1.25	2919	18×40	0.95	2993	18×45	0.85	2184	20×40	1.10	1466
150	18×40	0.97	2919	18×45	0.90	3128						
180	18×45	0.85	3211									

LKZ

■ List of Standard Products

Voltage (V)	550			600		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
2.2	8×14	27.7	66	8×14	29.4	61
2.7	8×16	20.2	81	8×16	21.4	75
3.3	8×16	20.2	81	8×16	21.4	75
3.9	8×20	20.2	96	8×20	21.4	89
3.9	10×16	20.2	96	10×16	21.4	89
4.7	8×20	20.2	96	8×20	21.4	89
4.7	10×16	20.2	96	10×16	21.4	89
5.6	10×16	20.2	103	10×16	21.4	96
6.8	10×20	18.5	184	10×20	19.6	171
6.8	12.5×14	18.5	184	12.5×14	19.6	171
8.2	10×20	18.5	184	10×20	19.6	171
8.2	12.5×16	16.8	206	12.5×16	17.8	191
10	10×23	16.8	206	10×23	17.8	191
10	12.5×20	11.8	235	12.5×20	12.5	218
12	12.5×25	10.1	353	12.5×25	10.7	328
15	12.5×25	10.1	353	12.5×25	10.7	328
15	16×20	10.1	323	16×20	10.7	300
18	12.5×25	10.1	353	12.5×25	10.7	328
18	16×20	10.1	323	16×20	10.7	300
22	12.5×30	7.6	382	12.5×30	8.0	355
22	16×25	4.7	515	16×25	8.0	478
33	16×31.5	3.7	544	16×31.5	3.9	505
33	18×25	3.7	544	18×25	3.9	505
47	16×35.5	3.4	625	16×35.5	3.6	580
47	18×31.5	3.4	625	18×31.5	3.6	580
56	18×31.5	3.4	625	18×35.5	3.6	640
68	18×35.5	2.5	882	18×40	2.7	819
82	18×40	2.5	970	20×40	2.7	900
100	20×40	2.2	1060	22×40	2.3	990
120	22×40	1.8	1170	25×40	1.8	1090

LLK

◆Extra-long lifespan, dedicated to power supplies

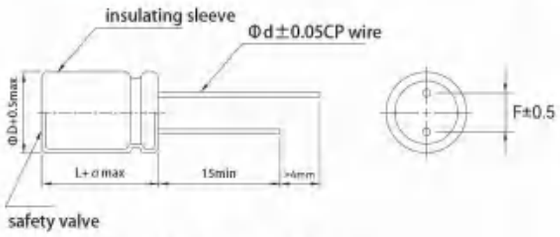
◆12,000~20,000 hours at 105℃

◆Compliant with AEC-Q200 RoHS directive

■ Main technical parameters

project	characteristic						
Operating Temperature Range	−40~+105℃ ； −25~+105℃						
Nominal Voltage Range	160~400V ； 450V						
Capacity Tolerance	±20% (25±2℃ 120Hz)						
Leakage Current (μA)	CV≦1000	I=0.1CV+40μA以下(1min) I=0.03CV+15μA以下(5min)					
	CV＞1000	I=0.04CV+100μA以下(1min) I=0.02CV+25μA以下(5min)					
	I＝Leakage current (μA) C＝Rated capacitance (μF) V＝Rated voltage (V)						
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V)	160	200	250	350	400	450
	tg δ	0.24	0.24	0.24	0.24	0.24	0.24
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.						
	Capacity change rate	Within ±30% of the initial value					
	Loss tangent	Below 300% of the specified value					
	Leakage current	Below the specified value					
	Load life	External dimensions				load life	
		5×11 6.3×9 6.3×11 8×9 10×9				12000h	
		8×11.5 10×12.5				15000h	
		10×16 10×20 10×23 D≧12.5				20000h	
Low temperature characteristics (120Hz)	Rated voltage (V)	160	200	250	400	450	
	Z(－25℃)/Z(20℃)	3	3	3	6	6	
	Z(－40℃)/Z(20℃)	8	8	8	10	10	
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.						
	Capacity change rate	Within ±20% of the initial value					
	Loss tangent	Below 200% of the specified value					
	Leakage current	Below 200% of the specified value					

■ Product dimension drawing (unit: mm)



L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

D	5	6.3	8	10	12.5~13	12.5~13(h≧30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

Note: Products ≥ Φ6.3 have a safety valve.

■ Ripple current compensation coefficient

① Frequency correction coefficient

160~400V

Frequency (Hz)		120	1K	10K	100K≦
coefficient	1~5.6μF	1.0	1.6	1.8	2.0
	6.8~18μF	1.0	1.5	1.7	1.9
	22~68μF	1.0	1.4	1.6	1.8

450V

Frequency (Hz)		120	1K	10K	100K≦
coefficient	1~15μF	1.0	2.0	3.0	3.3
	18~68μF	1.0	1.75	2.25	2.5

② Temperature correction factor

Ambient temperature (° C)	50℃	70℃	85℃	105℃
Correction factor	2.1	1.8	1.4	1.0

LLK

■ List of Standard Products

Voltage (V)	160			200			250			400		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	5×11	18.0	27	5×11	16.0	27	6.3×9	15.0	27	6.3×9	29.0	26
1.2	5×11	18.0	27	5×11	16.0	27	6.3×9	15.0	27	6.3×9	25.0	30
1.5	5×11	18.0	32	5×11	16.0	32	6.3×9	15.0	32	6.3×9	22.0	32
1.8	5×11	17.0	32	5×11	15.0	32	6.3×9	13.0	35	6.3×9	18.0	35
2.2	5×11	17.0	38	5×11	14.0	39	6.3×9	13.0	40	6.3×9	14.5	39
2.7	5×11	17.0	38	5×11	13.0	45	6.3×9	12.0	45	8×9	9.5	45
3.3	5×11	14.0	45	6.3×9	12.0	45	6.3×9	11.5	45	8×11.5	9.8	50
3.3										10×9	9.2	51
3.9	6.3×9	14.0	55	6.3×9	11.0	45	6.3×9	10.5	50	10×9	8.5	60
4.7	6.3×9	13.5	55	6.3×11	10.0	52	8×9	9.5	59	10×9	7.0	64
5.6	6.3×11	13.2	55	8×9	8.0	59	8×9	8.5	70	10×12.5	6.5	69
6.8	6.3×11	13.0	63	8×9	7.0	65	8×11.5	6.0	85	10×12.5	5.5	90
8.2	8×9	12.0	63	8×9	6.0	70	8×11.5	6.0	85	10×14	5.0	90
10	8×9	9.5	75	8×11.5	5.2	85	10×12.5	4.4	120	10×16	4.6	100
12	8×11.5	7.0	98	10×9	4.8	93	10×12.5	4.4	120	10×20	4.2	120
15	8×11.5	7.0	98	10×12.5	4.0	118	10×12.5	2.8	132	10×20	3.5	148
15	10×9	7.0	100									
18	10×12.5	6.3	120	10×12.5	3.8	118	10×16	2.5	161	12.5×16	2.5	195
22	10×12.5	5.5	128	10×16	3.5	138	10×16	2.0	179	12.5×20	2.5	195
27	10×12.5	5.0	128	10×16	2.7	160	10×20	1.8	200	12.5×20	2.5	250
33	10×16	4.8	170	10×20	2.2	175	10×20	1.6	228	12.5×25	2.0	300
39	10×20	3.7	200	10×23	1.8	200	12.5×20	1.5	250	12.5×25	2.0	380
47	10×20	3.7	200	12.5×20	1.5	250	12.5×20	1.5	300	16×25	1.8	450
68	12.5×20	2.2	240	12.5×25	1.3	300	16×20	1.3	350	16×31.5	1.5	520

Voltage (V)	450			Voltage (V)	450			Voltage (V)	450		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	6.3×9	35.0	30	3.9	10×9	9.5	55	18	12.5×20	5.5	200
1.2	6.3×9	30.0	30	4.7	10×12.5	8.5	60	22	12.5×20	5.5	250
1.5	6.3×9	25.0	32	5.6	10×12.5	8.5	60	27	12.5×25	5.5	280
1.8	8×9	20.0	35	6.8	10×14	6.5	90	33	16×20	5.0	420
2.2	8×9	18.0	40	8.2	10×14	6.5	90	39	16×25	4.5	490
2.7	8×9	18.0	40	10	12.5×14	6.0	145	47	18×20	4.0	505
3.3	8×11.5	14.0	44	12	12.5×14	6.0	145	68	18×31.5	3.5	550
3.3	10×9	9.5	55	15	12.5×16	5.5	190				

LKX

◆Long lifespan, high frequency and high ripple current resistant, high frequency and low impedance, dedicated power supply product

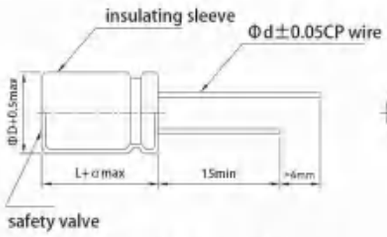
◆8000~12000 hours at 105℃

◆Compliant with AEC-Q200 RoHS directive

■ Main technical parameters

project	characteristic
Operating Temperature Range	35~100V −55~+105℃ ; 160~450V −40~+105℃
Nominal Voltage Range	35~450V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	35~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~450WV I≦0.02CV+10(μA) C: Nominal Capacity (μF) V: Rated Voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V) 35 50 63 80 100 160 tg δ 0.12 0.10 0.09 0.09 0.08 0.16 Rated voltage (V) 200 250 350 400 450 tg δ 0.20 0.20 0.20 0.20 0.25 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V) 35 50 63 80 100 160 200 250 350 400 450 Impedance ratio Z(－40℃)/Z(20℃) 3 3 3 3 3 3 3 3 5 5 6
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: 35~100V Within ±25% of the initial value; 160~450V Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below the specified value Load life: Φ6.3 35~100V 7000h; ≧Φ8 L≦20 35~100V 10000h 160~450V 10000h; ≧Φ8 L≧25 35~100V 10000h 160~450V 12000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



D	6.3	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.5	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5
α 35~100V	2.0							
α 160~450V	2.5							

Note: Products ≥ Φ6.3 have a safety valve.

■ Frequency correction factor

①35~100WV

Frequency (Hz)		120	1K	10K	100K≦
Correction factor	≦33μF	0.42	0.70	0.90	1.00
	39~270μF	0.50	0.73	0.92	1.00
	330~680μF	0.55	0.77	0.94	1.00
	820μF及以上	0.60	0.80	0.96	1.00

②160~450WV

Frequency (Hz)		50(60)	120	500	1K	10K≦
Correction factor	160~250WV	0.80	1.00	1.20	1.30	1.40
	350~450WV	0.80	1.00	1.25	1.40	1.50

LKX

■ List of Standard Products

Voltage (V)	35			50			63			80		
project / Capacity (μF)	Dimensions: ΦD×L (mm)			Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)
47										6.3×20	0.455	0.91
56										6.3×20	0.515	1.03
82							6.3×20	0.455	0.91	8×20	0.635	1.27
100							8×20	0.515	1.03	8×25	0.655	1.33
120				6.3×20	0.58	1.16				8×30	0.785	1.57
150							8×20	0.63	1.27			
180	6.3×20	0.605	1.21				8×25	0.665	1.33	8×40	1.01	2.02
220				8×20	0.74	1.48	8×25	0.785	1.57	8×50	1.2	2.41
220										10×30	1.05	2.1
270				8×30	0.87	1.74				10×30	1.05	2.1
330	8×20	0.924	1.68				8×40	1.11	2.02	10×35	1.3	2.6
330							10×30	1.04	1.88			
390	8×25	0.951	1.73	8×40	1.22	2.23	8×50	1.32	2.41	10×50	1.71	3.12
390				10×25	1.09	2	10×30	1.16	2.1			
470	8×30	1.11	2.03	8×50	1.45	2.65	10×35	1.18	2.14	12.5×35	1.97	3.59
470				10×30	1.22	2.22						
560				10×35	1.68	3.07	10×40	1.43	2.6			
560							12.5×25	1.24	1.24			
680	8×40	1.41	2.57	10×40	1.55	2.82	10×50	1.71	3.12			
680	10×25	1.21	2.2				12.5×30	1.44	2.63			
820	8×50	1.82	3.04	10×50	2.02	3.37	12.5×35	2.15	3.59			
820	10×30	1.48	2.47	12.5×25	1.74	2.9						
1000	10×35	2.08	3.48	12.5×30	2.31	3.86						
1200	10×40	1.87	3.12									
1200	12.5×25	1.62	2.7									
1500	10×50	2.21	3.69									
1800	12.5×30	2.50	4.17									

Voltage (V)	100			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)
27										8×25	0.3	0.42
33	6.3×20	0.382	0.91									
39	8×20	0.699	1.399				8×25	0.3	0.42	8×30	0.37	0.518
47										8×35	0.45	0.63
47										10×25	0.37	0.518

LKX

■ List of Standard Products

Voltage (V)	100			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)
56	8×20	0.736	1.473	8×25	0.32	0.448	8×30	0.37	0.518	8×40	0.51	0.714
56										10×30	0.42	0.588
68	8×20	0.775	1.55	8×30	0.37	0.518	8×40	0.45	0.63	8×50	0.59	0.826
68							10×25	0.43	0.602	10×35	0.49	0.686
82	8×25	0.665	1.33	8×35	0.43	0.602	8×45	0.51	0.714	10×40	0.61	0.854
82				10×25	0.43	0.602	10×30	0.5	0.7	12.5×25	0.54	0.756
100	8×30	0.785	1.57	8×40	0.49	0.686	8×50	0.6	0.84	10×45	0.68	0.952
100							10×40	0.63	0.882	12.5×30	0.69	0.966
120	8×40	1.01	2.02	8×50	0.57	0.798	10×45	0.75	1.05	10×50	0.73	1.02
120	10×30	0.94	1.88	10×30	0.54	0.756	12.5×25	0.65	0.91	12.5×35	0.79	1.1
150	8×50	1.2	2.41	10×40	0.67	0.938	10×50	0.83	1.16	12.5×40	0.74	1.03
150	10×30	1.05	2.1	12.5×25	0.66	0.924	12.5×30	0.8	1.12	16×31.5	0.89	1.24
180				10×50	0.8	1.12	12.5×45	0.91	1.27	12.5×50	0.97	1.35
180				12.5×30	0.77	1.07	16×25	0.85	1.19	16×31.5	0.95	1.33
180										18×25	0.88	1.23
220	10×40	1.3	2.6	12.5×35	0.89	1.24	12.5×45	1.09	1.52	12.5×50	1.13	1.58
220				16×25	0.93	1.3	16×31.5	1.01	1.41	16×35.5	1.11	1.55
220							18×25	1	1.4	18×31.5	1.1	1.54
270	10×50	1.56	3.12	12.5×40	1.01	1.41	12.5×50	1.26	1.76	16×40	1.27	1.77
270							16×35.5	1.18	1.65	18×35.5	1.23	1.72
270							18×31.5	1.16	1.62			
330	12.5×35	1.97	3.59	12.5×50	1.2	1.68	16×40	1.36	1.9	16×50	1.48	2.07
330				16×31.5	1.2	1.68	18×31.5	1.3	1.82	18×40	1.42	1.98
330				18×25	1.18	1.65						
390				12.5×50	1.35	1.89	16×45	1.43	2	18×45	1.59	2.22
390				16×35.5	1.34	1.87	18×35.5	1.43	2			
390				18×31.5	1.4	1.96						
470				16×40	1.52	2.12	16×50	1.58	2.21	18×50	1.83	2.56
470				18×35.5	1.58	2.21	18×40	1.58	2.21			
560				16×50	1.79	2.5	18×45	1.77	2.47			
560				18×40	1.78	2.49						
680				18×45	2	2.8						
820				18×50	2.23	3.12						

LKX

■ List of Standard Products

Voltage (V)	350			400			450		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)
12				8×25	0.17	0.255	8×30	0.15	0.225
15				8×30	0.2	0.3	8×40	0.19	0.285
15							10×25	0.16	0.245
18				8×35	0.23	0.345	8×45	0.21	0.315
18				10×25	0.21	0.316	10×30	0.19	0.278
22	8×30	0.25	0.375	8×40	0.26	0.39			
22				10×25	0.24	0.36			
27	8×35	0.29	0.435						
33	8×40	0.33	0.495	8×50	0.3	0.45	10×40	0.36	0.54
33	10×25	0.31	0.465	10×35	0.29	0.435	12.5×30	0.37	0.555
39	8×45	0.37	0.555	10×40	0.4	0.6	10×50	0.41	0.615
39	10×30	0.36	0.54	12.5×25	0.36	0.54	12.5×35	0.42	0.63
47	10×35	0.41	0.615	10×45	0.45	0.675	12.5×40	0.48	0.72
47	12.5×25	0.38	0.566	12.5×30	0.44	0.66	16×25	0.44	0.66
56	10×40	0.47	0.705	10×50	0.52	0.78	12.5×45	0.53	0.795
56	12.5×30	0.44	0.661	12.5×35	0.5	0.75	16×31.5	0.51	0.765
68	10×50	0.55	0.825	12.5×40	0.58	0.87	12.5×50	0.62	0.93
68	12.5×30	0.46	0.696	16×25	0.51	0.765	16×35.5	0.59	0.885
68							18×25	0.57	0.855
82				12.5×45	0.65	0.975	16×40	0.68	1.02
82				16×31.5	0.61	0.915	18×31.5	0.65	0.975
82				18×25	0.61	0.915			
100				12.5×50	0.75	1.12	16×45	0.73	1.1
100				16×35.5	0.74	1.11	18×35.5	0.74	1.11
100				18×31.5	0.74	1.11			
120				16×40	0.8	1.2	16×50	0.82	1.22
120				18×35.5	0.79	1.18	18×40	0.83	1.24
150				16×50	0.95	1.42	18×45	0.95	1.42
150				18×40	0.91	1.36			
180				18×45	1.04	1.56			

LKL

◆High temperature resistant, long lifespan, power supply specific product

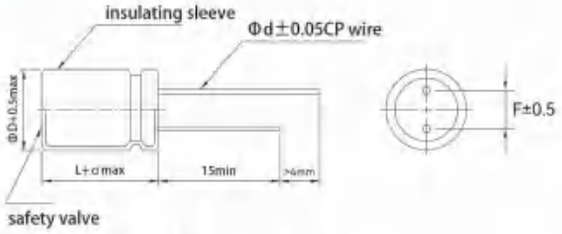
◆2000~5000 hours at 130℃

◆Compliant with AEC-Q200 RoHS directive

■ Main technical parameters

project	characteristic
Operating Temperature Range	≦120V −55~+130℃ ; 160~500V −40~+130℃
Nominal Voltage Range	10~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~120WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V) 10 16 25 35 50 63 80 100 tg δ 0.20 0.16 0.14 0.12 0.10 0.09 0.09 0.08 Rated voltage (V) 120 160 200 250 400 450 500 tg δ 0.09 0.08 0.15 0.15 0.20 0.20 0.20 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V) 10 16 25 35 50 63 80 100 Impedance ratio Z(−40℃)/Z(20℃) 3 2 2 2 2 2 2 2 Rated voltage (V) 120 160 200 250 400 450 500 Impedance ratio Z(−40℃)/Z(20℃) 5 3 3 3 6 7 7
Durability	After being stored at 130℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: 10~120WV Within ±30% of the initial value; 160~500WV Within ±20% of the initial value Loss tangent: 10~120WV Below 300% of the specified value; 160~500WV Below 200% of the specified value Leakage current: Below the specified value Load life: 10~120WV — ΦD=5、6.3: 2000h; ΦD=8、10: 3000h; ΦD=≥12.5: 5000h; 160~500WV — ΦD=5、6.3: 2000h; ΦD=8: 3000h; ΦD=≥10: 5000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below the specified value

■ Product dimension drawing (unit: mm)



L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

D	5	6.3	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

Note: Products ≥ Φ6.3 have a safety valve.

■ Ripple current compensation coefficient

① Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

② Temperature correction factor

Frequency (Hz)	50℃	70℃	85℃	105℃	130℃
Correction Factor	2.4	2.1	1.8	1.4	1.0

LKL

■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10	5×9	15.00	72	5×9	15.00	72	5×9	15.00	72	5×9	15.00	81
22	5×9	15.00	72	5×9	15.00	72	5×9	15.00	72	5×9	15.00	31
47	5×9	15.00	114	5×9	15.00	114	5×9	15.00	114	5×11	15.00	240
100	5×9	15.00	114	5×11	15.00	200	6.3×9	4.50	240	8×9	4.50	324
150	5×11	4.50	162	6.3×9	4.50	240	8×9	4.50	324	8×11.5	3.60	380
150	6.3×9	4.50	200							10×9	3.50	324
220	6.3×9	4.50	324	8×9	4.50	324	8×11.5	3.60	380	8×11.5	2.50	650
330	6.3×11	3.60	380	8×9	3.60	380	8×14	0.28	650	10×12.5	0.25	850
330	8×9	3.50	324				10×12.5	0.28	650			
470	8×9	0.15	620	8×11.5	0.28	650	10×12.5	0.25	850	10×16	0.115	1000
1000	10×12.5	0.098	1000	10×16	0.170	1000	10×20	0.140	1155	12.5×20	0.040	1500
1200										14.5×16	0.058	1630
1500										14.5×20	0.045	1820
1800							14.5×16	0.135	2160	14.5×23	0.032	2050
2200	12.5×16	0.076	1500	12.5×20	0.104	1500	16×20	0.072	2400	14.5×25	0.018	2320
2200							14.5×20	0.112	2360	16×25	0.040	2650
2700				14.5×16	0.081	2150	14.5×23	0.095	2620	14.5×27	0.012	2650
3300	12.5×20	0.072	1780	12.5×25	0.081	2400	14.5×25	0.080	2800	18×35.5	0.028	2950
3300				14.5×20	0.068	2480	16×25	0.041	2650			
3900	14.5×16	0.072	2100				14.5×27	0.066	3020			
4700	14.5×20	0.060	2400	14.5×23	0.058	2750						
4700	16×20	0.034	2400	16×25	0.031	2650						
5600	14.5×23	0.048	2650	14.5×25	0.048	3050						
6800	14.5×25	0.040	2880	14.5×27	0.035	3210						
8200	14.5×27	0.032	3050									

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	5×9	3.70	32	5×9	3.70	32	5×9	3.70	32	5×9	3.70	32
1.5	5×9	3.70	32	5×9	3.70	32	5×9	3.70	32	5×9	3.70	32
1.8	5×9	3.70	32	5×9	3.70	32	5×9	3.70	32	5×9	3.70	32
2.2	5×9	3.70	45	5×9	3.70	45	5×9	3.70	45	5×9	3.70	45
2.7	5×9	3.70	45	5×9	3.70	45	5×9	3.70	45	5×9	3.70	45
3.3	5×9	3.70	63	5×9	3.70	63	5×9	3.70	63	5×9	3.70	63
3.9	5×9	3.70	63	5×9	3.70	63	5×9	3.70	63	5×9	3.70	63
4.7	5×9	3.70	90	5×9	3.70	90	5×9	3.70	90	5×9	3.70	90

Tape and reel specifications

PROJECT	MARK	Φ4		Φ5				Φ6.3/Φ7			Φ8		Φ10	Φ12.5	Φ13	ERROR
LEAD WIRE PROCESSING MARK		U7	T8	U1	U4	U5	T1	U2	U6	T2	U3	T3	T4	T5		
SHAPE & DIMENSION DRAWING		imgA	图B	imgA	imgA	imgA	imgB	imgA	imgA	imgB	imgA	imgB	imgB	imgB		
LEAD WIRE DIAMETER	Φd	0.45		0.5							0.5/0.6		0.6			±0.05
BODY PITCH	P	12.7												15		±1.0
HOLE PITCH	P0	12.7												15		±0.2
PITCH BETWEEN HOLE AND LEAD WIRE	P1	5.1	5.6	3.85	5.1	4.6	5.35	3.85	4.6	5.1	3.85	4.6	3.85	5.0		±0.7
PITCH BETWEEN HOLE AND BODY	P2	6.35												7.5		±1.0
LEAD WIRE PITCH	F1	2.5	5.0	5.0	2.5	3.5	5.0	5.0	3.5	5.0	5.0	5.0	5.0			+0.8~-0.2
LEAD WIRE PITCH	F	1.5		2.0				2.5			3.5		5.0			±0.5
CARRIER PAPER WIDTH	W	18.0														±0.3
TAPE WIDTH	W0	12.5														MIN
PITCH BETWEEN HOLE AND CARRIER PAPER	W1	9.0														±0.5
PITCH BETWEEN TAPE AND CARRIER PAPER	W2	2.0~3.0									0.5~2.0					/
BODY BOTTOM POSITION	H	18.5														±0.75
LEAD WIRE BEND HEIGHT	H0	16	--	16			--	16		--	16	--				±0.5
HOLE DIAMETER	ΦD0	4.0														±0.3
BODY TILT ANGLE	Δh	1.0														MAX
BODY TILT ANGLE	Δp	1.0														MAX
TOTAL TAPED THICKNESS	t	0.6														±0.2
PACKING QUANTITY		2500		2100				1700			1000		672	440	420	

LKL

■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
5.6	5×9	3.70	90	5×9	3.70	90	5×9	3.70	90	5×11	3.70	90
6.8	5×9	3.70	94	5×9	3.70	94	5×9	3.70	90	5×11	3.70	90
8.2	5×9	3.70	98	5×9	3.70	98	5×9	3.70	90	5×11	3.70	90
10	5×9	3.70	98	5×9	3.70	108	5×11	3.70	108	6.3×9	3.70	180
15	5×9	3.70	108	5×9	3.70	118	6.3×9	3.70	180	6.3×11	2.70	210
15										8×9	3.70	180
22	5×11	2.60	170	6.3×9	2.60	180	6.3×11	2.70	210	8×11.5	2.70	230
22							8×9	3.70	180	10×9	3.70	198
33	6.3×9	2.60	245	6.3×11	2.60	265	6.3×11	2.70	230	8×11.5	2.00	280
33				8×9	2.00	280	8×9	3.70	198	10×9	2.00	280
47	6.3×11	2.60	320	8×9	2.00	420	8×11.5	2.00	280	10×12.5	1.00	350
47	8×9	2.60	330				10×9	2.00	280			
56	8×9	2.60	330	8×9	2.00	420	10×9	2.00	280	10×12.5	1.00	350
100	8×11.5	1.50	500	8×16	1.20	590	10×16	1.00	550	12.5×16	0.50	700
100	10×9	1.50	550	10×12.5	1.20	590						
220	10×16	1.00	940	10×20	0.50	860	12.5×20	0.45	890	12.5×25	0.40	1155
220										14.5×16	0.35	1155
270										14.5×20	0.31	1220
330	12.5×16	0.80	980	12.5×20	0.45	1050	12.5×25	0.45	1050	14.5×23	0.23	1340
330							14.5×16	0.076	1050	16×25	0.10	1400
390							14.5×20	0.063	1160	14.5×25	0.19	1460
470	12.5×20	0.50	1050	12.5×25	0.45	1570	14.5×23	0.057	1250	14.5×27	0.15	1580
470				14.5×16	1.12	1500	16×25	0.31	1400	16×31.5	0.092	1680
560				14.5×20	0.95	1580	14.5×25	0.052	1320			
680	14.5×16	0.135	1650	14.5×23	0.78	1610	14.5×27	0.048	1400			
820	14.5×20	0.112	1930	14.5×25	0.6	1700						
1000	14.5×23	0.095	2120	14.5×27	0.45	1850						
1000	16×25	0.05	2290	16×31.5	0.45	1950	18×31.5	0.18	1680	18×45	0.066	1780
1200	14.5×25	0.070	2260									
1500	14.5×27	0.050	2320									
1500	16×31.5	0.035	2580	18×31.5	0.43	2450						
2200	18×35.5	0.029	2950									

LKL

■ List of Standard Products

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47				5×11	28.00	48	6.3×9	27.00	68	6.3×9	38.00	68
1.0	5×9	3.70	32	5×11	28.00	48	6.3×9	27.00	68	6.3×9	38.00	68
1.2	5×9	3.70	32									
1.5	5×9	3.70	32	5×11	28.00	48	6.3×9	27.00	68	6.3×9	38.00	68
1.8	5×9	3.70	32	5×11	28.00	68	6.3×9	27.00	72	6.3×9	38.00	81
2.2	5×9	3.70	45	5×11	28.00	68	6.3×9	27.00	81	6.3×9	38.00	81
2.7	5×9	3.70	45	5×11	28.00	68	6.3×9	27.00	81	6.3×9	38.00	81
3.3	5×9	3.70	63	5×11	28.00	72	6.3×9	27.00	85	6.3×9	38.00	90
3.9	5×11	3.70	63	5×11	28.00	72	6.3×9	27.00	90	6.3×11	10.15	110
4.7	5×11	3.70	90	6.3×9	23.00	81	6.3×11	20.15	110	6.3×11	10.15	110
4.7										8×9	15.50	90
5.6	6.3×9	3.70	90	6.3×9	23.00	85	8×9	15.50	117	8×9	15.50	117
6.8	6.3×9	3.70	90	6.3×11	15.00	90	8×9	15.50	117	8×9	15.50	162
8.2	6.3×9	3.70	90	8×9	15.00	107	8×11.5	6.50	165	8×11.5	6.50	165
8.2							10×9	3.65	160	10×9	6.50	160
10	6.3×11	2.90	180	8×9	15.00	107	8×14	3.65	210	8×14	3.65	210
10							10×9	3.24	160			
12	8×9	2.90	210									
15	8×11.5	2.70	240	8×11.5	12.50	117	8×16	3.24	210	8×16	3.65	210
15	10×9	2.70	240									
18	8×11.5	2.70	240									
18	10×9	2.70	240									
22	8×14	2.10	310	8×14	7.90	160	8×20	3.24	250	8×20	3.24	250
22	10×9	2.10	310	10×12.5	7.90	178	10×14	3.24	250	10×14	3.24	250
27	8×16	1.60	370									
27	10×12.5	1.60	370									
33	8×16	1.60	398	10×14	5.90	255	10×20	1.65	340	10×20	1.65	340
33	10×12.5	1.60	398									
39	8×20	1.25	420									
39	10×14	1.25	420									
47	10×14	1.25	420	10×20	5.55	400	12.5×20	1.50	400	12.5×20	1.50	400
56	10×16	1.00	500	12.5×16	5.55	608	12.5×20	1.40	500	12.5×20	1.40	500
56	12.5×14	1.00	500									
68	10×20	0.80	600							14.5×16	1.98	620
68	12.5×14	0.80	600									
82	12.5×16	0.65	700				14.5×16	1.98	680	14.5×20	1.85	680
100	12.5×20	0.50	827	12.5×20	4.36	825	14.5×20	1.60	750	14.5×23	1.70	750
100				14.5×16	4.20	855	16×20	1.30	800	16×25	1.30	800
120				14.5×20	3.85	980	14.5×23	1.52	820	14.5×25	1.30	830
150				14.5×23	3.61	1080	14.5×25	1.35	950	14.5×27	1.20	910
180							14.5×27	1.22	1020			
220	16×25	0.40	1155	14.5×25	3.42	1160						
220	18×20	0.40	1155									
270				14.5×27	3.15	1230						
330	16×31.5	0.24	1400									
330	18×25	0.24	1400									
470	18×35.5	0.092	1680									
560	18×40	0.071	1900									

LKL

■ List of Standard Products

Voltage (V)	400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	6.3×9	35.00	54	6.3×9	55.00	60			
1.0	6.3×9	35.00	54	6.3×9	55.00	60			
1.5	6.3×9	34.00	68	6.3×9	50.00	60			
1.8	6.3×9	34.00	68	8×9	45.00	84			
2.2	6.3×9	28.00	80	8×9	16.50	90			
2.7	8×9	15.50	100	8×9	16.50	120			
3.3	8×9	15.50	110	8×11.5	12.80	120			
3.9	8×11.5	12.80	125	8×11.5	12.80	130			
4.7	8×11.5	10.50	125	8×14	12.0	130			
4.7	10×9	10.50	125						
5.6	8×14	9.69	130	10×12.5	12.0	140			
6.8	10×12.5	9.69	208	10×14	11.0	260			
8.2	8×20	7.56	250	8×20	11.0	260			
8.2	10×14	7.56	260	10×14	11.0	260			
10	10×16	5.80	330	10×16	7.00	320			
10	12.5×14	4.50	360	12.5×14	7.00	360			
15	12.5×16	4.50	410	12.5×16	6.00	410			
22	12.5×20	4.25	500	12.5×20	4.50	500			
27							14.5×16	3.10	620
33				14.5×16	3.10	700	14.5×20	2.90	635
33	16×20	3.00	730	16×20	3.00	820			
39	14.5×16	3.10	730	14.5×20	2.80	760	14.5×23	2.50	650
47	14.5×20	2.82	800	14.5×23	2.50	810	14.5×25	2.30	660
47	16×25	2.82	850	16×25	2.82	980			
56	14.5×23	2.35	860	14.5×25	2.20	950	14.5×27	2.15	680
56	16×31.5	1.50	920	16×31.5	2.00	1100			
68	14.5×25	1.65	920	14.5×27	2.00	1000			
82	14.5×27	1.35	980						
100	18×31.5	0.90	1170						

LKL(R)

◆High temperature resistant, long lifespan, power supply specific product

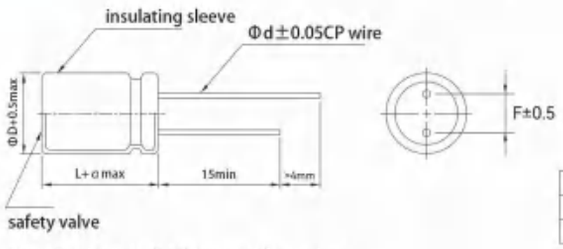
◆2000~5000 hours at 130℃

◆Compliant with AEC-Q200 RoHS directive

■ Main technical parameters

project	characteristic
Operating Temperature Range	－55~+135℃
Nominal Voltage Range	10~100V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~100WV I≤0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 tg δ: 0.20 / 0.16 / 0.14 / 0.12 / 0.10 / 0.09 / 0.09 / 0.08 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 Impedance ratio Z(－40℃)/Z(20℃): 12 / 8 / 6 / 4 / 4 / 4 / 4 / 4
Durability	After being stored at 135℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below the specified value Load life: 3000h
High temperature storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



Note: Products ≥ Φ6.3 have a safety valve.

L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

D	6.3	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.5(0.45)	0.6(0.5)	0.6	0.7	0.6	0.8	0.8	0.8
F	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.35	0.50	0.83	1.00

LKL(R)

■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
100				6.3*9	4.95	240	6.3×9	4.95	240	8×9	4.95	324
150							8×9	4.95	324	8×11.5	3.96	380
150										10×9	3.85	324
220				8×9	4.95	324	8*11.5	3.96	380	8×11.5	2.75	650
330	8×9	3.85	324	8×9	3.96	380	8×14	0.31	650	10×12.5	0.28	850
330							10×12.5	0.31	650			
470	8×9	0.165	620	8×11.5	0.308	650	10×12.5	0.28	850	10×16	0.1265	1000
560												
680												
750												
820										16×16	0.060	1200
910												
910												
1000	10×12.5	0.1078	1000	10×16	0.187	1000	10×20	0.154	1150	12.5×20	0.044	1500
1000										16×16	0.057	1200
1100												
1200							16×16	0.045	1200	18×16	0.053	1400
1300												
1300												
1300												
1500							16×16	0.043	1200	16×20	0.045	1500
1500										18×16	0.040	1400
1600												
1600												
1800							16×16	0.040	1200	18×20	0.038	1580
2000										16×20	0.038	1500
2200	12.5×16	0.084	1500	12.5×20	0.114	1500	18×16	0.041	1400	12.5×30	0.036	2760
2200										18×20	0.038	1600
2300												
2400												
2700							16×20	0.040	1700	18×20	0.038	1700
2700										12.5×35	0.031	2890
3000										16×25	0.032	2740
3300	12.5×20	0.079	1780	12.5×25	0.0891	2400	16×20	0.038	1800	12.5×40	0.029	3160
3600							12.5×30	0.034	2760	16×30	0.028	3020
3900										18×25	0.031	2760
4300							18×20	0.041	1750	16×35	0.025	3150
4700							12.5×35	0.032	2850	18×30	0.028	3200
4700							16×25	0.034	2650			
5100							12.5×40	0.030	3200			
5600							16×30	0.031	2900	16×40	0.024	3540
6200							18×25	0.033	2720	18×35	0.024	3400
7500							16×35	0.030	3450	18×40	0.023	3750
7500							18×30	0.034	3280			
9100							16×40	0.023	3630			
10000							18×35	0.023	3600			
12000							18*40	0.022	3890			

LKL(R)

■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10										6.3×9	4.07	180
15										6.3×11	2.97	210
15							6.3×9	4.07	180	8×9	4.07	180
22							6.3×11	2.86	210	8×11.5	2.97	230
22				6.3×9	2.86	180	8×9	4.07	180	10×9	4.07	198
33	6.3×9	2.86	245	6.3×11	2.86	265	6.3×11	2.86	230	8×11.5	2.20	280
33				8×9	2.20	280	8×9	2.20	198	10×9	2.20	280
47	6.3×11	2.86	320	8×9	2.20	420	8×11.5	2.20	280	10×12.5	1.10	350
47	8×9	2.86	330				10×9	2.20	280			
56							10×9	2.20	280			
100	8×11.5	1.65	500	8×16	1.32	590	10×16	1.10	550	12.5×16	0.55	700
100	10×9	1.65	550	10×12.5	1.32	590						
220	10×16	1.10	940	10×20	0.55	860	12.5×20	0.50	890	12.5×25	0.44	1155
330	12.5×16	0.88	980	12.5×20	0.495	1050	12.5×25	0.495	1050			
470	12.5×20	0.55	1050	12.5×25	0.495	1570						
470	16*16	0.080	1000									
560	16*16	0.078	1000									
680	18*16	0.078	1200	16*20	0.058	1700						
750				12.5*30	0.050	2480						
820	18*16	0.070	1200									
910				12.5*35	0.039	2710						
910				18*20	0.048	1900						
1000	16*20	0.060	1600	16*25	0.042	2390						
1100	12.5*30	0.054	2230	12.5*40	0.035	2960						
1200	18*20	0.058	1830	16*30	0.041	2820						
1300	12.5*35	0.045	2570	18*25	0.038	2570						
1300	16*25	0.047	1900									
1300	18*20	0.047	1900									
1500												
1500												
1600	12.5*40	0.038	2700	16*35	0.032	3060						
1600	16*30	0.037	2660	18*30	0.034	2980						
1800	18*25	0.035	2350	16*40	0.031	3170						
2000												
2200	16*35	0.034	2830									
2200												
2300				18*35	0.029	3200						
2400	18*30	0.032	2690									
2700	16*40	0.030	3200	18*40	0.027	3560						
2700												
3000	18*35	0.030	3100									
3300												
3600	18*40	0.028	3290									

LKJ

◆Long lifespan, low impedance, miniaturized design, specifically for smart meters

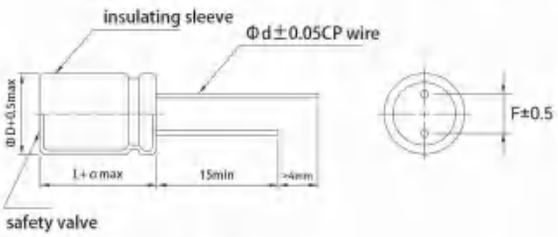
◆5000~10000 hours at 105℃

◆Compliant with AEC-Q200 RoHS directive

■ Main technical parameters

project	characteristic
Operating Temperature Range	−55~+105℃
Nominal Voltage Range	6.3~100V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	CV≤1000 I≤0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	CV>1000 I≤0.006CV+4μA C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 100 tg δ: 0.22 / 0.19 / 0.16 / 0.14 / 0.12 / 0.10 / 0.09 / 0.08 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 100 Impedance ratio Z(−40℃)/Z(20℃): 7 / 5 / 5 / 4 / 4 / 4 / 4 / 4
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below the specified value Load life: Below the specified value — 6.3~10V: Load life; 16~100V: Load life ΦD=5: 5000h; 5000h ΦD=6.3、8: 6000h; 7000h ΦD=≧10: 8000h; 10000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



Note: Products ≥ Φ6.3 have a safety valve.

L≦16	α=1.5
L>16	α=2.0

D	5	6.3	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

■ Ripple current compensation coefficient

① Frequency correction coefficient

6.3~50WV

Frequency (Hz)		120	1K	10K	100K≦
Correction Factor	0.47~10μF	0.42	0.60	0.80	1.00
	22~33μF	0.55	0.75	0.90	1.00
	47~330μF	0.70	0.85	0.95	1.00
	470~1000μF	0.75	0.90	0.98	1.00
	2200~15000μF	0.80	0.95	1.00	1.00

63~100WV

Frequency (Hz)	120	1K	10K	100K≦
Correction Factor	0.42	0.60	0.80	1.00

② Temperature correction factor

Frequency (Hz)	50℃	70℃	85℃	105℃
Correction Factor	2.1	1.8	1.4	1.0

LKJ

■ List of Standard Products

Voltage (V)	6.3			10			16			25		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
33										5×11	0.40	250
47							5×11	0.40	250	5×11	0.40	250
100	5×11	0.90	150	5×11	0.90	150	5×11	0.40	250	5×11	0.40	250
220	5×11	0.40	250	5×11	0.40	250	6.3×11	0.22	400	6.3×11	0.22	400
330	6.3×11	0.22	340	6.3×11	0.22	400	6.3×11	0.22	400	8×11.5	0.13	640
470	6.3×11	0.22	400	6.3×11	0.22	400	8×11.5	0.13	640	10×12.5	0.080	865
1000	8×11.5	0.13	640	10×12.5	0.080	865	10×16	0.062	1210	10×20	0.046	1400
2200	10×16	0.038	1300	10×20	0.046	1400	12.5×20	0.041	1900	12.5×25	0.032	2230
3300	10×20	0.046	1400	12.5×20	0.041	1900	12.5×25	0.032	2230	16×25	0.021	2930
4700	12.5×25	0.032	2230	12.5×25	0.032	2230	16×25	0.021	2930	16×31.5	0.019	3450
6800	12.5×25	0.032	2230	16×25	0.021	2930	16×31.5	0.019	3450			
10000	16×25	0.021	2930	16×31.5	0.019	3450						
15000	16×35.5	0.015	3610									

Voltage (V)	35			50			63			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47				5×11	5.50	17				5×11	6.00	15
1.0				5×11	4.00	30				5×11	4.50	20
2.2				5×11	2.50	43				5×11	3.00	30
3.3				5×11	2.20	53				5×11	2.70	40
4.7				5×11	1.90	88				5×11	2.50	65
10				5×11	1.50	100	5×11	0.88	173	5×11	1.40	163
22				5×11	0.90	150	5×11	0.88	173	6.3×11	0.57	267
33	5×11	0.40	250	5×11	0.70	250	6.3×11	0.35	278	8×11.5	0.36	462
47	5×11	0.40	250	6.3×11	0.40	250	6.3×11	0.35	278	8×16	0.25	585
100	6.3×11	0.22	400	8×11.5	0.25	400	10×12.5	0.15	725	10×20	0.12	1040
220	8×11.5	0.13	640	10×16	0.12	770	10×20	0.078	1200	12.5×25	0.060	1620
330	10×12.5	0.080	865	10×20	0.078	1050	12.5×20	0.060	1570	16×25	0.044	2210
470	10×16	0.062	1210	12.5×20	0.062	1300	12.5×25	0.043	1990			
1000	12.5×20	0.041	1900	16×25	0.034	1850	16×25	0.032	2730			
2200	16×25	0.038	2930	16×35.5	0.019	3150						
3300	16×31.5	0.019	3450									

LKD NEW

◆Small size, large capacity, long lifespan

◆8000 hours at 105℃

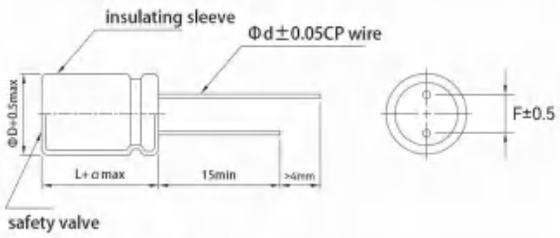
◆Low temperature rise, low internal resistance, high ripple resistance

◆Lead spacing = 10.0mm

■ Main technical parameters

project	characteristic
Operating Temperature Range	－40~+105℃
Nominal Voltage Range	400~600V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	400~600WV I≤0.01CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 400 / 450 / 500 / 550 / 600 tg δ: 10 / 15
Temperature Characteristics (120Hz)	Rated voltage (V): 400 / 450 / 500 / 550 / 600 Impedance ratio Z(－40℃)/Z(20℃): 7 / 10
Durability	In a 105℃ oven, apply the rated voltage containing the rated ripple current for a specified time, then place at room temperature for 16 hours before testing. The test temperature is 25±2℃. The capacitor's performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below the specified value Load life: 8000小时
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



Note: Products ≥ Φ6.3 have a safety valve.

D	20	22	25
d	1.0	1.0	1.0
F	10.0	10.0	10.0
α		±2.0	

■ Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

■ Temperature correction factor

Frequency (Hz)	50	70	85	105
Correction Factor	2.1	1.8	1.4	1.0

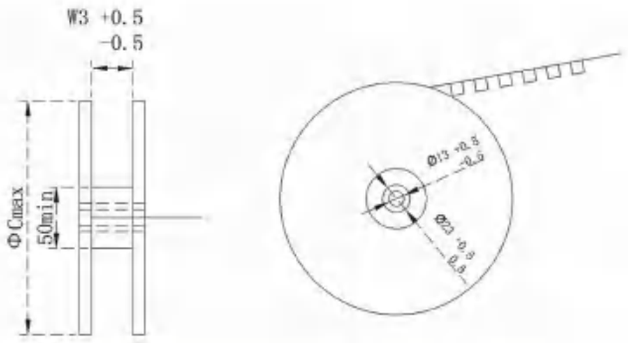
LKD

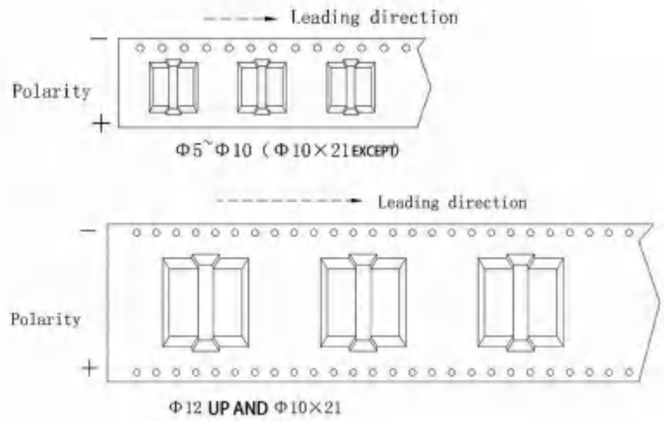
■ List of Standard Products

Voltage (V)	400			450			500			550		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
100	20×20	0.625	1330				22×25	0.478	1018	20×30	0.755	1150
										25×25	0.755	1150
120	20×25	0.565	2088	22×25	0.425	1490	22×31	0.425	1275	22×36	0.688	1375
							25×25	0.425	1275	25×30	0.688	1375
150	20×25	0.547	2088	25×25	0.360	1653	22×36	0.393	1490	22×41	0.625	1505
				22×31	0.360	1740	25×30	0.393	1555	25×30	0.625	1505
180	22×25	0.513	2250	20×36	0.325	1653	22×41	0.352	1583	22×46	0.553	1685
				25×30	0.325	1740	25×32	0.352	1720	25×36	0.553	1685
220	22×31	0.502	2320	20×40	0.297	1853	25×32	0.285	1975	22×50	0.515	1785
	25×25	0.502	2450	25×32	0.297	2010				25×41	0.515	1785
270	22×41	0.471	2675	22×46	0.285	2355	25×41	0.262	2135	25×51	0.425	1965
	25×30	0.471	2675	25×36	0.285	2355						
330	22×46	0.455	2820	22×50	0.225	2560	25×51	0.248	2378			
	25×36	0.455	2753	25×36	0.245	2510						
				25×41	0.225	2765						
390	22×50	0.432	2950									
	25×41	0.432	2950									
470	25×46	0.345	3175	25×51	0.185	2930						
560	25×51	0.315	3268									

Voltage (V)	600		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
100	20×36	0.832	990
	25×25	0.832	990
120	22×36	0.815	1135
	25×30	0.815	1240
150	22×41	0.785	1375
	25×36	0.785	1375
180	25×41	0.732	1565
220	25×46	0.710	1670
270	25×51	0.685	1710

Packaging Quantity Table





size	W3 (mm)	ΦC (mm)	Material tray / (pcs)	Inner box		Outer box	
				Number of trays (pieces)	Maximum packaging quantity: pcs/box	Number of inner boxes (pieces)	Maximum packaging quantity: pcs/box
Φ4×3.95	14	382	2500	8	20000	3	60000
Φ4×5.4~5.8	14	382	2000	8	16000	3	48000
Φ5×3.95	14	382	1500	8	12000	3	36000
Φ5×5.4~5.8	14	382	1200	8	9600	3	28800
Φ5×7.7~7.9	18	382	900	6	5400	3	16200
Φ5×10	18	382	700	6	4200	3	12600
Φ5×12	18	382	500	6	3000	3	9000
Φ6.3×3.95	18	382	1500	6	9000	3	27000
Φ6.3×5.4~5.8	18	382	1200	6	7200	3	21600
Φ6.3×7.7	18	382	900	6	5400	3	16200
Φ6.3×10	18	382	700	6	4200	3	12600
Φ6.3×12	18	382	500	6	3000	3	9000
Φ8×5.7~6.2	26	382	800	5	4000	3	12000
Φ8×7.7~7.9	26	382	600	5	3000	3	9000
Φ8×10	26	382	500	5	2500	3	7500
Φ8×12.5	26	382	400	5	2000	3	6000
Φ8×13.5	26	382	400	5	2000	3	6000
Φ8×14.5	26	382	350	5	1750	3	5250
Φ8×16.5	26	382	350	5	1750	3	5250
Φ8×20.5	26	382	175	5	875	3	2625
Φ10×5.7~6.9	26	382	800	5	4000	3	12000
Φ10×7.7~8.4	26	382	600	5	3000	3	9000
Φ10×10	26	382	500	5	2500	3	7500
Φ10×12~13.5	26	382	400	5	2000	3	6000
Φ10×14.5	26	382	350	5	1750	3	5250
Φ10×16.5(17)	26	382	350	5	1750	3	5250
Φ10×21	34	382	175	4	700	3	2100
Φ12.5×13.5(14)	34	382	250	4	1000	3	3000
Φ12.5×16.5(17)	34	382	200	4	800	3	2400
Φ12.5×21	34	382	175	4	700	3	2100
Φ16×16.5	46	382	150	3	450	3	1350
Φ16×21.5(21)	46	382	120	3	360	3	1080
Φ18×16.5	46	382	150	3	450	3	1350
Φ18×21.5(21)	46	382	120	3	360	3	1080

LED NEW

◆High temperature resistant, long lifespan LED-specific product

◆2000 hours at 130℃

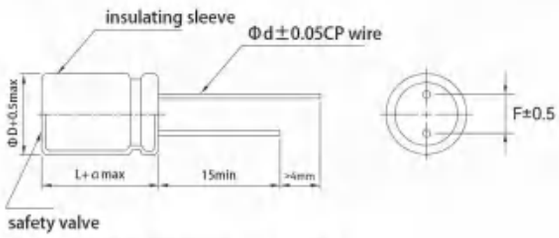
◆10000 hours at 105℃

◆Compliant with AEC-Q200 RoHS directive

■ Main technical parameters

project	characteristic
Operating Temperature Range	-25~+130℃
Nominal Voltage Range	400~450V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	400~450WV I≤0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 400 / 450; tg δ: 0.20 / 0.20 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 400 / 450; Impedance ratio Z(-40℃)/Z(20℃): 7 / 7
Durability	After being stored at 135℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: 400~450WV: Within ±20% of the initial value Loss tangent: 400~450WV: Below 200% of the specified value Leakage current: Below the specified value Load life: 400~450WV; size: ΦD≥8; load life: 130℃ 2000小时 / 105℃ 10000小时
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



Note: Products ≥ Φ6.3 have a safety valve.

L=9	α=1.0
L≦16	α=1.5
L>16	α=2.0

D	8	10	12.5~13	12.5~13(h≥30)	14.5
d	0.6	0.6	0.7	0.6	0.8
F	3.5	5.0	5.0	5.0	7.5

■ Ripple current compensation coefficient

Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

Temperature correction factor

Frequency (Hz)	50℃	70℃	85℃	105℃
Correction Factor	2.1	1.8	1.4	1.0

LED

■ List of Standard Products

Voltage (V)	400			450		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
2.2	8×9	23.0	144	8*11.5	38.0	95
3.3	8×11.5	27.0	126	8×11.5	28.0	140
4.7	8×11.5	27.0	135	8*14	21.8	180
6.8	8×16	10.5	270			
8.2	10×14	7.50	315	8×20	6.20	230
8.2				10×14	6.20	280
10	10×12.5	13.5	180	10×16	6.20	230
10	8×16	13.5	175	12.5×14	6.20	360
12	10×20	6.20	490	10×20	6.20	410
15	10×16	9.50	280	10×20	6.20	410
15	8×20	9.50	270	12.5×16	6.20	460
18	12.5×16	6.20	550	12.5×20	4.50	500
22	10×20	8.15	340	10×27	8.15	410
22				12.5×20	4.25	500
27	12.5×20	6.20	1000			
33	12.5×20	8.15	500	12.5×25	2.82	770
33	10×25	6.00	600			
39	12.5×25	4.00	1060			
47	14.5×25	4.14	690	12.5×27	4.20	850
47				14.5*20	3.00	730
47				14.5*25	2.82	1240
56	12.5×27	4.28	985	13×27	3.50	860
68	13×27	4.14	1035	14.5*25	1.25	1400
68	14.5×25	3.45	1035			
82	14.5×27	3.80	950			
100	14.5×27	3.35	1350			

LKE NEW

◆High current withstand, impact resistant, high frequency, low impedance, specifically designed for motor frequency converters

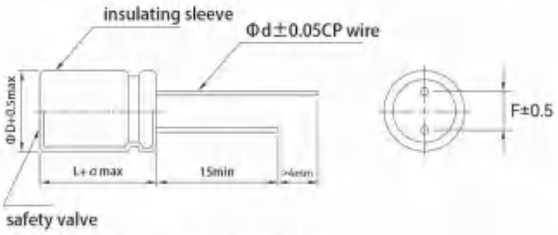
◆10,000 hours of operation at 105℃

◆Compliant with AEC-Q200 RoHS directive

■ Main technical parameters

project	characteristic
Operating Temperature Range	≤120V －55~+105℃；160~250V －40~+105℃
Nominal Voltage Range	10~250V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~120WV I≤0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~250WV I≤0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V) 10 16 25 35 50 63 80 100 tg δ 0.19 0.16 0.14 0.12 0.10 0.09 0.09 0.09 Rated voltage (V) 120 160 200 250 tg δ 0.09 0.09 0.08 0.08 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V) 10 16 25 35 50 63 80 100 Impedance ratio Z(－40℃)/Z(20℃) 6 4 3 3 3 3 3 3 Rated voltage (V) 120 160 200 250 Impedance ratio Z(－40℃)/Z(20℃) 5 5 5 5
Durability	In a 105℃ oven, apply the rated voltage containing the rated ripple current for a specified time, then place at room temperature for 16 hours before testing. The test temperature is 25±2℃. The capacitor's performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below the specified value Load life: ≧Φ8 10000小时
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



Note: Products ≥ Φ6.3 have a safety valve.

L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

10	12.5~13	12.5~13(h≥30)	14.5
0.6	0.7	0.6	0.8
5.0	5.0	5.0	7.5

■ Ripple current compensation coefficient

Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

Temperature correction factor

Frequency (Hz)	50℃	70℃	85℃	105℃
Correction Factor	2.1	1.8	1.4	1.0

LKE

■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
470										10×16	0.115	1000
560										10×20	0.0280	2250
560										13×16	0.0350	2330
680							10×16	0.0308	1850	10×25	0.0198	2330
1000				10×16	0.170	1000	10×20	0.140	1155	13×20	0.040	1500
1000							13×16	0.0350	2330			
1200				10×20	0.0280	1960				10×27	0.03	2220
1500	10×16	0.0308	1850	10×25	0.0280	2250	10×25	0.0280	2480	13×25	0.0165	2900
1500				13×16	0.0350	2330	13×16	0.0280	2480			
1500							13×20	0.0280	2480			
1800	10×20	0.0280	1960				10×27	0.03	2580	12.5×27	0.035	2800
1800							13×25	0.0165	2900	14.5×16	0.0143	3630
2200	10×25	0.0198	2250	13×20	0.104	1500	13×25	0.0143	3450	14.5×20	0.016	3150
2200	13×16	0.076	1500				14.5×16	0.27	2620			
2700							12.5×27	0.026	3050	13×27	0.025	3020
3300				10×27	0.0312	2800	13×27	0.025	3150			
3300	13×20	0.200	1780	13×25	0.081	2400	14.5×20	0.25	3180	14.5×25	0.015	3400
3900				14.5×16	0.0165	3250				14.5×27	0.014	3520
4700	10×27	0.035	2500	12.5×27	0.0285	3050	14.5×27	0.022	3460			
4700	13×25	0.0143	3450	14.5×20	0.255	3110	14.5×25	0.23	3350			
4700	14.5×16	0.0165	3450									
5600	12.5×27	0.027	2680									
6800	13×27	0.016	3110	13×27	0.0255	3280						
6800	14.5×20	0.018	2780	14.5×25	0.246	3270						
8200	14.5×25	0.016	3160									
10000	14.5×27	0.015	3280	14.5×27	0.0238	3450						

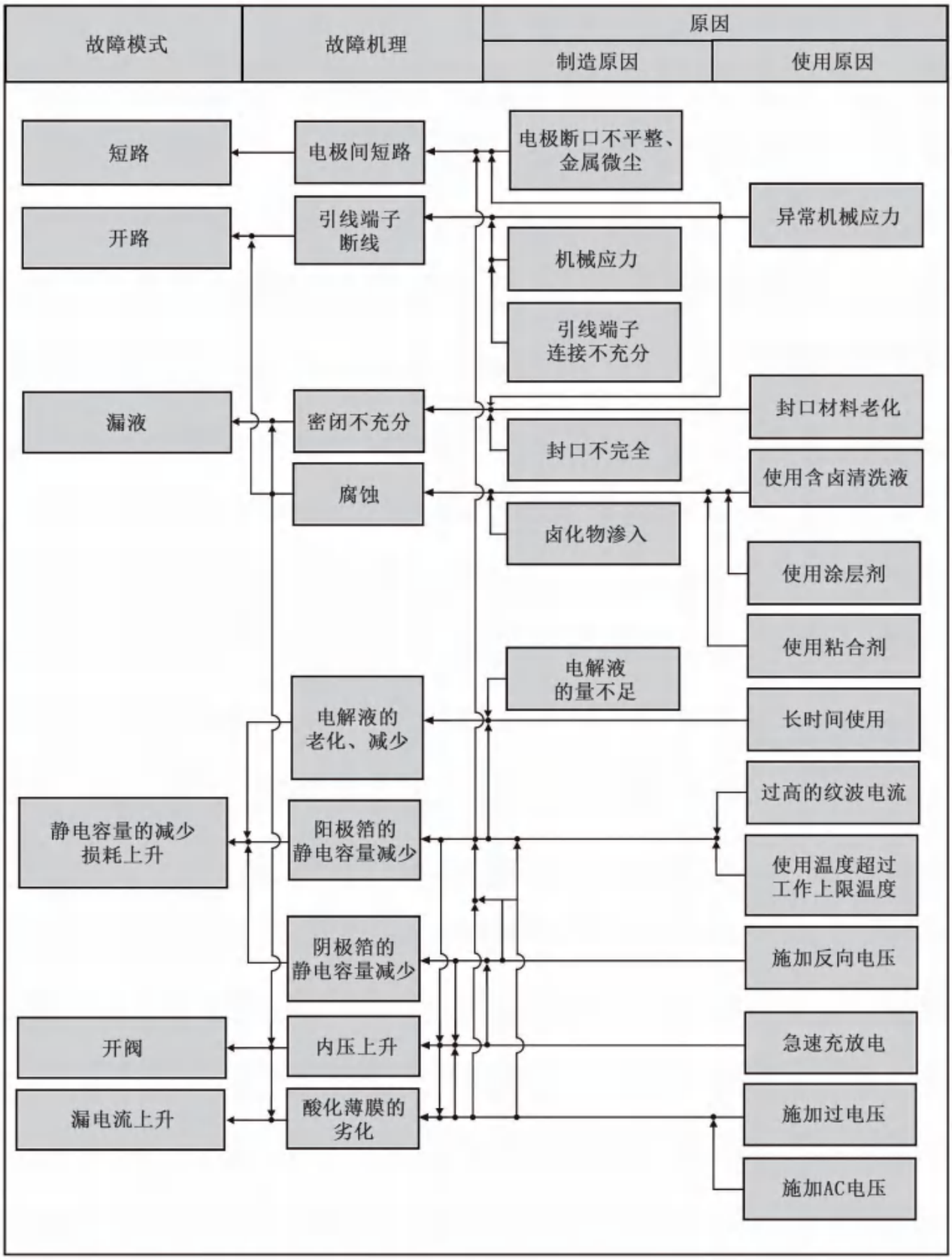
Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
100							10×16	1.00	550	10×16	1.00	560
120										10×20	0.8	650
150				10×16	0.2	998	13×16	0.14	975	13×16	0.50	700
150										10×25	0.2	1170
220	10×16	0.0460	1370	10×20	0.50	860	10×20	1.00	580	13×25	0.0660	1620

LKE

■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
270				13×16	0.0804	1250				10×27	0.072	1440
330	10×20	0.03	1580	10×25	0.0760	1410	13×20	0.45	890	13×25	0.0660	1620
330	13×16	0.8	980	13×20	0.45	1050				14.5×16	0.057	1500
390							10×27	0.0675	1420	12.5×27	0.056	1760
390										14.5×20	0.0640	1750
470	10×25	0.031	1870	13×25	0.45	1570	13×25	0.45	1050	13×27	0.05	1950
470	13×20	0.50	1050				14.5×16	0.076	1460	14.5×25	0.0480	2210
560				10×27	0.06	1800	12.5×27	0.056	1850	14.5×25	0.0420	2270
680	13×25	0.0560	2410	14.5×16	0.056	1620	13×27	0.055	1920	14.5×27	0.036	2150
680							14.5×20	0.063	1720			
820	10×27	0.062	1950	12.5×27	0.048	2220	14.5×25	0.2	1990			
820	14.5×16	0.058	2480									
1000	12.5×27	0.058	2520	13×27	0.043	2480	14.5×27	0.048	2080			
1000				14.5×20	0.018	2180						
1200	13×27	0.052	2560									
1200	14.5×20	0.048	2580	14.5×25	0.2	2420						
1500	14.5×25	0.03	2680	14.5×27	0.039	2540						
2200	14.5×27	0.028	2780									

Voltage (V)	160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
22				10×16	3.24	400	10×16	3.24	400
33				10×20	1.65	340	10×20	1.65	340
47	10×16	2.65	650	13×20	1.50	400	13×16	1.50	400
56	10×20	2.65	920				10×27	4.65	870
56							13×20	1.40	500
68	13×16	2.27	1280	13×25	1.25	1300	13×20	1.25	1300
82	10×25	2.65	920	14.5×16	1.18	1420			
82	13×20	2.27	1280						
100	10×27	4.80	1040	10×27	4.5	1050	12.5×27	3.6	1150
100				14.5×20	1.18	1420	14.5×20	3.35	1200
120	13×25	1.43	1550				13×27	3.35	1260
120	14.5×16	4.50	1050				14.5×25	3.05	1280
150	12.5×27	4.50	1600	12.5×27	3.9	1520			
150				14.5×25	2.85	1720			
180	13×27	4.20	1700	13×27	3.2	1620	14.5×27	2.6	1325
180	14.5×20	4.00	1520						
220	14.5×25	3.50	1880	14.5×27	2.7	1880			
270	14.5×27	3.10	2020						


故障模式
故障机理
原因
制造原因
使用原因
短路
开路
漏液
静电容量的减少
损耗上升
开阀
漏电流上升
电极间短路
引线端子
断线
密闭不充分
腐蚀
电解液的
老化、减少
阳极箔的
静电容量减少
阴极箔的
静电容量减少
内压上升
酸化薄膜的
劣化
电极断口不平整、
金属微尘
机械应力
引线端子
连接不充分
封口不完全
卤化物渗入
电解液
的量不足
异常机械应力
封口材料老化
使用含卤清洗液
使用涂层剂
使用粘合剂
长时间使用
过高的纹波电流
使用温度超过
工作上限温度
施加反向电压
急速充放电
施加过电压
施加AC电压

Diameter <16mm, Height <30mm

① Packaging quantity of products other than KC*

Product Type	Long lead wires and products with clipped leads 5.0mm and above.				Lead wire processed products								Braided items		
					Cut feet below 5.0				Bending type						
project / diameter	high	Bagged	Boxed	boxed	high	Bagged	Boxed	boxed	Diameter/ Height	Bagged	Boxed	boxed	diameter	Boxed	boxed
4	7~11	1000	10000	60000	7~11	1000	18000	72000	7~11	1000	10000	60000	4	2500	25000
5	7~11	1000	6000	36000	7~11	1000	10000	40000	7~11	1000	6000	36000	5	2100	21000
6.3~7	7~8	1000	8000	32000	7~9	1000	8000	32000	7~9	1000	8000	32000	6.3	1700	17000
	9~14	1000	4000	24000	10~14	1000	6000	24000	10~14	1000	4000	24000			
	15	1000	5000	20000	15	1000	5000	20000	15	1000	5000	20000	6.5	1650	16500
	19~20	750	3750	15000	20	750	3750	15000	20	750	3750	15000			
8	7	500	6000	24000	5~9	500	5000	20000	7	500	6000	24000	8	1000	10000
	9~10	500	5000	20000	10~13	500	4000	16000	9~10	500	5000	20000			
	11~13	500	4000	16000	14~16	500	3000	12000	11~14	500	4000	16000	8*20	1000	8000
	14~18	500	3000	12000	17~20	500	2500	10000	15~18	500	3000	12000			
	19~23	500	2500	10000	21~25	500	2000	8000	19~23	500	2500	10000	8.2	984	9840
	24~25	400	1600	6400					24~25	400	1600	6400			
10	7~12.5	500	3000	12000	7~11	500	3000	12000	7~14	350	2800	11200	10	672	6720
	13~14	500	2500	10000	12~14	500	2500	10000							
	15~18	500	2000	8000	15~18	500	2000	8000	15~25	250	2000	8000			
	19~22	250	1750	7000	19~25	250	1500	6000							
	23~25	250	1000	6000											
12.5	12~13	200	1200	7200	12~17	200	1600	6400	12~17	200	1600	6400	12.5*12~19	440	4400
	14~15	150	1200	7200	18~20	175	1400	5600	18~22	175	1400	5600	12.5*20~25	440	3520
	16~17	125	1000	6000	21~25	150	1200	4800	23~25	150	1200	4800			
	18~22	100	800	4800											
	23~25	100	800	3200											
14.5	16	100	800	3200	16	150	1200	4800	16	150	1200	4800			
	20~23	80	640	2560	20~23	120	960	3840	20~23	120	960	3840	14.5	2000	250
	25	80	640	2560	25	100	800	3200	25	100	800	3200			

② Packaging quantity of KC* products

KC* Products: Standard Packaging Quantity for 90-Degree Forming and Bending

External dimensions	PCS/bag	bag/each small box	box/each large carton	PCS/per large box
6.3*9~14	1000	8000	4	32000
6.3*14~15	750	6000	4	24000
6.3*20	500	4000	4	16000
7*15~20	500	4000	4	16000
8*14及以下	500	4000	4	16000
8*15~20	350	2800	4	11200
8*21~25	250	2000	4	8000
10*7~14	350	2800	4	11200
10*15~25	250	2000	4	8000
12.5*10~25	150	1200	4	4800

KC* products: Packaging quantity standard for trimmed tips less than 5mm

External dimensions	PCS/bag	bag/each small box	box/each large carton	PCS/per large box
6.3*7~10	1000	8000	4	32000
6.3*11~13	1000	7000	4	28000
6.3*15~17	1000	5000	4	20000
6.3*18~19	750	4500	4	18000
6.3*20	750	3750	4	15000
7*11	1000	5000	4	20000
7*15~20	500	3000	4	12000
8*10~13	500	4000	6	24000
8*14	500	3000	6	24000
8*15~16	500	4000	4	16000
8*17~20	350	2800	4	11200
8*21~25	250	2000	4	8000
10*7~11	500	3000	4	12000
10*12~14	500	2500	4	10000
10*15~18	500	2000	4	8000
10*19	250	1500	4	6000
12.5*12.5~19	200	1600	4	6400
12.5*20~25	150	1200	4	4800

KC* Products: Packaging quantity standards for products with long legs and those with more than 5mm of trimmed legs.

External dimensions	PCS/bag	bag/each small box	box/each large carton	PCS/per large box
6.3*7~9	1000	8000	4	32000
6.3*10~14	1000	4000	6	24000
6.3*15~19	1000	5000	4	20000
6.3*20	750	3750	4	15000
7*15~20	500	3000	4	12000
8*10~12	500	5000	4	20000
8*13	500	4000	4	16000
8*14~18	500	3000	4	12000
8*19~23	500	2500	4	10000
8*24~25	400	1600	4	6400
10*7~12.5	500	3000	4	12000
10*13~14	500	2500	4	10000
10*15~18	500	2000	4	8000
10*19~21	250	1750	4	7000
10*22~25	250	1000	6	6000
12.5*12.5~15	200	1200	6	7200
12.5*16~17	125	1000	6	6000
12.5*18~20	100	800	6	4800
12.5*21~25	100	800	4	3200

8mm ≤ Diameter < 16mm, Height ≥ 30mm
Diameter ≥ 16mm, Full Height

Product Type	φ8~φ10 standard products and lead-wire processed products			
diameter	high	Bagged	Boxed	boxed
8	30~35	350	1400	5600
	40~45	300	1200	4800
	50	250	1000	4000
10	30	150	1200	4800
	35	150	900	3600
	40~45	150	750	3000
	50~60	150	600	2400

Product Type	φ12.5~18, Height 16~50, standard product vertical box packaging quantity		
diameter	high	Boxed	boxed
12.5	30 ~ 50	280	1120
16	16 ~ 25	176	1056
	30 ~ 50	176	704
18	16 ~ 25	140	840
	30 ~ 50	140	560

Product Type	Products with φ10 and above cut feet and products bent at 90° are placed vertically in boxes.		
diameter	Boxed	boxed	Remark
16	176	1760	Product body height + cut-off length ≤ 25mm
18	140	1400	
20	114	1140	
10	442	3536	40mm ≥ Product body height + cut-off length > 25mm
12.5	280	2240	
13	266	1596	
16	176	1408	
18	140	1120	
20	104	832	
22	93	744	
25	70	560	
10	442	2652	55mm ≥ Product body height + cut-off length > 40mm
12.5	280	1680	
13	266	1596	
16	176	1056	
18	140	840	
20	104	624	
22	93	558	
25	70	420	

Product Type	Horizontal display box for special long-legged products and products with leads of φ20 and above.		
diameter	high	Boxed	boxed
12.5	30	303	1818
	35	264	1584
	40	228	1368
	45 ~ 50	189	1134
16	60	80	640
18	60	72	576
20	16	192	1152
	20	168	1008
	25	144	864
	30 ~ 31	128	768
	35 ~ 36	112	672
	40	96	576
	45 ~ 46	80	480
	50 ~ 51	80	480
22	20	154	924
	25	140	840
	30 ~ 31	112	672
	36 ~ 41	84	504
	45 ~ 46	70	420
25	25	120	720
	26	108	648
	30 ~ 31	96	576
	32	84	504
	36	72	432
	40 ~ 41	72	432
	46	60	360
	50 ~ 51	60	360

Notes:

1. The packaging quantity for all bent products is calculated based on a cut-off length of 4.5mm;

2. When the product body height + cut-off length > 55mm, all products will be packaged according to the standard horizontal box arrangement;

3. φ12.5 and above: Cut-off products and 90-degree bent products must be boxed; φ10: Cut-off products and 90-degree bent products... If a special customer requires boxing, then boxing is required; otherwise, boxing is not required; all products will be packaged according to the corresponding standard packaging method.

Precautions:

1) Confirmation of Operating Environment, Installation Environment, and Rated Performance

• Please confirm that the operating environment and installation environment comply with the capacitor's product catalog and specifications.

2) Operating Temperature, Ripple Current, and Lifespan

• Please use the capacitor within the operating temperature range and ripple current range specified in the product catalog and specifications.

① Do not use at high temperatures (exceeding the upper limit of the operating temperature).

② Do not allow overcurrent (exceeding the rated ripple current) to pass through the capacitor.

• Based on the results of accelerated testing, the capacitor's lifespan can be calculated using a lifespan estimation formula. However, the estimated lifespan has errors and cannot be used as a guarantee. Please use the estimated result as a reference and select a capacitor with a sufficient lifespan.

For information on lifespan estimation methods, please consult our company. Please contact us if the ripple voltage variation exceeds 70Vp-p.

3) Circuit Usage

• Capacitors must be used with polarity specified. Do not apply reverse voltage or AC voltage. In circuits with reversed polarity, please use bipolar capacitors. However, bipolar capacitors cannot be used in AC circuits.

• Do not use capacitors in circuits with repeated rapid charging and discharging. For capacitors used in rechargeable/discharge circuits, please consult us.

• For products stored for extended periods (over 12 months), recharging is required before use.

4) Applied Voltage

• Do not apply overvoltage (voltage exceeding the rated operating voltage) to the capacitor.

5) Capacitor Insulation

• In the following situations, completely isolate the capacitor from the circuit:

① Between the aluminum case and cathode terminals, anode terminals, and circuit wiring.

② Between self-standing, connectionless terminals (for strength enhancement) and other anode terminals, cathode terminals, and circuit wiring.

• The capacitor's outer sheath does not guarantee insulation. Do not use it in applications requiring insulation.

6) Environmental Restrictions

• Do not use the capacitor in the following environments:

① Direct splashes of water, salt water, oil, or environments with condensation.

② Environments filled with harmful gases (hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia, bromine, etc.).

③ Environments with ozone, ultraviolet radiation, or radiation exposure.

④ Excessive environmental conditions, such as vibration or shock exceeding the range specified in the product catalog or specifications.

⑤ Do not reuse capacitors that have been assembled into equipment and already energized, except for capacitors removed during routine maintenance to test electrical characteristics.

7) Installation Environment Design

• When installing capacitors onto a printed circuit board, the following should be confirmed before designing:

① Ensure that the capacitor terminal gap matches the printed circuit board hole gap.

② Do not extend wiring or circuit boards above the capacitor pressure valve during the design process.

③ Please leave a certain gap at the pressure valve of the capacitor as specified in the product catalog or specification sheet.

Product diameter	interval
Φ4~Φ16mm	2mm up
Φ18~Φ25mm	3mm up

④ When the pressure valve of an aluminum electrolytic capacitor contacts the printed circuit board, please install a vent hole directly opposite the printed circuit board.

⑤ Do not place heat-generating components around the capacitor or on the other side of the printed circuit board (below the capacitor).

8) Pre-installation Preparations

Do not reuse capacitors that have been assembled into equipment and already energized. Except for capacitors removed for periodic maintenance to test electrical characteristics, they should not be reused.

- Capacitors may experience voltage re-emergence. In this case, use a resistor of approximately 1KΩ to discharge them.
- The leakage current of capacitors stored for a long time may increase. In this case, use a 1KΩ resistor to voltage-treat them.

8-1) Installation-1

- Please confirm the capacitor's ratings (capacitance and voltage) before installation.
- Please confirm the capacitor's polarity before installation.
- Do not drop the capacitor. Do not use capacitors that have been dropped.
- Do not deform the capacitor during installation. 8-2) Installation - 2
- Ensure the capacitor terminal gap matches the PCB hole gap before installation.
- When using an automatic insertion machine to bend the capacitor leads to secure them to the PCB, do not apply excessive force.
- Be aware of the impact forces caused by the automatic insertion machine and assembly machine's suction cups, product inspectors, and alignment operations.
- If concerned about vibration or impact during assembly, use auxiliary tools and adhesives to enhance the capacitor's stability when installing it onto the PCB.

9) Storage Conditions

- Do not store capacitors in high temperature and high humidity environments. Store indoors at a temperature of 5° C to 35° C and a relative humidity below 75%.
- Do not store capacitors in environments where they may come into direct contact with water, salt water, or oil.
- Do not store capacitors in environments filled with harmful gases (hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia, bromine, etc.).
- Do not store capacitors in environments with ozone, ultraviolet radiation, or radiation exposure.

10) Cleaning of Printed Circuit Boards

- Do not use halogen-containing solvents to clean capacitors. However, if cleaning is necessary, use cleaner-resistant capacitors and use them within the limits specified in the product catalog or specifications.
- When cleaning cleaner-resistant capacitors, ensure proper contamination management of the cleaning agent (conductivity, pH value, specific gravity, water content, etc.).
- After cleaning cleaner-resistant capacitors, do not store them in an environment containing cleaning solution or in a sealed container.

Furthermore, after cleaning, thoroughly dry the printed circuit board and capacitors with hot air. Keep the hot air temperature below the upper operating temperature limit.

11) Fixatives and Coating Agents

- Do not use fixatives or coating agents containing halogenated solvents.
- Before using fixatives and coating agents, thoroughly clean the area between the substrate and the capacitor's sealing surface, ensuring no flux residue or dirt remains.
- Before using fixatives and coating agents, dry any cleaning agents or other contaminants adhering to the capacitor.
- When using fixatives and coating agents, do not completely block the capacitor's sealing surface.

12) Soldering

- Soldering conditions (temperature, time) must not exceed the range specified in the product catalog or specifications.
- If the terminal gap does not match the PCB hole gap, and processing is performed before soldering, the capacitor body must not be subjected to stress.
- When manually trimming with a soldering iron, ensure the solder is fully melted before removing it to avoid putting pressure on the capacitor terminals.
- Do not allow the tip of the soldering iron to touch the capacitor body.

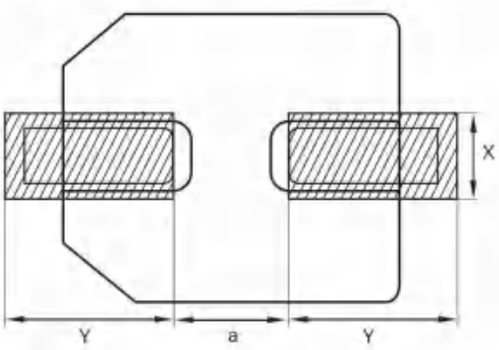
13) Wave Soldering

- When soldering, do not immerse the capacitor body in molten solder. Insert a printed circuit board as a barrier, and solder only the surface of the circuit board on the reverse side of the capacitor.
- Soldering conditions (preheating, soldering temperature, terminal immersion time) must not exceed the range specified in the product catalog or specifications.
- Do not apply flux to any part other than the terminals.
- During soldering, take care to prevent other components from tipping over and coming into contact with the capacitor.

14) Reflow Soldering

- Soldering conditions (preheating, soldering temperature, time, number of reflows) must not exceed the range specified in the product catalog or specifications.
- When using an infrared heater, the absorption rate of infrared radiation varies depending on the color and material of the capacitor; please pay attention to the heating temperature.
- If reflow soldering beyond the specified range is required, please contact us.

15) Recommended SMD pad size



unit:mm

Standard products			
Product diameter	X±0.10	Y±0.10	a±0.10
Φ4	1.60	2.60	1.00
Φ5	1.60	3.00	1.40
Φ6.3	1.60	3.50	1.90
Φ8	2.20	4.20	3.10
Φ10	2.30	4.40	4.00
Φ12.5	2.50	5.70	4.00
Φ16	2.50	6.90	6.00
Φ18	2.50	7.90	6.00

16) Disposal

- If water, salt water, oil (or other conductive liquids) come into contact with the capacitor, condensation may occur, potentially leading to malfunction. Oil on sealing rubber, pressure valves, etc., will result in poor airtightness. Keep the capacitor's operating environment dry and clean. Do not use the capacitor if it has been immersed in rainwater or other contaminated water.
- Do not place or use the capacitor in the presence of hydrogen sulfide, nitrous acid, sulfurous acid, chlorine, bromine, or harmful gases such as ammonia. Otherwise, corrosion may occur due to the intrusion of these gases.

- Do not place capacitors in locations exposed to ozone, ultraviolet radiation, or other forms of radiation.

- Dust or other particulate matter may accumulate at the capacitor terminals. Since this dust absorbs moisture, it can cause the terminals to rust. If dust is very noticeable at the terminals, stop the power supply and, with the capacitor fully discharged, gently wipe it with a paper or cloth dampened with water or ethanol. Caution: Do not use detergents or other chemicals.

- Do not use capacitors in locations subject to excessive vibration or impact.

17) Key Concerns

Aluminum electrolytic capacitors will experience a rapid deterioration in characteristics when subjected to the following loads:

- Reverse voltage

- Voltage exceeding the rated value

- Ripple current exceeding the rated value

- Rapid charging and discharging

Under these conditions, the capacitor may generate excessive heat, causing internal pressure to rise, leading to the opening of the pressure valve, internal gas ejection, and leakage.

In some cases, damage to the capacitor may result in the release of flammable materials, potentially leading to an explosion and fire.

18) Surface mount aluminum electrolytic capacitors should meet the following conditions when used: Lead-free reflow soldering allowable conditions: Aluminum case size Φ4~Φ10mm

- Capacitor surface temperature below T° C.

- The time for the capacitor surface temperature to be above 200° C should not exceed t seconds. The time for the temperature to be above T1° C should not exceed t1 seconds.

- Preheating should be controlled within 180 seconds at 100° C~200° C.

Product Category	Product Dimensions	T(℃)①	T1(℃)	t(sec)②	t1(sec)③	Number of reflow soldering cycles
Liquid surface mount aluminum electrolytic capacitors	Φ4~Φ6.3	250	230	90	40	2
	Φ8	240	230	90	30	2
	Φ10	235	230	60	30	2

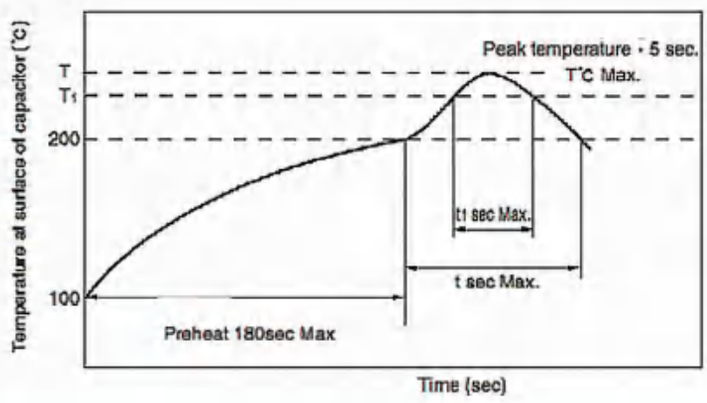
① Peak temperature

② Time exceeding 200° C (MAX)

③ Time exceeding T1 (MAX) The temperature standards for the temperature profile vary depending on the reflow method.

The maximum number of reflow soldering cycles is 2, but sufficient cooling time must be allowed between the first and second cycles.

Please contact us if any conditions exceed the allowable limits.



Liquid small-size aluminum electrolytic capacitor

◇ surface mount type

◇ Lead type

- Lead-free reflow soldering allowable conditions: Aluminum case size Φ12.5mm~18mm

- Capacitor surface temperature below T° C

- The time for the capacitor surface temperature to be above 200° C shall not exceed t seconds. The time for the capacitor surface temperature to be above T1° C shall not exceed t1 seconds

- Preheating control within 150 seconds from 100° C to 200° C.

Product Dimensions	T(℃)①	T1(℃)	t(sec)②	t1(sec)	Number of reflow soldering cycles
Φ12.5~Φ18	240	230	60	30	2

- Vibration-resistant products with auxiliary terminals

For surface mount capacitors with a case size of Φ8 or larger.

- When a missoldering occurs, please manually resolder. In this case, set the soldering iron tip temperature to 380±10° C and solder the capacitor for 3±0.5 seconds.

19) Other

- The electrical characteristics of a capacitor will change depending on the ambient temperature and operating frequency. Please design the circuit based on confirming this change.

- When mounting capacitors on a double-sided printed circuit board, do not design extra PCB holes or through-holes for front and back connections under the capacitor.

- When connecting two or more capacitors in parallel, please consider current balance.

- When connecting two or more capacitors in series, please consider voltage balance and insert voltage divider resistors in parallel.

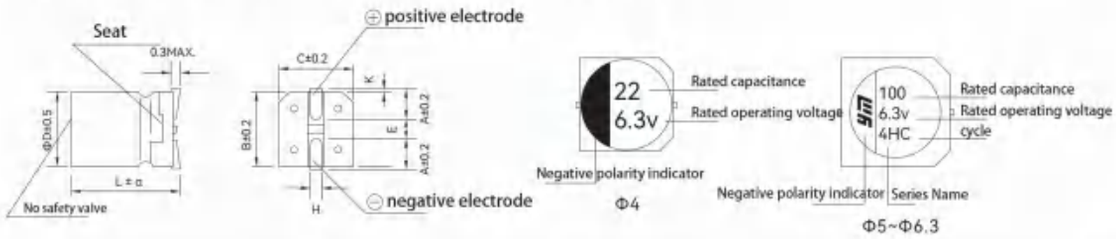
V4M

- ◆ 3.95mm maximum height, ultra-compact V-CHIP product
- ◆ 1000 hours of operation at 105℃
- ◆ Compliant with AEC-Q200 RoHS directive
- ◆ Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering

■ Main technical parameters

project	characteristic
Operating Temperature Range	－55~+105℃
Nominal Voltage Range	6.3~100V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	6.3~100WV I≤0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 tg δ: 0.38 / 0.32 / 0.20 / 0.16 / 0.14 / 0.14 / 0.16 / 0.16 / 0.16 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 Impedance ratio Z(－40℃)/Z(20℃): 10 / 10 / 6 / 6 / 4 / 4 / 6 / 6 / 6
Durability	After applying the rated voltage for a specified time in a 105℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below the specified value Load life: 6.3~100WV: 1000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD	L	B	C	A	H	E	K	α
4	3.95	4.3	4.3	1.8	0.75±0.10	1.0	0.5MAX	+0 -0.25
5	3.95	5.3	5.3	2.1	0.75±0.10	1.5	0.7MAX	
6.3	3.95	6.6	6.6	2.6	0.75±0.10	1.8	0.7MAX	

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.70	1.00	1.37	1.50

V4M

■ List of Standard Products

Voltage (V)	6.3		10		16		25		35		50	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0											4×3.95	6
2.2											4×3.95	10
3.3											4×3.95	13
4.7							4×3.95	12	4×3.95	14	5×3.95	17
5.6											4×3.95	17
10									4×3.95	20	5×3.95	23
10					4×3.95	17	5×3.95	21	5×3.95	23	6.3×3.95	27
18							4×3.95	27	5×3.95	35		
22											6.3×3.95	58
22	4×3.95	20	5×3.95	25	5×3.95	27	6.3×3.95	35	6.3×3.95	38		
33					4×3.95	34	5×3.95	44				
33	5×3.95	27	5×3.95	32	6.3×3.95	37	6.3×3.95	44				
39									6.3×3.95	68		
47			4×3.95	34								
47	5×3.95	34	6.3×3.95	42	6.3×3.95	46						
56					5×3.95	54						
68	4×3.95	34					6.3×3.95	68				
82			5×3.95	54								
100	6.3×3.95	54			6.3×3.95	68						
120	5×3.95	54										
180			6.3×3.95	68								
220	6.3×3.95	68										

Voltage (V)	63		80		100	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.2					4×3.95	7
1.8			4×3.95	10		
2.2					5×3.95	10
3.3	4×3.95	13				
3.9			5×3.95	16	6.3×3.95	16
5.6	5×3.95	17				
6.8			6.3×3.95	22		
10	6.3×3.95	27				

V3MC

◆Ultra-high capacity, low impedance, miniaturized V-CHIP product with a 2000-hour warranty

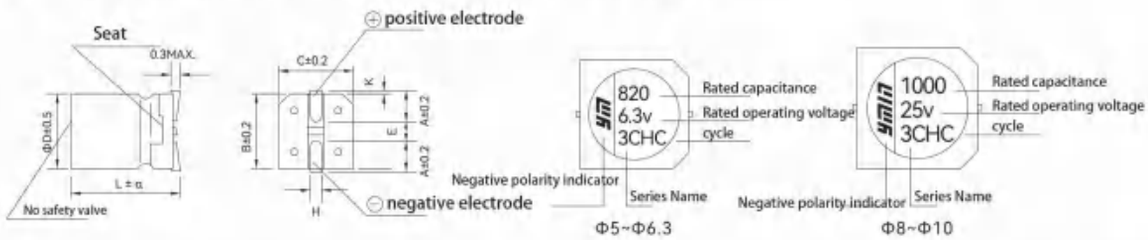
◆Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering

◆Compliant with AEC-Q200 RoHS directive. Please contact us for details.

■ Main technical parameters

project	characteristic
Operating Temperature Range	－55~+105℃
Nominal Voltage Range	6.3~35V
Rated capacitance range	220~2700μF
Capacity Tolerance	±20% (120Hz 25℃)
Leakage Current (μA)	6.3~100WV I≤0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
Loss Tangent (25±2° C 120Hz)	Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 tg δ: 0.26 / 0.19 / 0.16 / 0.14 / 0.12 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 Impedance ratio MAX Z(－40℃)/Z(20℃): 3 / 3 / 3 / 3 / 3
Durability	After being dried in a 105℃ oven with rated voltage applied for 2000 hours, and then placed at room temperature for 16 hours at 20℃, the capacitor's performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below the specified value
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD×L	A	B	C	E	H	K	α
6.3×7.7	2.6	6.6	6.6	1.8	0.75±0.20	0.7MAX	±0.4
8×10	3.0	8.3	8.3	3.1	0.90±0.20	0.7MAX	±0.5
10×10	3.5	10.3	10.3	4.4	0.90±0.20	0.7MAX	±0.7

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.35	0.50	0.83	1.00

V3MC

■ List of Standard Products

Voltage (V)	6.3			10			16			25		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
330										6.3×7.7	0.24	610
470							6.3×7.7	0.24	610			
560				6.3×7.7	0.24	610				8×10	0.12	860
820	6.3×7.7	0.24	610				8×10	0.12	860			
1000										10×10	0.09	1200
1200				8×10	0.12	860						
1500							10×10	0.09	1200			
1800	8×10	0.12	860									
2200				10×10	0.09	1200						
2700	10×10	0.09	1200									

Voltage (V)	35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
220	6.3×7.7	0.24	610
470	8×10	0.12	860
680	10×10	0.09	1200

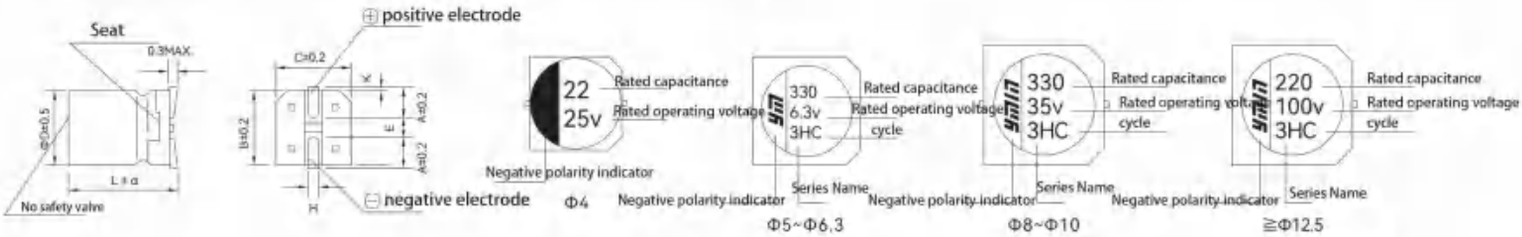
V3M

- ◆Low impedance, thin, high capacity V-CHIP products
- ◆2000~5000 hours at 105℃
- ◆Compliant with AEC-Q200 RoHS directive
- ◆Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering

■ Main technical parameters

project	characteristic
Operating Temperature Range	≦100V －55~+105℃；160V －40~+105℃
Nominal Voltage Range	6.3~160V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	6.3~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160WV I≦0.02CV+10(μA) C: Nominal Capacity (μF) V: Rated Voltage (V) Reading after 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 / 160 tg δ: 0.26 / 0.19 / 0.16 / 0.14 / 0.12 / 0.12 / 0.12 / 0.12 / 0.12 / 0.14 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 / 160 Impedance ratio Z(－40℃)/Z(20℃): 3 / 3 / 3 / 3 / 3 / 3 / 5 / 5 / 5 / 5
Durability	After applying the rated voltage for a specified time in a 105℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below the specified value Load life: ≦Φ10 2000小时 >Φ10 5000小时
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD	L	B	C	A	H	E	K	α
4	5.8	4.3	4.3	1.8	0.75±0.20	1.0	0.5MAX	±0.3
5	5.8	5.3	5.3	2.1	0.75±0.20	1.5	0.7MAX	±0.3
6.3	5.8	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.3
6.3	7.7	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.4
8	10	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
10	10	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.5
12.5	13.5	13	13	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	14.5	13	13	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	16.5	13	13	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	21	13	13	4.7	0.90±0.30	4.4	0.7MAX	±1.0
16	16.5	17	17	5.5	1.20±0.30	6.7	0.70±0.30	±1.0
16	21	17	17	5.5	1.20±0.30	6.7	0.70±0.30	±1.0
18	16.5	19	19	6.7	1.20±0.30	6.7	0.70±0.30	±1.0
18	21	19	19	6.7	1.20±0.30	6.7	0.70±0.30	±1.0

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.35	0.50	0.83	1.00

V3M

■ List of Standard Products

Voltage (V)	6.3			10			16			25		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
22										4×5.8	2.00	160
33										4×5.8	2.00	160
47							4×5.8	2.00	160	5×5.8	0.720	240
68				4×5.8	2.00	160	5×5.8	0.72	240	5×5.8	0.720	240
100	4×5.8	2.00	160				5×5.8	0.72	240	6.3×5.8	0.520	300
150				5×5.8	0.72	240	6.3×5.8	0.52	300	6.3×7.7	0.320	600
220	5×5.8	0.72	240	6.3×5.8	0.52	300	6.3×5.8	0.52	300	6.3×7.7	0.320	600
330	6.3×5.8	0.52	300	6.3×7.7	0.32	600	6.3×7.7	0.32	600			
470	6.3×7.7	0.32	600	6.3×7.7	0.32	600				8×10	0.16	850
680	6.3×7.7	0.32	600				8×10	0.16	850			
820										10×10	0.120	1190
1000				8×10	0.16	850	10×10	0.12	1190			
1500	8×10	0.16	850	10×10	0.12	1190				12.5×13.5	0.116	1420
2200	10×10	0.12	1190									

Voltage (V)	35			50			63			80		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10				4×5.8	4.60	85						
10				5×5.8	1.76	165						
22	4×5.8	2.00	160	5×5.8	1.76	165						
33	5×5.8	0.72	240									
47	5×5.8	0.72	240	6.3×5.8	1.36	195						
68	6.3×5.8	0.52	300									
100	6.3×5.8	0.52	300	6.3×7.7	0.68	350						
150	6.3×7.7	0.32	600									
220				8×10	0.36	670				12.5×13.5	0.36	1050
330	8×10	0.16	850	10×10	0.24	900						
470				12.5×13.5	0.24	1340	12.5×16.5	0.28	1250	16×16.5	0.20	1500
560	10×10	0.12	1190									
680							16×16.5	0.164	1740	16×21	0.132	2040
820							18×16.5	0.16	1880	18×21	0.126	2140
1000	12.5×14.5	0.116	1420	16×16.5	0.160	1820						
1200							16×21	0.108	2430			
1500				16×21	0.100	2440						

V3M

■ List of Standard Products

Voltage (V)	100			160		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
100				12.5×16.5	4.60	1040
150	12.5×13.5	0.36	1050	16×21	3.28	1520
220	12.5×16.5	0.22	1250	18×21	2.58	2140
330	16×16.5	0.20	1500			
470	16×21	0.132	2040			
560	18×21	0.126	2140			

VMM

- ◆ All-voltage, miniature, flat V-chip products
- ◆ 3000~8000 hours at 105℃
- ◆ Compliant with AEC-Q200 RoHS directive
- ◆ Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering

■ Main technical parameters

project	characteristic
Operating Temperature Range	≦100V －55~+105℃ ; 160~500V －40~+105℃
Nominal Voltage Range	6.3~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	6.3~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	

Rated voltage (V)	6.3	10	16	25	35	50	63	80
tg δ	0.32	0.28	0.24	0.20	0.18	0.16	0.16	0.14
Rated voltage (V)	100	160	200	250	350	400	450	500
tg δ	0.14	0.15	0.15	0.15	0.20	0.20	0.20	0.25

For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Temperature Characteristics (120Hz)

Rated voltage (V)	6.3	10	16	25	35	50	63	80
Impedance ratio Z(－40℃)/Z(20℃)	14	12	10	10	10	7	7	7
Rated voltage (V)	100	160	200	250	350	400	450	500
Impedance ratio Z(－40℃)/Z(20℃)	7	10	10	10	10	10	10	12

Durability

After applying the rated voltage for a specified time in a 105℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements.

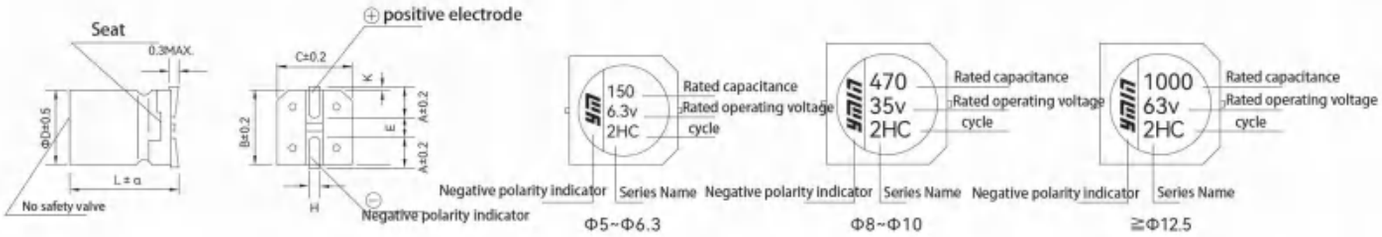
Capacity change rate	Within ±30% of the initial value			
Loss tangent	Below 300% of the specified value			
Leakage current	Below the specified value			
Load life	6.3~100WV		160~500WV	
	External Dimensions	Load life	External Dimensions	Load life
	ΦD*5.7 (6.2, 6.9)	3000	ΦD*5.7 (6.2, 6.9)	3000
	ΦD*7.7 (7.9, 8.4)	4000	ΦD*7.7 (7.9, 8.4)	5000
	Others Φ5~Φ6.3	5000	Others Φ5~Φ6.3	6000
	Others Φ8	6000	Others Φ8	7000
	Others Φ10 and above	8000	Others Φ10 and above	8000

High Temperature Storage

After applying the rated voltage for a specified time in a 105℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements.

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD	L	B	C	A	H	E	K	α
5	5.7	5.3	5.3	2.1	0.75±0.20	1.5	0.7MAX	±0.3
5	7.9	5.3	5.3	2.1	0.75±0.20	1.5	0.7MAX	±0.3
5	10	5.3	5.3	2.1	0.75±0.20	1.5	0.7MAX	±0.5
6.3	5.7	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.3
6.3	7.7	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.3
6.3	10	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
8	6.2	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.3
8	7.9	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.3
8	10	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	12.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	14.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	16.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
10	6.9	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.3
10	8.4	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.3
10	10	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.5
10	12.5	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.5
10	13	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.5
10	14.5	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.5
10	16.5	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.5
10	21	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.5
12.5	13.5	13	13	4.7	0.90±0.20	4.4	0.7MAX	±1.0
12.5	14.5	13	13	4.7	0.90±0.20	4.4	0.7MAX	±1.0
12.5	16.5	13	13	4.7	0.90±0.20	4.4	0.7MAX	±1.0
16	16.5	17	17	5.5	1.2±0.30	6.7	0.7±0.30	±1.0
16	21	17	17	5.5	1.2±0.30	6.7	0.7±0.30	±1.0
18	17	19	19	6.7	1.2±0.30	6.7	0.7±0.30	±1.0
18	21	19	19	6.7	1.2±0.30	6.7	0.7±0.30	±1.0

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.65	1.00	1.37	1.50

Liquid small-size aluminum electrolytic capacitor

◇ Lead type

LKF
Standard products
7000~10000H

P91

LKM
Long lifespan, miniaturized products
7000~10000H

P99

LKG
Long lifespan
8000~12000H

P107

LED NEW
105℃ 10000H/130℃ 2000H
High temperature resistance, long lifespan, LED-specific products

P140

LKE NEW
105℃ 10000H
Long life, high frequency and low impedance, dedicated to motor frequency conversion

P142

Product List

category	series	Features	Standard products	Miniaturized products	Long-life products	High temperature resistant products	low impedance products	AEC — Q200	Customized products	Rated Voltage Range (V)	Rated capacitance range (μF)	Operating temperature range (°C)	Lifespan (Hrs)	page number
Surface mount type	V4M	3.95mm LMAX Ultra-compact Product		●				●		6.3~100	1~220	-55~+105	1000	21
	V3MC	Ultra-high capacitance, low impedance, small size products					●	●		6.3~35	220~2700	-55~+105	2000	23
	V3M	Low impedance, thin, high capacitance products		●			●	●		6.3~100 160	10~2200	-55~+105 -40~+105	2000~5000	25
	VMM	5mm high thin product		●	●			●		6.3~100 160~500	0.47~4700	-55~+105 -40~+105	3000~8000	28
	VK7	7mm high small products		●	●			●		6.3~100 160~400	1.0~680	-55~+105 -40~+105	4000~6000	35
	VKO	Small size	●					●		10~100 160~500	0.47~10000	-55~+105 -40~+105	6000~8000	38
	VKM	Long lifespan miniaturized products		●	●			●		10~100 160~500	0.47~4700	-55~+105 -40~+105	7000~10000	45
	VKG	Long lifespan		●	●			●		10~100 160~500	0.47~4700	-55~+105 -40~+105	8000~12000	52
	VKL	High temperature resistant, long lifespan products		●	●	●		●		10~100 160~450	0.47~4700	-40~+125 -25~+125	2000~5000	59
	VKL(R)	High temperature resistance, low impedance, and high reliability products		●	●	●	●	●		10~50	47~3300	-55~+135	2000	63
	VKD	Customized products							●	Voltage requirements	Capacity requirements	Temperature requirements	Lifespan requirements	/
Radial lead type	L3M	Low impedance, thin, high capacitance products		●			●	●		6.3~100 160	10~2200	-55~+105 -40~+105	2000~5000	65
	LMM	thin products		●	●			●		6.3~100 160~500	0.47~4700	-55~+105 -40~+105	3000~8000	67
	LK7	7mm high ultra-compact product		●	●			●		6.3~400	1.0~680	-40~+105	5000~6000	72
	LK	Small size, high frequency, low impedance	●		●		●	●		10~120 160~500	0.47~10000	-55~+105 -40~+105	6000~8000	75
	KCX	Ultra-compact size, lightning-resistant, suitable for fast charging power supplies		●	●		●			400~500	4.7~270	-40~+105	2000~3000	83
	KCG NEW	High temperature resistance, long lifespan, high voltage, large capacity, and lightning protection.		●		●	●			400	10~120	-40~+105	115°C 2000 105°C 4000	86
	KCM NEW	Ultra-small size, high pressure resistance		●	●					400~450	8.2~180	-40~+105	3000	88
	LKF	Standard products, high frequency, low impedance	●		●		●	●		10~120 160~500	0.47~4700	-55~+105 -40~+105	7000~10000	91
	LKM	Long lifespan, miniaturized, high frequency, low impedance		●	●		●	●		10~120 160~500	0.47~4700	-55~+105 -40~+105	7000~10000	99
	LKG	Long lifespan, high frequency, low impedance		●	●		●	●		10~120 160~500	0.47~10000	-55~+105 -40~+105	8000~12000	107
	LKZ	Long lifespan, high frequency, low impedance		●	●		●	●		10~120 160~600	2.2~6800	-55~+105 -40~+105	12000~15000	115
	LLK	Ultra-long lifespan products	●		●		●	●		160~400 450	1.0~68	-40~+105 -25~+105	12000~20000	122
	LKX	Long-life pen type	●		●			●		35~100 160~450	12~1800	-55~+105 -40~+105	7000~12000	124
	LKL	High temperature resistant, long lifespan products		●	●	●	●	●		10~120 160~500	0.47~8200	-55~+130 -25~+130	2000~5000	128
	LKL(R)	High temperature resistant and high reliability products		●	●	●	●	●		10~100	10~12000	-55~+135	3000	133
	LKJ	Long lifespan, miniaturized products		●	●		●	●		6.3~100	0.47~15000	-55~+105	5000~10000	136
	LKD NEW	Small size, large capacity, long lifespan		●	●					400~600	100~560	-40~+105	8000	138
	LED NEW	High temperature resistant, long life LED-specific products			●	●		●		400~450	2.2~100	-25~+130	130°C 2000 105°C 10000	140
	LKE NEW	Long life, high frequency, low impedance, dedicated to motor frequency conversion			●		●	●		10~120 160~250	22~10000	-55~+105 -40~+105	10000	142

VMM

■ List of Standard Products

Voltage (V)	6.3		10		16		25		35		50	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)
0.47											5×5.7	4
1.0											5×5.7	8
1.2											5×5.7	9
1.5											5×5.7	10
1.8											5×5.7	11
2.2											5×5.7	12
2.7											5×5.7	14
3.3											5×5.7	16
3.9											5×5.7	18
4.7											5×5.7	20
5.6											5×5.7	22
6.8											5×5.7	24
8.2											5×5.7	26
10	5×5.7	26	5×5.7	26	5×5.7	26	5×5.7	26	5×5.7	26	5×5.7	29
12											5×5.7	32
15	5×5.7	26	5×5.7	26	5×5.7	26	5×5.7	26	5×5.7	26	5×5.7	35
18											5×7.7	40
18											6.3×5.7	55
22	5×5.7	26	5×5.7	26	5×5.7	26	5×5.7	26	5×5.7	26	5×7.7	57
22											6.3×5.7	57
27											6.3×5.7	60
33	5×5.7	30	5×5.7	30	5×5.7	30	5×5.7	30	6.3×5.7	55	6.3×7.7	72
33											8×6.2	72
39	5×5.7	33	5×5.7	33	5×5.7	33	5×7.7	49	6.3×5.7	61	6.3×7.7	80
39											8×6.2	80
47	5×5.7	37	5×5.7	37	5×5.7	37	5×7.7	54	6.3×5.7	67	6.3×7.7	88
47											8×6.2	88
56	5×5.7	40	5×5.7	40	5×7.7	53	5×7.7	60	6.3×7.7	74	8×6.2	100
56					6.3×5.7	53			8×6.2	74		
68	5×5.7	45	5×5.7	45	5×7.7	58	6.3×5.7	100	6.3×7.7	105	8×7.9	120
68					6.3×5.7	58		100	8×6.2	105	10×6.9	120
82	5×5.7	50	6.3×5.7	71	5×7.7	64	6.3×7.7	115	6.3×7.7	116	8×7.9	140
82					6.3×5.7	64	8×6.2	115	8×6.2	116	10×6.9	140
100	5×5.7	55	6.3×5.7	78	6.3×5.7	70	8×6.2	160	8×7.9	160	8×7.9	150
100											10×6.9	150
120	5×5.7	61	6.3×5.7	85	6.3×5.7	77	6.3×7.7	180	8×7.9	180	10×8.4	180
120							8×6.2	180				
150	6.3×5.7	85	6.3×5.7	85	6.3×7.7	109	8×6.2	200	8×7.9	180	10×8.4	220
150					8×6.2	109			10×6.9	210		

VMM

■ List of Standard Products

Voltage (V)	6.3		10		16		25		35		50	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)
180	6.3×5.7	94	6.3×7.7	94	8×6.2	120	8×7.9	170	10×8.4	225	10×10	310
180							10×6.9	225			8×12.5	310
220	6.3×5.7	103	6.3×7.7	103	8×6.2	132	10×6.9	250	10×8.4	315	10×12.5	340
270	6.3×7.7	123	6.3×7.7	163				250	10×8.4	350	10×12.5	375
270	8×6.2	123	8×6.2	163	8×7.9	180	10×8.4	310				
330	8×6.2	135	8×6.2	175					10×10	420	12.5×13.5	415
330	6.3×7.7	135			8×7.9	200	10×8.4	345			10×14.5	415
390	8×6.2	166	8×7.9	196	10×6.9	220			10×12.5	525	12.5×13.5	455
390			10×6.9	196			10×8.4	380				
470	8×7.9	200	8×7.9	210	10×8.4	295	10×10	490	10×13	570	12.5×13.5	500
470	10×6.9	200	10×6.9	210								
560	8×7.9	231	10×8.4	253	10×8.4	325	10×12.5	580	12.5×13.5	586	12.5×14.5	550
560	10×6.9	231										
680	8×7.9	254	10×8.4	275	10×10	420	10×12.5	640	12.5×13.5	640	12.5×16.5	610
680	10×6.9	254										
820	10×8.4	304	10×8.4	345	10×10	465	12.5×13.5	710	12.5×14.5	710	16×16.5	680
820	8×10	304										
1000	10×8.4	362	10×10	450	10×12.5	580	12.5×13.5	780	12.5×16.5	780	16×16.5	680
1000	8×10	362										
1200	8×12.5	430	10×12.5	540	10×13	600	12.5×13.5	860	12.5×16.5	850	18×17	750
1200	10×10	430										
1500	10×12.5	520	10×13	600	12.5×13.5	665	12.5×16.5	925	16×16.5	925	16×21	830
1800	10×12.5	520	12.5×13.5	730	12.5×13.5	730	12.5×16.5	1010	16×16.5	1010	18×21	910
2200	10×13	570	12.5×13.5	800	12.5×14.5	860	16×16.5	1100	18×17	1100		
2700	10×16.5	686	12.5×13.5	810	12.5×16.5	980	16×16.5	1230	18×21	1230		
2700	12.5×13.5	686										
3300	10×16.5	760	12.5×16.5	970	16×16.5	1130	18×17	1350				
3300	12.5×13.5	760										
3900	12.5×14.5	830	12.5×16.5	1060	16×16.5	1250	18×21	1480				
4700	12.5×16.5	910	16×16.5	1360	18×17	1580	18×21	1650				

VMM

■ List of Standard Products

Voltage (V)	63		80		100		160		200		250	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)
0.47	5×5.7	4	5×5.7	4	5×5.7	4						
1.0	5×5.7	8	5×5.7	8	5×5.7	8	5×5.7	15	5×5.7	15	5×5.7	15
1.2	5×5.7	9	5×5.7	9	5×5.7	9	5×5.7	18	5×5.7	18	5×5.7	18
1.5	5×5.7	10	5×5.7	10	5×5.7	10	5×5.7	18	5×5.7	18	5×7.7	22
1.8	5×5.7	11	5×5.7	11	5×5.7	11	5×5.7	18	5×7.7	22	5×7.7	22
2.2	5×5.7	12	5×5.7	12	5×5.7	12	5×7.7	20	5×7.7	22	6.3×5.7	22
2.7	5×5.7	14	5×5.7	14	5×5.7	14	5×7.7	22	6.3×5.7	31	6.3×7.7	35
3.3	5×5.7	16	5×5.7	16	5×5.7	16	6.3×5.7	22	6.3×5.7	35	6.3×7.7	35
3.3											8×6.2	35
3.9	5×5.7	18	5×5.7	18	5×5.7	18	6.3×5.7	22	6.3×7.7	40	6.3×7.7	40
3.9									8×6.2	40	8×6.2	40
4.7	5×5.7	20	5×5.7	20	5×5.7	20	6.3×7.7	28	6.3×7.7	45	8×6.2	50
4.7							8×6.2	28	8×6.2	45		
5.6	5×5.7	22	5×5.7	22	5×7.7	22	6.3×7.7	40	8×6.2	50	8×7.9	55
5.6							8×6.2	40			10×6.9	55
6.8	5×5.7	24	5×5.7	24	5×7.7	24	8×6.2	45	8×7.9	65	8×7.9	65
6.8											10×6.9	65
8.2	5×5.7	26	5×7.7	26	6.3×5.7	26	8×6.2	51	8×7.9	65		
8.2									10×6.9	65	10×8.4	80
10	5×5.7	29	5×7.7	28	6.3×5.7	28	8×7.9	56	8×7.9	72		
10							10×6.9	56	10×6.9	72	10×8.4	95
12	5×7.7	45	6.3×5.7	31	6.3×7.7	31	8×7.9	62	8×10	90	10×8.4	105
12	6.3×5.7	45			8×6.2	31	10×6.9	62	10×8.4	90		
15	5×7.7	50	6.3×7.7	38	6.3×7.7	34	8×10	87	10×8.4	105	10×10	125
15	6.3×5.7	50	8×6.2	38	8×6.2	34	10×8.4	87				
18	6.3×5.7	55	6.3×7.7	44	8×6.2	44	10×8.4	95	10×10	125	10×12.5	140
18			8×6.2	44								
22	6.3×5.7	60	6.3×7.7	49	8×7.9	60	10×10	110	10×12.5	180	10×12.5	180
22			8×6.2	60	10×6.9	60						
27	6.3×7.7	65	8×6.2	65	8×7.9	78	10×12.5	150	10×13	225	10×14.5	225
27	8×6.2	65			10×6.9	78						
33	6.3×7.7	72	8×7.9	78	10×8.4	86	10×12.5	165	10×14.5	250	12.5×13.5	270
33	8×6.2	72	10×6.9	78								
39	8×6.2	80	8×7.9	86	10×8.4	110	10×13	185	12.5×13.5	300	12.5×14.5	300
39			10×6.9	86								
47	8×7.9	88	10×8.4	110	10×8.4	140	12.5×13.5	300	12.5×13.5	330	12.5×16.5	375
47	10×6.9	88										
56	8×7.9	98	10×8.4	140	10×10	170	12.5×13.5	330	12.5×14.5	340	12.5×16.5	375
56	10×6.9	98										

VMM

■ List of Standard Products

Voltage (V)	63		80		100		160		200		250	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kH 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)
68	8×7.9	110	10×8.4	155	10×12.5	200	12.5×14.5	365	12.5×16.5	375	16×16.5	450
68	10×6.9	110										
82	10×8.4	155	10×10	180	10×13	250	12.5×16.5	440	16×16.5	450	16×16.5	450
100	10×8.4	180	10×10	200	12.5×13.5	310	12.5×16.5	440	16×16.5	480	18×17	500
120	10×10	200	10×12.5	250	12.5×13.5	320	16×16.5	525	18×17	575	16×21	540
150	10×12.5	250	12.5×13.5	310	12.5×13.5	320	18×17	630	16×21	575	18×21	670
180	10×12.5	275	12.5×13.5	320	12.5×16.5	390	18×17	630	18×21	690		
220	12.5×13.5	320	12.5×13.5	320	12.5×16.5	480	18×21	835				
270	12.5×13.5	350	12.5×14.5	390	16×16.5	530						
330	12.5×13.5	390	12.5×16.5	480	16×16.5	590						
390	12.5×16.5	440	16×16.5	530	18×17	700						
470	12.5×16.5	480	16×16.5	590	16×21	700						
560	16×16.5	550	18×17	700	18×21	850						
680	16×16.5	610	16×21	700								
820	18×17	730	18×21	850								
1000	18×17	750										
1200	16×21	830										
1500	18×21	910										

VMM

■ List of Standard Products

Voltage (V)	350		400		450		500	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)
1.0	5×7.7	18	5×7.7	18	6.3×5.7	20	6.3×7.7	20
1.2	5×7.7	20	6.3×5.7	20	6.3×7.7	24	6.3×7.7	20
1.2	6.3×5.7	20			8×6.2	24		
1.5	6.3×5.7	25	6.3×7.7	28	6.3×7.7	28	8×6.2	20
1.5					8×6.2	31		
1.8	6.3×7.7	31	6.3×7.7	31	8×6.2	37	8×7.9	25
1.8	8×6.2	31	8×6.2	31				
2.2	6.3×7.7	40	6.3×7.7	40	8×7.9	44	8×7.9	30
2.2	8×6.2	44	8×6.2	44	10×6.9	44		
2.7	8×6.2	48	8×6.2	48	8×7.9	48	8×10	36
2.7					10×6.9	48		
3.3	10×6.9	55	8×7.9	55	8×7.9	55	10×8.4	36
3.3			10×6.9	55	10×6.9	55		
3.9	8×7.9	62	8×7.9	62	10×8.4	66	8×12.5	44
3.9	10×6.9	62	10×6.9	62			10×10	44
4.7	8×7.9	70	10×6.9	70	10×8.4	72	8×14.5	50
4.7	10×6.9	70					10×10	50
5.6	8×10	84	8×10	84	10×10	88	10×12.5	55
5.6	10×8.4	84	10×8.4	84				
6.8	8×10	84	8×12.5	88	10×12.5	105	10×12.5	60
6.8	10×8.4	88	10×8.4	88				
8.2	8×12.5	105	10×10	105	10×12.5	120	10×13	66
8.2	10×10	105						
10	10×10	105	10×12.5	120	10×13	126	10×14.5	72
10							12.5×13.5	86
12	10×12.5	126	10×12.5	126	12.5×13.5	150	12.5×14.5	95
15	10×13	132	12.5×13.5	150	12.5×13.5	150	12.5×14.5	105
18	10×14.5	145	12.5×13.5	150	12.5×14.5	165	12.5×16.5	125
22	12.5×13.5	150	12.5×14.5	165	12.5×16.5	200	16×16.5	150
27	12.5×14.5	165	12.5×16.5	182	16×16.5	234	16×16.5	165
33	12.5×16.5	182	12.5×16.5	200	16×16.5	258	18×17	180
39	12.5×16.5	200	16×16.5	234	18×17	310	16×21	215
47	16×16.5	258	16×16.5	258	16×21	340	18×21	258
56	18×17	310	18×17	310	18×21	380		
68	18×17	340	16×21	340				
82	18×21	380	18×21	380				
100	18×21	410						

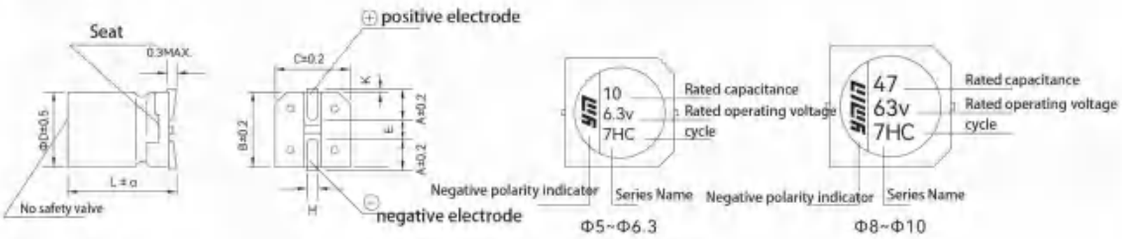
VK7

- ◆7mm high, ultra-compact, designed for high-end power supplies
- ◆4000~6000 hours of operation at 105℃
- ◆Compliant with AEC-Q200 RoHS directive
- ◆Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering

■ Main technical parameters

project	characteristic
Operating Temperature Range	≦100V －55~+105℃；160~400V －40~+105℃
Nominal Voltage Range	6.3~400V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	6.3~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~400WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V) 6.3 10 16 25 35 50 63 tg δ 0.32 0.28 0.24 0.20 0.16 0.14 0.14 Rated voltage (V) 80 100 160 200 250 350 400 tg δ 0.12 0.12 0.15 0.15 0.15 0.15 0.15 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V) 6.3 10 16 25 35 50 63 Impedance ratio Z(－40℃)/Z(20℃) 14 12 8 6 4 4 4 Rated voltage (V) 80 100 160 200 250 350 400 Impedance ratio Z(－40℃)/Z(20℃) 4 4 5 5 5 7 7
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below the specified value Load life: Φ5 4000h; Φ6.3 5000h; Φ8、Φ10 6000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD	L	B	C	A	H	E	K	α
5	7.9	5.3	5.3	2.2	0.75±0.20	1.5	0.7MAX	±0.3
6.3	7.7	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.3
8	7.9	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.3
10	8.4	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.3

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.65	1.00	1.37	1.50

VK7

■ List of Standard Products

Voltage (V)	6.3		10		16		25		35		50	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
2.2											5×7.9	31
2.7											5×7.9	31
3.3											5×7.9	31
3.9											5×7.9	31
4.7							5×7.9	50	5×7.9	50	5×7.9	31
5.6							5×7.9	50	5×7.9	50	5×7.9	31
6.8							5×7.9	55	5×7.9	50	5×7.9	31
8.2							5×7.9	55	5×7.9	50	5×7.9	31
10	5×7.9	55	5×7.9	55	5×7.9	55	5×7.9	60	5×7.9	50	5×7.9	31
12	5×7.9	55	5×7.9	55	5×7.9	55	5×7.9	60	5×7.9	60	5×7.9	37
15	5×7.9	60	5×7.9	60	5×7.9	60	5×7.9	60	5×7.9	60	5×7.9	44
18	5×7.9	60	5×7.9	60	5×7.9	60	5×7.9	60	5×7.9	60	6.3×7.7	55
22	5×7.9	60	5×7.9	70	5×7.9	70	5×7.9	60	5×7.9	70	6.3×7.7	65
27	5×7.9	70	5×7.9	70	5×7.9	70	5×7.9	70	6.3×7.7	80	6.3×7.7	78
33	5×7.9	80	5×7.9	80	5×7.9	80	5×7.9	85	6.3×7.7	90	8×7.9	85
39	5×7.9	80	5×7.9	80	5×7.9	80	5×7.9	85	6.3×7.7	98	8×7.9	100
47	5×7.9	90	5×7.9	90	5×7.9	90	5×7.9	90	6.3×7.7	105	8×7.9	120
56	5×7.9	90	5×7.9	90	5×7.9	90	6.3×7.7	98	8×7.9	115	8×7.9	125
68	5×7.9	90	5×7.9	90	5×7.9	90	6.3×7.7	105	8×7.9	125	10×8.4	140
82	5×7.9	100	5×7.9	98	6.3×7.7	105	6.3×7.7	115	8×7.9	140	10×8.4	160
100	5×7.9	105	6.3×7.7	115	6.3×7.7	115	8×7.9	125	8×7.9	170	10×8.4	180
120	5×7.9	110	6.3×7.7	115	6.3×7.7	128	8×7.9	140	10×8.4	180		
150	6.3×7.7	115	6.3×7.7	135	8×7.9	140	8×7.9	170	10×8.4	210		
180	6.3×7.7	135	8×7.9	160	8×7.9	170	10×8.4	190				
220	6.3×7.7	160	8×7.9	170	8×7.9	190	10×8.4	220				
270	8×7.9	170	8×7.9	190	10×8.4	220						
330	8×7.9	180	10×8.4	220	10×8.4	240						
390	8×7.9	190	10×8.4	240	10×8.4	260						
470	8×7.9	200	10×8.4	260								
560	10×8.4	240										
680	10×8.4	280										

VK7

■ List of Standard Products

Voltage (V)	63		80		100		160		200		250	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0									5×7.9	20	5×7.9	20
1.2									5×7.9	20	5×7.9	20
1.5									5×7.9	22	5×7.9	22
1.8									5×7.9	22	5×7.9	22
2.2	5×7.9	30	5×7.9	30	5×7.9	28	5×7.9	20	6.3×7.7	25	6.3×7.7	25
2.7	5×7.9	30	5×7.9	30	5×7.9	28	5×7.9	20	6.3×7.7	35	6.3×7.7	35
3.3	5×7.9	30	5×7.9	30	5×7.9	28	6.3×7.7	22	6.3×7.7	40	6.3×7.7	40
3.9	5×7.9	30	5×7.9	30	5×7.9	28	6.3×7.7	22	8×7.9	50	8×7.9	50
4.7	5×7.9	30	5×7.9	30	5×7.9	28	6.3×7.7	22	8×7.9	55	8×7.9	55
5.6	5×7.9	30	5×7.9	30	5×7.9	28	8×7.9	50	8×7.9	65	8×7.9	65
6.8	5×7.9	30	5×7.9	30	6.3×7.7	30	8×7.9	55	8×7.9	72	10×8.4	80
8.2	5×7.9	30	5×7.9	30	6.3×7.7	40	8×7.9	60	10×8.4	95	10×8.4	95
10	5×7.9	30	6.3×7.7	50	6.3×7.7	50	8×7.9	65	10×8.4	108	10×8.4	108
12	6.3×7.7	50	6.3×7.7	55	8×7.9	75	10×8.4	95				
15	6.3×7.7	56	6.3×7.7	70	8×7.9	85	10×8.4	115				
18	6.3×7.7	70	6.3×7.7	75	8×7.9	100						
22	8×7.9	75	8×7.9	85	8×7.9	120						
27	8×7.9	85	8×7.9	100	10×8.4	130						
33	8×7.9	100	8×7.9	120	10×8.4	150						
39	8×7.9	120	10×8.4	130								
47	10×8.4	130	10×8.4	150								
56	10×8.4	150	10×8.4	160								
68	10×8.4	160										

Voltage (V)	350		400	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	6.3×7.7	25	6.3×7.7	25
1.2	6.3×7.7	30	6.3×7.7	30
1.5	6.3×7.7	35	6.3×7.7	35
1.8	6.3×7.7	40	6.3×7.7	40
2.2	8×7.9	50	8×7.9	50
2.7	8×7.9	55	8×7.9	55
3.3	8×7.9	70	8×7.9	70
3.9	10×8.4	80	10×8.4	80
4.7	10×8.4	95	10×8.4	95
5.6	10×8.4	108		

VKO

- ◆ Compact size, high frequency and high ripple current resistant, designed for high-end power supplies
- ◆ 6000~8000 hours of operation at 105℃
- ◆ Compliant with AEC-Q200 RoHS directive
- ◆ Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering

■ Main technical parameters

project	characteristic
Operating Temperature Range	≦100V －55~+105℃ ; 160~500V －40~+105℃
Nominal Voltage Range	10~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~400WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	
Durability	After applying the rated voltage for a specified time in a 105℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements.
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

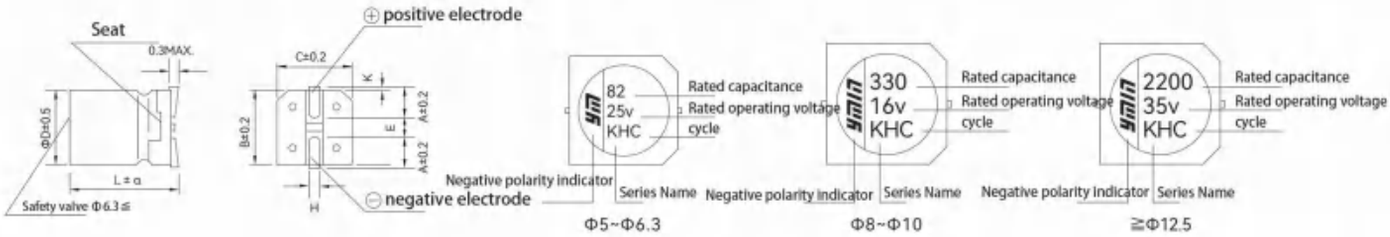
Rated voltage (V)	10	16	25	35	50	63	80	100
tg δ	0.28	0.24	0.20	0.16	0.14	0.14	0.12	0.12
Rated voltage (V)	160	200	250	350	400	450	500	
tg δ	0.15	0.15	0.15	0.15	0.15	0.20	0.25	

Rated voltage (V)	10	16	25	35	50	63	80	100
Impedance ratio Z(－40℃)/Z(20℃)	6	4	3	3	3	3	3	3
Rated voltage (V)	160	200	250	350	400	450	500	
Impedance ratio Z(－40℃)/Z(20℃)	5	5	5	7	7	7	8	

Capacity change rate	Within ±20% of the initial value	
Loss tangent	Below 200% of the specified value	
Leakage current	Below the specified value	
Load life	Φ5~Φ6.3	6000小时
	≧Φ8	8000小时

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)

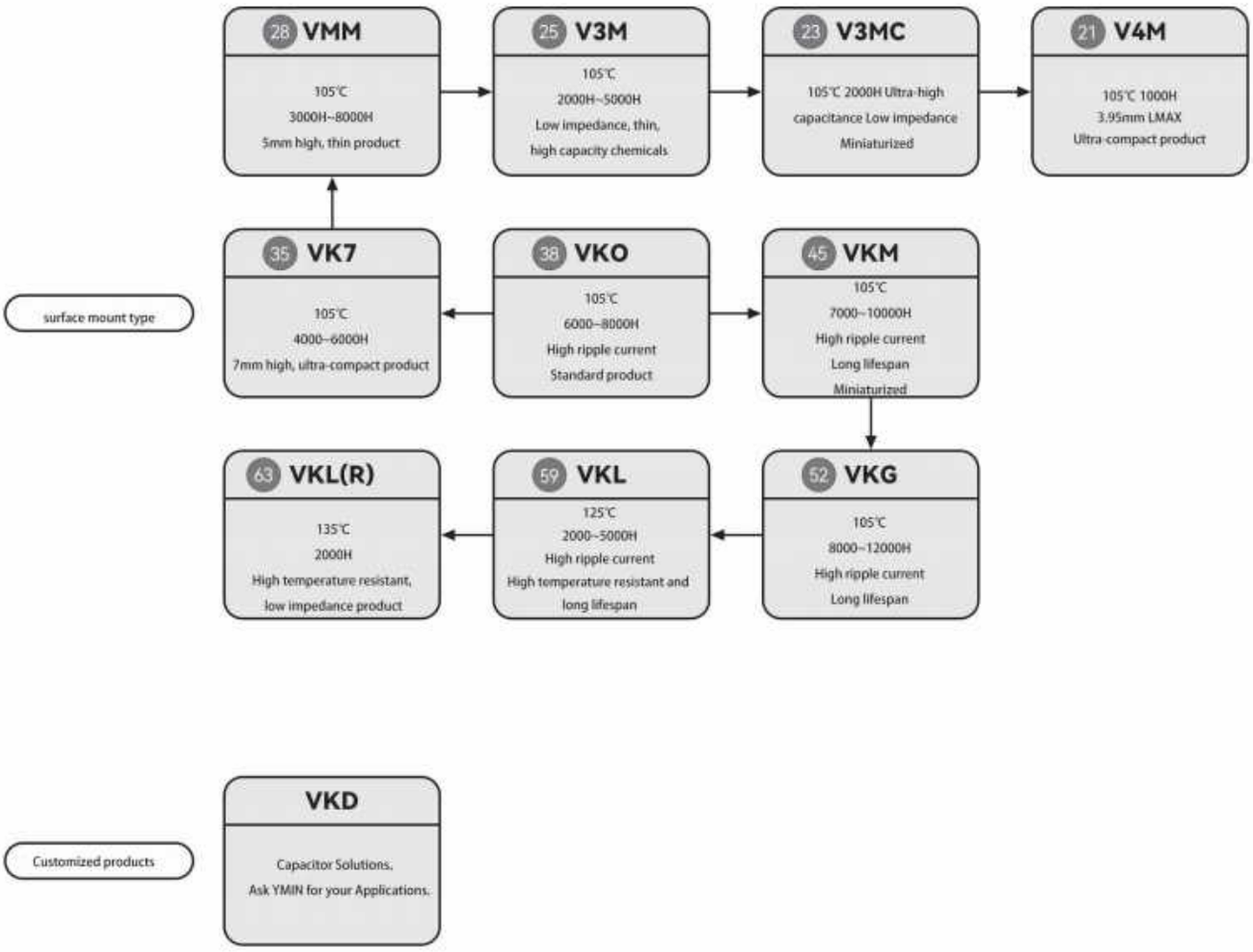


ΦD	L	B	C	A	H	E	K	α
5	10	5.3	5.3	2.1	0.75±0.20	1.3	0.7MAX	±0.5
5	12	5.3	5.3	2.1	0.75±0.20	1.3	0.7MAX	±0.5
6.3	10	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
6.3	12	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
8	10	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	12.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	14.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	16.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	20.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
10	10	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	13	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	14.5	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	16.5	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	21	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
12.5	13.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	14.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	16.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	21	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
16	16.5	17.0	17.0	5.5	1.20±0.30	6.7	0.7±0.30	±1.0
16	21	17.0	17.0	5.5	1.20±0.30	6.7	0.7±0.30	±1.0
18	16.5	19.0	19.0	6.7	1.20±0.30	6.7	0.7±0.30	±1.0
18	21	19.0	19.0	6.7	1.20±0.30	6.7	0.7±0.30	±1.0

■ Frequency correction factor

Frequency (Hz)		120	1K	10K	100K≦
coefficient	0.47~8.2	0.42	0.60	0.80	1.00
	10~39	0.45	0.75	0.90	1.00
	47~180	0.50	0.80	0.95	1.00
	220up	0.60	0.85	0.95	1.00

■ Liquid small-size aluminum electrolytic capacitor



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■ List of Standard Products

Voltage (V)	10		16		25		35		50		63	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47									5×10	20	5×10	22
1.0									5×10	30	5×10	33
1.8									5×10	36	5×10	40
2.2									5×10	38	5×10	44
2.7									5×10	46	5×10	51
3.3									5×10	53	5×10	58
3.9									5×10	70	5×10	77
4.7									5×10	88	5×10	97
5.6									5×10	90	5×10	99
6.8									5×10	93	5×10	102
8.2									5×10	97	5×10	108
10	5×10	55	5×10	70	5×10	90	5×10	100	5×10	100	5×10	110
12									5×10	110	5×10	120
15	5×10	75	5×10	90	5×10	110	5×10	120	5×10	120	5×10	145
18									5×10	130	5×10	155
22	5×10	90	5×10	110	5×10	120	5×10	160	5×10	145	6.3×10	160
27									6.3×10	215	6.3×10	225
33	5×10	105	5×10	120	5×10	150	5×10	215	6.3×10	215	6.3×10	225
39	5×10	135	5×10	150	5×10	180	5×10	215	6.3×10	315	6.3×10	250
47	5×10	142	5×10	160	5×10	210	6.3×10	310	6.3×10	350	6.3×12	250
47											8×10	260
56	5×10	150	5×10	170	5×10	290	6.3×10	310	6.3×12	350	8×10	350
56									8×10	450		
68	5×10	160	5×10	180	5×10	310	6.3×10	390	6.3×12	350	8×12.5	480
68									8×10	450	10×10	490
82	5×10	170	5×10	210	6.3×10	310	6.3×10	390	8×10	585	8×12.5	480
82											10×10	490
100	5×10	180	5×10	290	6.3×10	310	8×10	441	8×10	585	8×14.5	550
100											10×10	500
120	5×10	210	6.3×10	310	6.3×10	390	8×10	441	8×12.5	630	8×16.5	620
120									10×10	650	10×13	630
150	5×10	290	6.3×10	390	6.3×12	404	8×12.5	830	8×14.5	760	8×20.5	775
150					8×10	441	10×10	765	10×10	650	10×14.5	810
180	6.3×10	290	6.3×10	390	6.3×12	404	8×12.5	830	8×16.5	860	8×20.5	775
180					8×10	441	10×10	765	10×13	875	10×16.5	900
220	6.3×10	310	6.3×12	404	6.3×12	404	8×12.5	830	8×16.5	860	10×16.5	900
220			8×10	441	8×10	441	10×10	765	10×13	875		
270	6.3×10	390	6.3×12	404	8×12.5	830	8×16.5	1150	8×20.5	1080	10×21	1080
270			8×10	441	10×10	765	10×13	1150	10×16.5	1250	12.5×14.5	1022

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■ List of Standard Products

Voltage (V)	10		16		25		35		50		63	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
330	6.3×12	404	6.3×12	650	8×12.5	830	8×16.5	1170	10×16.5	1250	10×21	1080
330	8×10	441	8×10	765	10×10	765	10×13	1150	12.5×14.5	1022	12.5×16.5	1080
390	6.3×12	650	8×12.5	830	8×14.5	1150	8×20.5	1350	10×21	1430	12.5×21	1415
390	8×10	765	10×10	765	10×13	1150	10×16.5	1550	12.5×14.5	1022		
470	6.3×12	650	8×12.5	830	8×16.5	1170	8×20.5	1350	10×21	1430	12.5×21	1415
470	8×10	765	10×10	765	10×13	1150	10×16.5	1550	12.5×16.5	1080		
560	8×12.5	830	8×12.5	830	8×20.5	1350	10×16.5	1550	12.5×16.5	1598	16×21	1800
560	10×10	765	10×10	765	10×13	1150	12.5×14.5	1808				
680	8×12.5	830	8×16.5	1125	8×20.5	1350	10×21	1590	12.5×21	1850	16×21	1890
680	10×10	765	10×13	1150	10×16.5	1550	12.5×16.5	1910				
820	8×12.5	830	8×20.5	1350	10×16.5	1550	10×21	1590	16×21	2170	18×21	2460
820			10×14.5	1350	12.5×14.5	1808	12.5×16.5	1910				
1000	8×16.5	1125	8×20.5	1350	10×21	1808	12.5×21	2250	16×21	2460	18×21	2460
1000	10×13	1150	10×14.5	1350	12.5×14.5	1808						
1200	8×16.5	1125	10×16.5	1550	12.5×16.5	1910	12.5×21	2250	18×21	2710		
1200	10×14.5	1350	12.5×14.5	1808								
1500	8×20.5	1350	10×21	1590	12.5×21	2250	16×21	2620	18×21	2710		
1500	10×14.5	1350	12.5×14.5	1808								
1800	10×21	1590	10×21	1590	12.5×21	2250	16×21	3270				
1800	12.5×14.5	1808	12.5×16.5	1910								
2200	10×21	1590	12.5×21	2250	16×21	2620	18×21	3270				
2200	12.5×14.5	1808										
2700	10×21	1590	12.5×21	2250	16×21	2620						
2700	12.5×16.5	1910										
3300	12.5×21	2250	16×21	2620	18×21	3270						
3900	12.5×21	2250	16×21	2925								
4700	16×21	2620	18×21	3270								
5600	16×21	2620	18×21	3270								
6800	18×21	3110										
8200	18×21	3270										

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■ List of Standard Products

Voltage (V)	80		100		160		200		250		350	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×10	23	5×10	23								
1.0	5×10	34	5×10	34	6.3×10	50	6.3×10	50	6.3×10	95	6.3×10	68
1.2					6.3×10	55	6.3×10	55	6.3×10	95	6.3×10	95
1.5					6.3×10	60	6.3×10	60	6.3×10	95	6.3×10	95
1.8	5×10	42	5×10	42	6.3×10	65	6.3×10	65	6.3×10	95	6.3×10	104
2.2	5×10	46	5×10	46	6.3×10	75	6.3×10	75	6.3×10	104	6.3×10	120
2.7	5×10	54	5×10	54	6.3×10	80	6.3×10	80	6.3×10	113	6.3×12	120
2.7											8×10	130
3.3	5×10	61	5×10	61	6.3×10	90	6.3×10	95	6.3×10	113	6.3×12	120
3.3											8×10	130
3.9	5×10	80	5×10	80	6.3×10	90	6.3×10	104	6.3×10	113	8×10	130
4.7	5×10	100	5×10	100	6.3×10	104	6.3×12	115	6.3×12	125	8×10	130
4.7							8×10	135	8×10	135		
5.6	5×10	105	6.3×10	105	6.3×10	104	6.3×12	115	8×10	135	8×12.5	135
5.6							8×10	135			10×10	150
6.8	5×10	110	6.3×10	110	6.3×10	122	8×10	135	8×10	135	8×12.5	135
6.8											10×10	150
8.2	5×10	125	6.3×10	125	6.3×12	125	8×10	135	8×12.5	150	8×16.5	180
8.2					8×10	130			10×10	150	10×13	190
10	5×10	135	6.3×10	135	8×10	130	8×12.5	150	8×12.5	150	8×16.5	180
10							10×10	150	10×10	150	10×13	220
12	6.3×10	150	6.3×10	216	10×10	140	8×16.5	230	8×16.5	230	10×16.5	260
15	6.3×10	150	6.3×10	216	8×12.5	135	8×16.5	250	8×16.5	250	10×16.5	280
15					10×10	140	10×13	260	10×13	250	12.5×14.5	530
18	6.3×10	216	6.3×12	240	8×12.5	135	8×20.5	315	8×20.5	315	10×21	550
18			8×10	216	10×10	140	10×14.5	290	10×14.5	290	12.5×14.5	530
22	6.3×10	216	6.3×12	240	8×16.5	250	8×20.5	315	8×20.5	315	12.5×16.5	600
22			8×10	216	10×13	250	10×14.5	290	10×14.5	290		
27	6.3×12	240	8×10	369								
27	8×10	260										
33	6.3×12	240	8×12.5	410	8×20.5	315	10×21	575	10×21	575	12.5×21	865
33	8×10	260	10×10	369	10×14.5	450	12.5×14.5	670	12.5×14.5	650		
39	8×10	260	8×12.5	410								
39			10×10	369								
47	8×12.5	410	8×16.5	510	10×21	580	12.5×21	870	12.5×21	870	16×21	960
47	10×10	450	10×13	510	12.5×14.5	650						
56	8×12.5	410	8×16.5	510	10×21	600	12.5×21	870	12.5×21	870	16×21	960
56	10×10	450	10×13	565	12.5×16.5	670						
68	8×12.5	410	8×20.5	660	12.5×16.5	770	16×21	1150	16×21	1150	18×21	1150

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■ List of Standard Products

Voltage (V)	80		100		160		200		250	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
68	10×10	450	10×14.5	660						
82	8×16.5	510	8×20.5	660	12.5×21	1040	16×21	1150	16×21	1150
82	10×13	565	10×16.5	710						
100	8×16.5	510	10×16.5	710	12.5×21	1040	16×21	1150	18×21	1350
100	10×13	565	12.5×14.5	833						
120	8×20.5	660	10×21	950	16×21	1260	18×21	1670	18×21	1350
120	10×14.5	660	12.5×14.5	833						
150	10×16.5	710	10×21	950	18×21	1670	18×21	1670		
150	12.5×14.5	833	12.5×16.5	880						
180	10×21	950	12.5×21	1290	18×21	1670				
180	12.5×14.5	833								
220	10×21	950	12.5×21	1290						
220	12.5×16.5	1020								
270	12.5×21	1290	16×21	1460						
330	12.5×21	1290								
330			16×21	1560						
390	16×21	1460	18×21	1990						
470	16×21	1560	18×21	1990						
560	18×21	1990								
680	18×21	1990								

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■ List of Standard Products

Voltage (V)	400		450		500	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	6.3×10	68	6.3×10	77	6.3×12	40
1.2	6.3×10	77	6.3×10	77	6.3×12	40
1.5	6.3×10	77	6.3×10	85	6.3×12	40
1.8	6.3×10	90	6.3×12	90	8×10	72
1.8			8×10	90		
2.2	6.3×10	90	8×10	90	8×12.5	72
2.7	6.3×12	110	8×10	90	8×12.5	76
2.7	8×10	117				
3.3	8×10	117	8×12.5	130	8×12.5	76
3.3			10×10	130		
3.9	8×10	117	8×12.5	130	8×14.5	92
3.9			10×10	130		
4.7	8×12.5	135	8×12.5	130	8×16.5	102
4.7			10×10	130	10×13	102
5.6	8×14.5	180	8×16.5	135	10×14.5	117
5.6	10×10	180	10×13	180		
6.8	8×16.5	180	8×20.5	200	10×14.5	117
6.8	10×13	180	10×13	180		
8.2	8×16.5	180	8×20.5	200	10×16.5	152
8.2	10×13	180	10×14.5	205		
10	8×20.5	250	10×16.5	205	10×21	216
10	10×14.5	250	12.5×14.5	315	12.5×14.5	234
12	12.5×14.5	290	12.5×16.5	340	12.5×16.5	240
15	10×21	310	10×21	300	12.5×16.5	240
15	12.5×14.5	310	12.5×16.5	410		
18	10×21	310	12.5×21	410	12.5×21	288
18	12.5×16.5	330				
22	12.5×21	500	12.5×21	410	16×21	423
33	16×21	670	16×21	650	18×21	508
47	18×21	1035	18×21	950		
56	18×21	1035				

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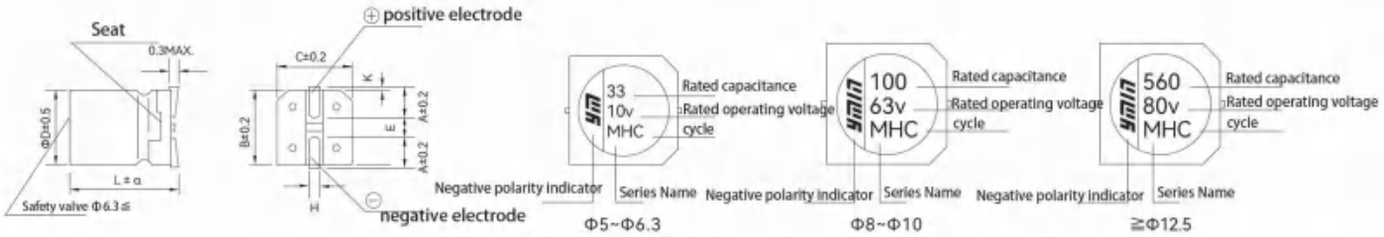
- ◆ Compact size, high frequency and high ripple current resistant, designed for high-end power supplies
- ◆ 7000~10000 hours of operation at 105℃
- ◆ Compliant with AEC-Q200 RoHS directive
- ◆ Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering

■ Main technical parameters

project	characteristic
Operating Temperature Range	≦100V －55~+105℃ ; 160~500V －40~+105℃
Nominal Voltage Range	10~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V) 10 16 25 35 50 63 80 100 tg δ 0.28 0.24 0.20 0.16 0.14 0.14 0.12 0.12 Rated voltage (V) 160 200 250 350 400 450 500 tg δ 0.15 0.15 0.15 0.15 0.15 0.20 0.25 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V) 10 16 25 35 50 63 80 100 Impedance ratio Z(－40℃)/Z(20℃) 6 4 3 3 3 3 3 3 Rated voltage (V) 160 200 250 350 400 450 500 Impedance ratio Z(－40℃)/Z(20℃) 5 5 5 7 7 7 8
Durability	After applying the rated voltage for a specified time in a 105℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below the specified value Load life: Φ5 7000h; Φ6.3 9000h; ≧Φ8 10000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD	L	B	C	A	H	E	K	α
5	10	5.3	5.3	2.1	0.75±0.20	1.3	0.7MAX	±0.5
5	12	5.3	5.3	2.1	0.75±0.20	1.3	0.7MAX	±0.5
6.3	10	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
6.3	12	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
8	10	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	12.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	14.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	16.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	20.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
10	10	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	13	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	14.5	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	16.5	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	21	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
12.5	13.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	14.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.5
12.5	17	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	21	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
16	17	17.0	17.0	5.5	1.20±0.30	6.7	0.7±0.30	±1.0
16	21	17.0	17.0	5.5	1.20±0.30	6.7	0.7±0.30	±1.0
18	17	19.0	19.0	6.7	1.20±0.30	6.7	0.7±0.30	±1.0
18	21	19.0	19.0	6.7	1.20±0.30	6.7	0.7±0.30	±1.0

■ Frequency correction factor

Frequency (Hz)		120	1K	10K	100K≦
coefficient	0.47~8.2	0.42	0.60	0.80	1.00
	10~39	0.45	0.75	0.90	1.00
	47~180	0.50	0.80	0.95	1.00
	220以上	0.60	0.85	0.95	1.00

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■ List of Standard Products

Voltage (V)	10		16		25		35		50		63	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47									5×10	21	5×10	23
1.0									5×10	31	5×10	35
1.2											5×10	35
1.5											5×10	41
1.8									5×10	32	5×10	41
2.2									5×10	39	5×10	45
2.7											5×10	52
3.3									5×10	54	5×10	59
3.9									5×10	54	5×10	78
4.7									5×10	89	5×10	98
5.6									5×10	91	5×10	100
6.8									5×10	94	5×10	103
8.2									5×10	98	5×10	109
10	5×10	56	5×10	71	5×10	91	5×10	101	5×10	101	5×10	111
12	5×10	60	5×10	80	5×10	100	5×10	110			5×10	121
15	5×10	76	5×10	91	5×10	111	5×10	121	5×10	121	5×10	150
18											5×10	173
22	5×10	91	5×10	111	5×10	121	5×10	160	5×10	238	5×10	228
27									5×10	286	5×10	250
33	5×10	106	5×10	121	5×10	151	5×10	215	5×10	314	6.3×10	344
39	5×10	136	5×10	151	5×10	181	5×10	345	6.3×10	344	6.3×10	344
47	5×10	143	5×10	161	5×10	211	5×10	345	6.3×10	385	6.3×10	385
56	5×10	151	5×10	171	5×10	310	5×10	414	6.3×10	385	6.3×12	492
56											8×10	525
68	5×10	161	5×10	181	5×10	345	6.3×10	486	6.3×10	390	6.3×12	724
68											8×10	724
82	5×10	171	5×10	211	5×10	414	6.3×10	540	6.3×12	487	8×10	724
82									8×10	724		
100	5×10	181	5×10	345	5×10	443	6.3×10	550	6.3×12	687	8×10	902
100									8×10	724		
120	5×10	211	5×10	345	6.3×10	486	6.3×10	550	8×10	800	8×12.5	902
120											10×10	979
150	5×10	345	5×10	414	6.3×10	540	6.3×12	660	8×12.5	950	8×14.5	950
150							8×10	660	10×10	975	10×13	1130
180	5×10	345	6.3×10	486	6.3×10	550	8×10	900	8×14.5	1190	8×16.5	1190
180									10×13	1230	10×14.5	1190
220	5×10	414	6.3×10	540	6.3×12	660	8×10	945	8×14.5	1190	10×14.5	1200
220					8×10	660			10×13	1230		
270	6.3×10	486	6.3×10	540	8×10	900	8×12.5	1250	8×16.5	1420	10×16.5	1300

VKM

■ List of Standard Products

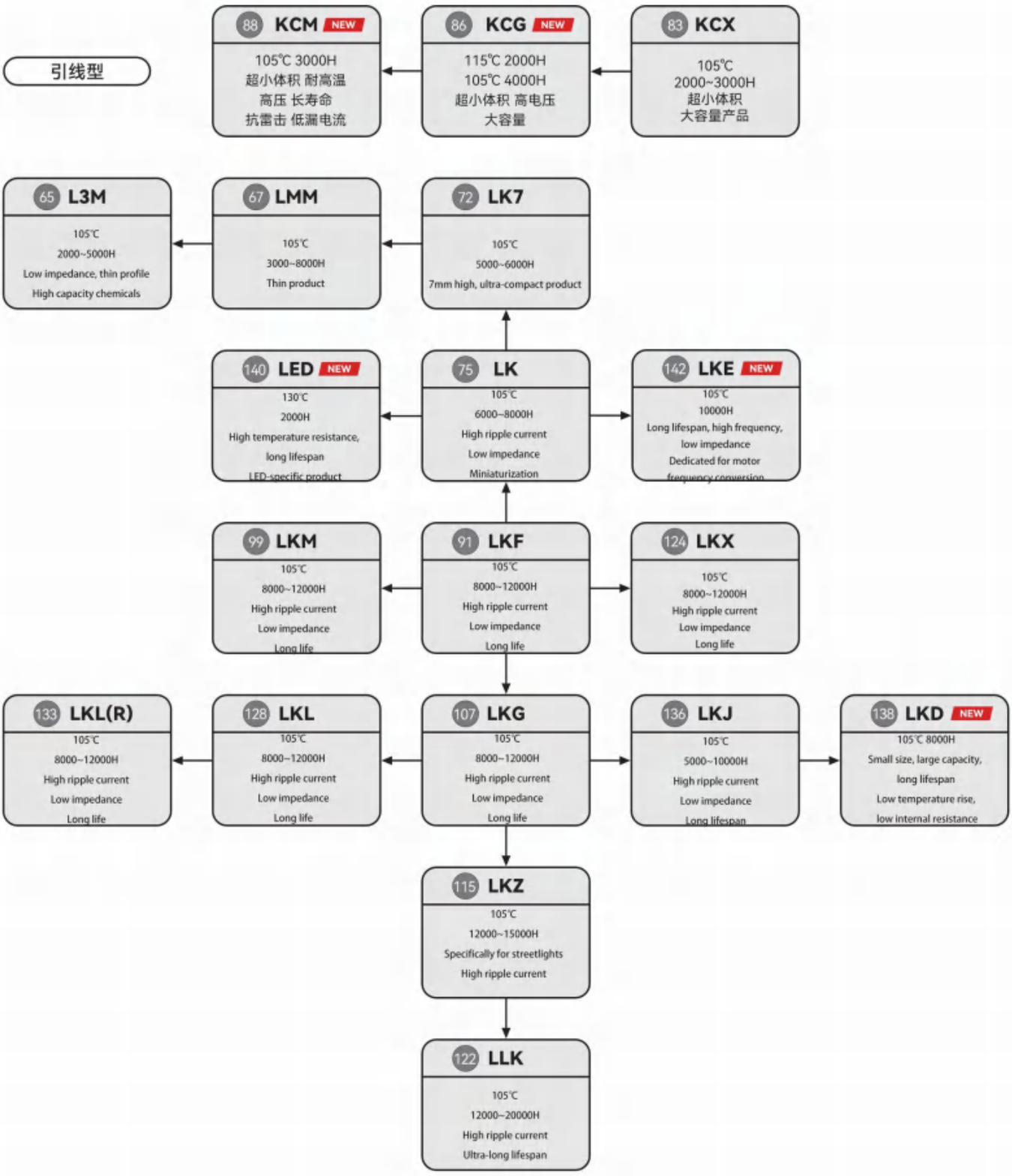
Voltage (V)	10		16		25		35		50		63	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
270							10×10	1250	10×14.5	1420	12.5×14.5	1500
330	6.3×10	540	6.3×12	550	8×10	945	8×14.5	1330	10×14.5	1450	10×16.5	1580
330			8×10	550			10×13	1330			12.5×14.5	1650
390	6.3×10	540	8×10	660	8×12.5	1250	8×16.5	1420	10×16.5	1580	10×21	1870
390					10×10	1250	10×13	1760	12.5×14.5	1650	12.5×17	1870
470	6.3×12	545	8×10	900	8×12.5	1330	10×14.5	1850	12.5×14.5	2050	12.5×17	2100
470	8×10	550			10×10	1330						
560	6.3×12	880	8×10	900	8×14.5	1420	10×14.5	1960	12.5×17	2050	12.5×21	2410
560	8×10	900			10×13	1760					16×17	2500
680	8×10	900	8×12.5	1250	8×16.5	1500	10×16.5	2120	12.5×17	2250	16×17	2730
680			10×10	1330	10×13	1760	12.5×14.5	2120				
820	8×10	1180	8×14.5	1420	10×14.5	1850	12.5×14.5	2360	12.5×21	2410	16×21	2620
820			10×13	1760					16×17	2730		
1000	8×12.5	1250	8×16.5	1500	10×16.5	1960	12.5×17	2480	16×17	3010	16×21	2860
1000	10×10	1330	10×13	1850	12.5×14.5	2120						
1200	8×14.5	1420	10×14.5	1850	10×21	2120	12.5×21	2900	16×21	3280	18×21	3300
1200	10×13	1760			12.5×14.5	2120						
1500	8×16.5	1500	10×16.5	1960	10×21	2480	12.5×21	2900	18×21	3280		
1500	10×13	1760	12.5×14.5	2120	12.5×17	2480	16×17	3250				
1800	10×14.5	1850	10×21	1960	12.5×17	2480	16×21	3450	18×21	3300		
1800			12.5×14.5	2120								
2200	10×16.5	1960	10×21	2480	12.5×21	2900	16×21	3630				
2200	12.5×14.5	2120	12.5×17	2480	16×17	3250						
2700	10×21	2250	12.5×17	2480	16×21	3450	18×21	4010				
2700	12.5×14.5	2250										
3300	12.5×17	2480	12.5×21	2900	16×21	3630						
3900	12.5×17	2900	16×21	3250	18×21	3650						
4700	12.5×21	3250	16×21	3450	18×21	4010						
4700	16×17	3450										

VKM

■ List of Standard Products

Voltage (V)	80		100		160		200		250		350	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×10	24	5×10	24								
1.0	5×10	37	5×10	37	5×10	68	5×10	50	5×10	56	5×10	73
1.2	5×10	37	5×10	37	5×10	68	5×10	55	5×10	56	5×10	90
1.5	5×10	43	5×10	43	5×10	95	5×10	60	5×10	56	5×10	90
1.8	5×10	43	5×10	43	5×10	95	5×10	65	5×10	65	5×10	95
2.2	5×10	47	5×10	47	5×10	95	5×10	75	5×10	98	6.3×10	125
2.7	5×10	55	5×10	55	5×10	95	5×10	80	5×10	98	6.3×10	125
3.3	5×10	62	5×10	62	5×10	95	5×10	95	5×10	98	6.3×10	131
3.9	5×10	81	5×10	81	5×10	95	5×10	95	6.3×10	135	6.3×12	131
3.9											8×10	131
4.7	5×10	101	5×10	101	5×10	95	6.3×10	125	6.3×10	135	6.3×12	140
4.7											8×10	140
5.6	5×10	106	5×10	106	6.3×10	110	6.3×10	125	6.3×10	140	8×10	140
6.8	5×10	111	5×10	111	6.3×10	125	6.3×10	140	6.3×12	140	8×12.5	200
6.8									8×10	140	10×10	210
8.2	5×10	121	5×10	121	6.3×10	125	6.3×12	140	8×10	170	8×14.5	220
8.2							8×10	140			10×13	270
10	5×10	150	5×10	220	6.3×12	132	8×10	170	8×10	210	8×14.5	250
10					8×10	140					10×13	270
12	5×10	163	6.3×10	267	8×10	150	8×12.5	240	8×12.5	240	8×20.5	340
15	5×10	200	6.3×10	267	8×10	150	10×13	320	10×13	320	8×20.5	360
15											10×14.5	460
18	5×10	240	6.3×10	267	8×12.5	160	8×14.5	280	8×14.5	280	10×16.5	480
18					10×10	160	10×13	320	10×13	320	12.5×14.5	585
22	6.3×10	267	6.3×10	290	8×12.5	160	8×16.5	320	8×16.5	320	10×21	585
22					10×10	250	10×13	320	10×13	320	12.5×14.5	585
27	6.3×10	267	6.3×12	420	8×14.5	250						
27			8×10	450	10×13	250						
33	6.3×10	267	8×10	450	8×16.5	350	10×16.5	708	10×16.5	708	12.5×17	960
33					10×13	360						
39	6.3×12	400	8×10	565	8×20.5	580						
39	8×10	420			10×14.5	635						
47	6.3×12	420	8×12.5	585	10×16.5	680	10×21	745	10×21	850	12.5×21	1115
47	8×10	470	10×10	624			12.5×17	960	12.5×17	960	16×17	1060
56	8×10	470	8×14.5	624	10×16.5	850					16×21	1115
56			10×10	624	12.5×14.5	850	12.5×17	960	12.5×17	960		
68	8×10	520	8×16.5	735	10×21	850	12.5×21	1270	12.5×21	1270	16×21	1115
68			10×13	750	12.5×14.5	850	16×17	1270	16×17	1270		
82	8×12.5	624	8×16.5	780	10×21	1020	12.5×21	1270	12.5×21	1270	18×21	1530

■ Liquid small-size aluminum electrolytic capacitor



VKM

■ List of Standard Products

Voltage (V)	80		100		160		200		250	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
82	10×10	668	10×14.5	900	12.5×17	1155	16×17	1270	16×17	1270
100	8×14.5	735	10×14.5	1040	12.5×17	1155	12.5×21	1360	16×21	1360
100	10×10	744					16×17	1270		
120	8×16.5	744	10×16.5	1170	12.5×21	1390	16×21	1360	16×21	1500
120	10×13	892	12.5×14.5	1240	16×17	1420				
150	10×14.5	980	12.5×14.5	1368	16×21	1520	16×21	1660	18×21	1920
180	10×14.5	980	12.5×17	1530	16×21	1850	18×21	2020		
220	10×16.5	1040	12.5×21	1620	18×21	2320				
220	12.5×14.5	1040								
270	10×21	1240	12.5×21	1750						
270	12.5×17	1240	16×17	1750						
330	12.5×17	1368	16×21	2140						
390	12.5×21	1640	16×21	2210						
390	16×17	1750								
470	12.5×21	1750	18×21	2270						
470	16×17	1750								
560	16×21	2110								
680	16×21	2270								
820	18×21	2270								

VKM

■ List of Standard Products

Voltage (V)	400		450		500	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	5×10	73	5×10	73	6.3×10	45
1.2	5×10	76	5×10	78	6.3×10	45
1.5	5×10	76	6.3×10	90	6.3×10	45
1.8	6.3×10	87	6.3×10	95	8×10	80
2.2	6.3×10	105	6.3×10	100	8×10	80
2.7	6.3×10	125	6.3×10	100	8×12.5	85
3.3	6.3×10	131	8×10	120	8×12.5	85
3.9	6.3×12	140	8×10	135	8×14.5	102
3.9	8×10	140				
4.7	8×10	140	8×12.5	135	8×16.5	130
4.7			10×10	135		
5.6	8×12.5	200	8×14.5	140	10×14.5	130
5.6	10×10	220	10×13	200		
6.8	10×13	270	8×16.5	220	10×14.5	130
6.8			10×13	200		
8.2	8×14.5	250	8×16.5	220	10×14.5	240
8.2	10×13	270	10×13	200		
10	8×16.5	270	8×20.5	260	10×16.5	260
10	10×13	270	10×14.5	350		
12	10×14.5	320	10×16.5	360	12.5×17	270
15	10×14.5	340	10×16.5	370	12.5×17	270
15			12.5×14.5	370		
18	10×16.5	360	12.5×17	410	12.5×17	470
18	12.5×14.5	360				
22	10×21	570	12.5×17	450	12.5×21	470
22	12.5×17	570				
33	12.5×21	850	12.5×21	710	16×21	700
33	16×17	900	16×17	740		
47	16×21	1100	16×21	1215	18×21	720
56	16×21	1155	18×21	1300		
68	18×21	1460				

VKG

◆Long lifespan, withstands high frequency and high ripple current, designed for high-end power supplies

◆8000~12000 hours at 105℃

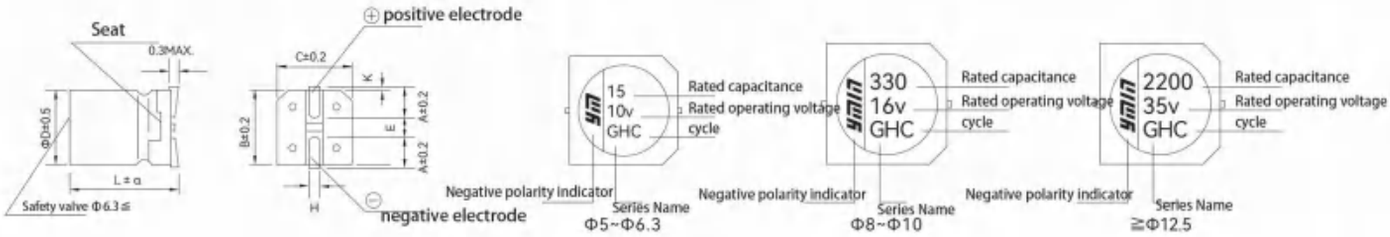
◆Compliant with AEC-Q200 RoHS directive

◆Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering

■ Main technical parameters

project	characteristic
Operating Temperature Range	≦100V －55~+105℃ ; 160~500V －40~+105℃
Nominal Voltage Range	10~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V) 10 16 25 35 50 63 80 100 tg δ 0.28 0.24 0.20 0.16 0.14 0.14 0.12 0.12 Rated voltage (V) 160 200 250 350 400 450 500 tg δ 0.15 0.15 0.15 0.15 0.15 0.20 0.25 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V) 10 16 25 35 50 63 80 100 Impedance ratio Z(－40℃)/Z(20℃) 6 4 3 3 3 3 3 3 Rated voltage (V) 160 200 250 350 400 450 500 Impedance ratio Z(－40℃)/Z(20℃) 5 5 5 7 7 7 8
Durability	After applying the rated voltage for a specified time in a 105℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below the specified value Load life: 10~100WV: Φ5 8000h; Φ6.3 10000h; ≧Φ8 12000h 160~500WV: Φ5~Φ6.3 10000h; ≧Φ8 12000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD	L	B	C	A	H	E	K	α
5	10	5.3	5.3	2.1	0.75±0.20	1.3	0.7MAX	±0.5
5	12	5.3	5.3	2.1	0.75±0.20	1.3	0.7MAX	±0.5
6.3	10	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
6.3	12	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
8	10	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	12.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	14.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	16.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	20.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
10	10	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	13	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	14.5	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	16.5	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	21	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
12.5	13.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	14.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.5
12.5	16.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	21	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
16	16.5	17.0	17.0	5.5	1.20±0.30	6.7	0.7±0.30	±1.0
16	21	17.0	17.0	5.5	1.20±0.30	6.7	0.7±0.30	±1.0
18	16.5	19.0	19.0	6.7	1.20±0.30	6.7	0.7±0.30	±1.0
18	21	19.0	19.0	6.7	1.20±0.30	6.7	0.7±0.30	±1.0

■ Frequency correction factor

Frequency (Hz)		120	1K	10K	100K≦
coefficient	0.47~8.2	0.42	0.60	0.80	1.00
	10~39	0.45	0.75	0.90	1.00
	47~180	0.50	0.80	0.95	1.00
	220以上	0.60	0.85	0.95	1.00

VKG

■ List of Standard Products

Voltage (V)	10		16		25		35		50		63	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47									5×10	22	5×10	24
1.0									5×10	32	5×10	35
1.2									5×10	32	5×10	35
1.5									5×10	38	5×10	42
1.8									5×10	38	5×10	42
2.2									5×10	40	5×10	46
2.7									5×10	40	5×10	56
3.3									5×10	55	5×10	60
3.9									5×10	55	5×10	79
4.7									5×10	90	5×10	99
5.6									5×10	92	5×10	101
6.8									5×10	95	5×10	105
8.2									5×10	97	5×10	110
10	5×10	57	5×10	72	5×10	92	5×10	102	5×10	102	5×10	112
12									5×10	122	5×10	122
15	5×10	77	5×10	92	5×10	112	5×10	122	5×10	122	5×10	170
18									5×10	170	6.3×10	278
22	5×10	92	5×10	112	5×10	122	5×10	170	6.3×10	180	6.3×10	356
27									6.3×10	180	6.3×10	356
33	5×10	107	5×10	122	5×10	152	5×10	220	6.3×10	356	6.3×12	400
33											8×10	482
39	5×10	137	5×10	152	5×10	182	6.3×10	240	6.3×10	356	6.3×12	400
39											8×10	482
47	5×10	144	5×10	162	5×10	212	6.3×10	350	6.3×12	356	6.3×12	520
47									8×10	395	8×10	520
56	5×10	152	5×10	172	5×10	320	6.3×10	495	6.3×12	666	8×10	520
56									8×10	666		
68	5×10	162	5×10	182	6.3×10	350	6.3×12	550	8×10	666	8×12.5	520
68							8×10	580			10×10	535
82	5×10	172	5×10	212	6.3×10	550	6.3×12	550	8×12.5	740	8×12.5	722
82							8×10	580	10×10	666	10×10	650
100	5×10	182	6.3×10	350	6.3×10	550	6.3×12	550	8×12.5	740	8×16.5	722
100							8×10	580	10×10	666	10×13	722
120	5×10	320	6.3×10	550	6.3×12	550	8×10	864	8×14.5	970	8×16.5	722
120					8×10	580			10×13	985	10×13	722
150	6.3×10	350	6.3×10	550	6.3×12	550	8×12.5	960	8×16.5	970	8×20.5	890
150					8×10	580	10×10	980	10×13	985	10×16.5	998
180	6.3×10	350	6.3×10	550	8×10	864	8×12.5	960	8×20.5	1220	10×16.5	998
180							10×10	980	10×14.5	1370		

VKG

■ List of Standard Products

Voltage (V)	10		16		25		35		50		63	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
220	6.3×10	550	6.3×12	550	8×12.5	960	8×12.5	1270	8×20.5	1220	10×21	1200
220			8×10	580	10×10	980			10×16.5	1370	12.5×16.5	1250
270	6.3×10	550	8×10	580	8×12.5	960	8×16.5	1270	10×21	1580	10×21	1200
270					10×10	980	10×13	1330	12.5×14.5	1752	12.5×16.5	1250
330	6.3×12	550	8×10	864	8×14.5	960	10×13	1330	10×21	1580	12.5×21	1570
330	8×10	580							12.5×16.5	1752		
390	8×10	580	8×12.5	960	8×16.5	1270	8×20.5	1720	10×21	1870	12.5×21	1570
390			10×10	980	10×13	1270	10×16.5	1850				
470	8×10	864	8×12.5	960	10×13	1330	10×16.5	1850	12.5×21	2050	16×21	1990
470			10×10	980			12.5×14.5	1890				
560	8×12.5	960	8×16.5	1270	8×20.5	1530	10×21	2250	12.5×21	2410	16×21	2410
560	10×10	980	10×10	1330	10×14.5	1850	12.5×16.5	2330				
680	8×12.5	960	8×16.5	1270	10×16.5	1850			16×21	2410	18×21	2730
680	10×10	980	10×13	1330			12.5×21	2330				
820	8×14.5	1170	8×20.5	1530	10×21	2250	12.5×21	2480	16×21	2960	18×21	2730
820	10×13	1270	10×14.5	1850	12.5×16.5	2330						
1000	8×16.5	1270	8×20.5	1530	10×21	2330	12.5×21	2480	18×21	3010		
1000	10×13	1330	10×16.5	1850	12.5×16.5	2330						
1200	8×20.5	1530	10×16.5	1960	12.5×21	2480	16×21	2900				
1200	10×14.5	1760										
1500	8×20.5	1530	10×21	1960	12.5×21	2480						
1500	10×16.5	1850	12.5×16.5	2330			16×21	3250				
1800	10×21	1960	10×21	2250	16×21	2900						
1800	12.5×16.5	2330	12.5×16.5	2480			18×21	3630				
2200	10×21	1960	12.5×21	2480	16×21	3450	18×21	3630				
2200	12.5×16.5	2330			16×21	3250						
2700	12.5×21	2480	12.5×21	2900	18×21	3630						
3300	12.5×21	2480	16×21	3450	18×21	3630						
3900	16×21	2900	16×21	3250								
4700	16×21	3450	18×21	3630								

VKG

■ List of Standard Products

Voltage (V)	80		100		160		200		250		350	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×10	25	5×10	25								
1.0	5×10	36	5×10	36	6.3×10	52	6.3×10	52	6.3×10	72	6.3×10	81
1.2	5×10	36	5×10	36	6.3×10	57	6.3×10	57	6.3×10	72	6.3×10	99
1.5	5×10	44	5×10	44	6.3×10	64	6.3×10	64	6.3×10	72	6.3×10	99
1.8	5×10	44	5×10	44	6.3×10	70	6.3×10	70	6.3×10	108	6.3×10	99
2.2	5×10	48	5×10	48	6.3×10	77	6.3×10	77	6.3×10	117	6.3×10	130
2.7	5×10	56	5×10	56	6.3×10	85	6.3×10	85	6.3×10	117	6.3×12	144
2.7											8×10	144
3.3	5×10	63	5×10	63	6.3×10	95	6.3×10	108	6.3×10	140	8×10	144
3.9	5×10	82	5×10	82	6.3×10	108	6.3×10	108	6.3×12	140	8×10	155
3.9									8×9	144		
4.7	5×10	102	5×10	102	6.3×10	108	6.3×12	130	6.3×12	144	8×12.5	155
4.7							8×10	153	8×10	144	10×10	180
5.6	5×10	107	6.3×10	107	6.3×10	130	6.3×12	130	8×10	144	8×12.5	200
5.6							8×10	153			10×10	170
6.8	5×10	112	6.3×10	112	6.3×12	130	8×10	153	8×10	160	8×14.5	220
6.8					8×10	117					10×10	240
8.2	5×10	127	6.3×10	127	8×10	140	8×10	160	8×12.5	160	8×16.5	290
8.2									10×10	144	10×13	315
10	6.3×10	170	6.3×10	275	8×10	140	8×12.5	170	8×12.5	290	8×20.5	290
10							10×10	180	10×10	365	10×14.5	350
12	6.3×10	248	6.3×12	300	8×12.5	168	8×16.5	220	8×16.5	270	10×16.5	360
12			8×10	300	10×10	168						
15	6.3×10	275	6.3×12	400	8×12.5	261	8×16.5	290	8×16.5	290	10×16.5	370
15			8×10	416	10×10	261	10×13	365	10×13	380	12.5×14.5	490
18	6.3×10	275	6.3×12	400	8×14.5	290	8×20.5	370	8×20.5	370	10×21	490
18			8×10	416	10×10	261	10×14.5	380	10×14.5	400	12.5×14.5	510
22	6.3×12	400	8×12.5	462	8×14.5	350	8×20.5	370	8×20.5	370	10×21	550
22	8×10	416	10×10	500	10×13	380	10×14.5	400	10×14.5	400	12.5×16.5	1060
27	6.3×12	400	8×12.5	585	8×16.5	350						
27	8×10	416	10×10	624	10×13	380						
33	6.3×12	400	8×12.5	585	8×20.5	650	10×21	650	10×21	650	12.5×21	1060
33	8×10	416	10×10	624	10×14.5	760	12.5×14.5	760	12.5×14.5	760		
39	8×12.5	462	8×16.5	585	10×16.5	650						
39	10×10	500	10×13	624	12.5×14.5	760						
47	8×12.5	462	8×16.5	585	10×21	750	12.5×21	980	12.5×21	980	16×21	1150
47	10×10	500	10×13	624	12.5×14.5	760						
56	8×12.5	585	10×13	750	10×21	920	12.5×21	980	12.5×21	980	18×21	1320
56	10×10	585			12.5×16.5	1180						

VKG

■ List of Standard Products

Voltage (V)	80		100		160		200		250		350	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
68	8×16.5	585	8×20.5	770	12.5×16.5	1280	16×21	1300	16×21	1300	18×21	1530
68	10×13	624	10×14.5	780								
82	8×20.5	624	10×16.5	780	12.5×21	1280	16×21	1390	16×21	1420		
82	10×13	624	12.5×14.5	858								
100	8×20.5	800	10×21	1040	12.5×21	1280	16×21	1420	18×21	1950		
100	10×16.5	780	12.5×16.5	975								
120	10×16.5	780	12.5×21	1430			18×21	1950	18×21	1950		
120	12.5×14.5	858			16×21	1420						
150	10×21	1040	12.5×21	1430	18×21	1890	18×21	1950				
150	12.5×16.5	975										
180	10×21	1040	16×21	1620	18×21	1890						
180	12.5×16.5	975										
220	12.5×21	1430	16×21	1620								
270	12.5×21	1430	16×21	1750								
330	12.5×21	1620	18×21	2210								
390	16×21	1750	18×21	2210								
470	18×21	2210										
560	18×21	2210										

VKG

■ List of Standard Products

Voltage (V)	400		450		500	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	6.3×10	77	6.3×10	81	6.3×12	48
1.2	6.3×10	81	6.3×10	81	6.3×12	48
1.5	6.3×10	81	6.3×10	81	6.3×12	48
1.8	6.3×10	81	6.3×12	86	8×12.5	84
1.8			8×10	86		
2.2	6.3×10	100	8×10	95	8×12.5	90
2.7	8×10	144	8×10	126	8×14.5	110
3.3	8×10	160	8×12.5	140	8×14.5	110
3.3			10×10	150		
3.9	8×12.5	160	8×12.5	140	8×16.5	130
3.9	10×10	220	10×10	150		
4.7	8×12.5	160	8×14.5	175	10×13	130
4.7	10×10	220	10×10	180		
5.6	8×14.5	240	8×16.5	190	10×16.5	140
5.6	10×13	250	10×13	200		
6.8	8×16.5	270	8×20.5	230	10×16.5	250
6.8	10×13	280	10×14.5	210		
8.2	8×20.5	290	8×20.5	230	10×21	250
8.2	10×14.5	315	10×14.5	280		
10	8×20.5	315	10×16.5	230	10×21	280
10	10×14.5	350	12.5×14.5	360	12.5×14.5	320
12	10×21	450	12.5×16.5	460	12.5×16.5	460
15	10×21	490	10×21	410	12.5×21	480
15	12.5×16.5	550	12.5×16.5	460		
18	12.5×16.5	550	12.5×21	500	16×21	480
22	12.5×21	1000	12.5×21	500	16×21	520
33	16×21	1060	16×21	730	18×21	740
47	18×21	1180	18×21	1200		
56	18×21	1530				

VKL

◆High temperature resistance, long lifespan, high frequency and high ripple current resistance, designed for high

◆2000~5000 hours at 125℃

◆Compliant with AEC-Q200 RoHS directive

◆Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering

■ Main technical parameters

project	characteristic
Operating Temperature Range	≤100V －40~+125℃ ; 160~450V －25~+125℃
Nominal Voltage Range	10~450V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~100WV I≤0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~450WV I≤0.02CV+10(μA) C: Nominal Capacity (μF) V: Rated Voltage (V) Readings taken over 2 minutes

Loss Tangent (25 ± 2° C 120Hz)

Rated voltage (V)	10	16	25	35	50	63	80
tg δ	0.28	0.24	0.20	0.16	0.14	0.14	0.12
Rated voltage (V)	100	160	200	250	400	450	
tg δ	0.12	0.15	0.15	0.15	0.20	0.20	

For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Temperature Characteristics (120Hz)

Rated voltage (V)	10	16	25	35	50	63	80
Impedance ratio Z(－40℃)/Z(20℃)	6	4	3	3	3	3	3
Rated voltage (V)	100	160	200	250	400	450	
Impedance ratio Z(－40℃)/Z(20℃)	3	5	5	5	7	7	

Durability

After applying the rated voltage for a specified time in a 125℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements.

Capacity change rate	10~100WV Within ±30% of the initial value			
	160~450WV Within ±20% of the initial value			
Loss tangent	10~100WV Within ±300% of the initial value			
	160~450WV Within ±200% of the initial value			
Leakage current	Within the specified value			
Load life	10~100WV		160~450WV	
	External dimensions	Load life	External dimensions	Load life
	ΦD=5、6.3	2000h	ΦD=5、6.3	2000h
	ΦD=8、10	3000h	ΦD=8	3000h
	ΦD≧12.5	5000h	ΦD≧10	5000h

High Temperature Storage

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

Encoding rules

1	2	3

series	code
L3M	L3M
LMM	LMM
LK7	LK7
LK	OLK
KCX	KCX
KCG	KCG
KCM	KCM
LKF	LKF
LKM	LKM
LKG	LKG
LKZ	LKZ
LLK	LLK
LKX	LKX
LKL	LKL
LKL(R)	LKL(R)
LKJ	LKJ
LKD	LKD
LED	LED
LKE	LKE
V4M	V4M
V3MC	V3MC
V3M	V3M
VMM	VMM
VK7	VK7
VKO	VKO
VKM	VKM
VKG	VKG
VKL	VKL
VKL(R)	VKL(R)

4	5	6	7

Product diameter	code	Product Height	code
3.5	F	3.95	039
3.55	W	4.5	045
4	A	5	050
4.5	G	5.4	054
5	B	5.7	057
5.5	H	5.8	058
6.3	C	6.5	065
7	T	7	070
8	D	7.7	077
10	E	8	080
12.5	L	8.5	085
13	S	9	090
14.5	U	9.5	095
16	I	10	100
18	J	10.5	105
20	N	11	110
22	K	11.5	115
25	M	12	120
		12.5	125
		13	130
		13.5	135
		14	140
		14.5	145
		15	150
		16	160
		16.5	165
		17	170
		18	180
		19	190
		20	200
		21	210
		22	220
		23	230
		25	250
		28	280
		30	300
		31.5	315
		32	320
		35.5	355
		36	360
		40	400
		41.5	415
		45	450
		50	500

8	9

Rated voltage (V)	code
6.3	0J
10	1A
16	1C
20	1D
25	1E
27	1N
35	1V
40	1G
50	1H
63	1J
70	1L
80	1K
90	1F
100	2A
110	2R
120	2K
125	2B
130	1Q
140	2Q
160	2C
180	2M
200	2D
250	2E
270	2N
300	2S
315	2F
320	1U
330	2U
350	2V
375	2P
400	2G
420	2T
450	2W
480	2L
500	2H
550	2I
600	2J
630	2Y
650	2X

10	11	12

Capacitance (μF)	code
0.1	R10
0.22	R22
0.33	R33
0.47	R47
0.56	R56
0.68	R68
0.82	R82
1.0	1R0
2.2	2R2
3.3	3R3
3.9	3R9
4.7	4R7
5.6	5R6
6.8	6R8
8.2	8R2
10	100
12	120
15	150
22	220
33	330
47	470
56	560
68	680
82	820
100	101
120	121
150	151
180	181
220	221
330	331
470	471
560	561
680	681
820	821
1000	102
1500	152
2200	222
3300	332
4700	472
6800	682
10000	103
22000	223
33000	333

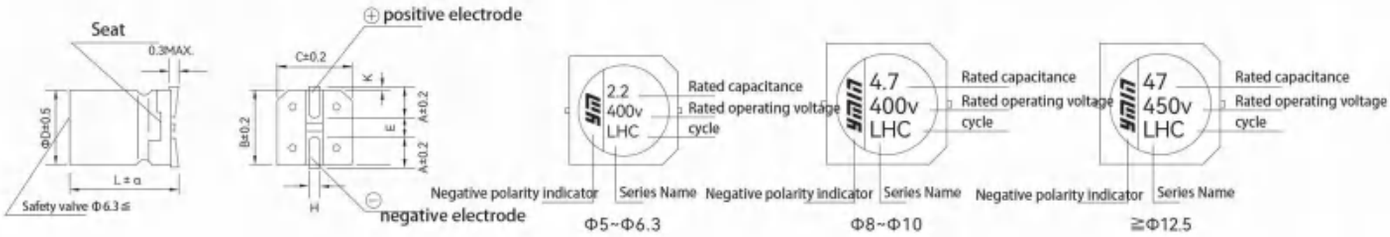
13

Capacity range	code
±20%	M
±10%	K
0%~+10%	R
0%~-10%	T
-10%~+20%	V
-20%~+5%	L
-10%~+5%	G
-10%~+15%	H
0%~+40%	I
±15%	J
-20%~+50%	A
-5%~-20%	B
-5%~+20%	E
-15%~+5%	C
-15%~-5%	D
0%~+20%	F
0%~+15%	N
-5%~+15%	W
-20%~+0%	S
-20%~+10%	P
0%~+5%	Q
-15%~+20%	u

14

Subsidiary code (domestic)	
O	Lead Wire 30F/35F
H	Lead Wire 33F/38F
F	Lead Wire 22F/27F
A	Straight Cut Lead Type A
B	Cut & Formed Lead Type B
C	Cut & Formed Lead Type C
D	Cut & Formed Lead Type D
E	Cut & Formed Lead Type E
Q	Cut & 90° Bent Lead Type F-A (Right)
P	Cut & 90° Bent Lead Type F-B (Left)
X	Cut & Formed Lead Type G
g	Cut & Double 90° Bent Lead Type H-A (Right)
f	Cut & Double 90° Bent Lead Type H-B (Left)
K	Taped Type A
J	Taped Type B
V	SMD
TM	Coated
CG	AEC-Q200 / Automotive Grade
TJ	Transparent
SLYP	Plastic Reel
Indicator Code (IND)	
2	Lead Wire 30F/35F
3	Lead Wire 33F/38F
4	Straight Cut Lead Type A
5	Cut & Formed Lead Type B
6	Cut & Formed Lead Type C
7	Cut & Formed Lead Type D
8	Cut & Formed Lead Type E
9	Lead Wire 22F/27F
M	Taped Type A
N	Taped Type B

■ Product dimension drawing (unit: mm)



ΦD	L	B	C	A	H	E	K	α
5	10	5.3	5.3	2.1	0.75±0.20	1.3	0.7MAX	±0.5
5	12	5.3	5.3	2.1	0.75±0.20	1.3	0.7MAX	±0.5
6.3	10	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
6.3	12	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
8	10	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	12.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	14.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	16.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	20.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
10	10	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	13	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	14.5	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	16.5	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	21	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
12.5	13.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	14.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	16.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	21	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
16	16.5	17.0	17.0	5.5	1.20±0.30	6.7	0.7±0.30	±1.0
16	21	17.0	17.0	5.5	1.20±0.30	6.7	0.7±0.30	±1.0
18	16.5	19.0	19.0	6.7	1.20±0.30	6.7	0.7±0.30	±1.0
18	21	19.0	19.0	6.7	1.20±0.30	6.7	0.7±0.30	±1.0

■ Frequency correction factor

Frequency (Hz)		120	1K	10K	100K≦
coefficient	0.47~8.2	0.42	0.60	0.80	1.00
	10~39	0.45	0.75	0.90	1.00
	47~180	0.50	0.80	0.95	1.00
	220以上	0.60	0.85	0.95	1.00

VKL

■ List of Standard Products

Voltage (V)	10		16		25		35		50		63	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0									5×10	32	5×10	32
1.5									5×10	32	5×10	32
1.8									5×10	32	5×10	32
2.2									5×10	45	5×10	45
2.7									5×10	45	5×10	45
3.3									5×10	63	5×10	63
3.9									5×10	63	5×10	63
4.7									5×10	90	5×10	90
5.6									5×10	90	5×10	90
6.8									5×10	94	5×10	94
8.2									5×10	98	5×10	98
10	5×10	72	5×10	72	5×10	72	5×10	81	5×10	98	5×10	108
15									5×10	108	5×10	118
22	5×10	72	5×10	72	5×10	72	5×10	81	6.3×10	170	6.3×10	180
33									6.3×10	245	6.3×12	265
33											8×10	280
47	5×10	114	5×10	114	5×10	114	6.3×10	240	6.3×12	320	8×10	420
47									8×10	330		
56									8×10	330	8×10	420
100	5×10	114	6.3×10	200	6.3×10	240	8×10	324	8×12.5	500	8×16.5	590
100									10×10	550	10×13	590
150	6.3×10	162	6.3×10	240	8×10	324	8×12.5	380				
150	6.3×10	200					10×10	324				
220	6.3×10	324	8×10	324	8×12.5	380	8×12.5	650	10×16.5	940	10×21	860
330	6.3×12	380	8×10	380	8×14.5	650	10×13	850	12.5×16.5	980	12.5×21	1050
330	8×10	324			10×13	650						
470	8×10	620	8×12.5	650	10×13	850	10×16.5	1000	12.5×21	1050	16×21	1570
1000	10×13	1000	10×16.5	1000	10×21	1155	12.5×21	1500	18×21	2290		
2200	12.5×16.5	1500	12.5×21	1500	18×21	2400						
3300	12.5×21	1780	18×21	2400								
4700	18×21	2400										

VKL

■ List of Standard Products

Voltage (V)	80		100		160		200		250		400	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47					6.3×10	48	6.3×10	68	6.3×10	68	6.3×10	54
1.0	5×10	32	5×10	32	6.3×10	48	6.3×10	68	6.3×10	68	6.3×10	54
1.5	5×10	32	5×10	32	6.3×10	48	6.3×10	68	6.3×10	68	6.3×10	68
1.8	5×10	32	5×10	32	6.3×10	68	6.3×10	72	6.3×10	81	6.3×10	68
2.2	5×10	45	5×10	45	6.3×10	68	6.3×10	81	6.3×10	81	6.3×10	80
2.7	5×10	45	5×10	45	6.3×10	68	6.3×10	81	6.3×10	81	8×10	100
3.3	5×10	63	5×10	63	6.3×10	72	6.3×10	85	6.3×10	90	8×10	110
3.9	5×10	63	5×10	63	6.3×10	72	6.3×10	90	6.3×12	110	8×12.5	125
4.7	5×10	90	5×10	90	6.3×10	81	6.3×12	110	6.3×12	110	8×12.5	125
4.7									8×10	90	10×10	125
5.6	5×10	90	6.3×10	90	6.3×10	85	8×10	117	8×10	117	8×14.5	130
6.8	5×10	90	6.3×10	90	6.3×12	90	8×10	117	8×10	162	10×13	208
8.2	5×10	90	6.3×10	90	8×10	107	8×12.5	165	8×12.5	165	8×20.5	250
8.2							10×10	160	10×10	160	10×14.5	260
10	6.3×10	108	6.3×10	180	8×10	107	8×14.5	210	8×14.5	210	10×16.5	330
10							10×10	160			12.5×14.5	360
15	6.3×10	180	6.3×12	210	8×12.5	117	8×16.5	210	8×16.5	210	12.5×16.5	410
15			8×10	180								
22	6.3×12	210	8×12.5	230	8×14.5	160	8×20.5	250	8×20.5	250	12.5×21	500
22	8×10	180	10×10	198	10×13	178	10×14.5	250	10×14.5	250		
33	6.3×12	230	8×12.5	280	10×14.5	255	10×21	340	10×21	340	16×21	730
33	8×10	198	10×10	280								
47	8×12.5	280	10×13	350	10×21	400	12.5×21	400	12.5×21	400	18×21	850
47	10×10	280										
56	10×10	280	10×13	350	12.5×16.5	608	12.5×21	500	12.5×21	500		
100	10×16.5	550	12.5×16.5	700	16×21	825	16×21	800	18×21	800		
220	12.5×21	890	16×21	1155								
330	12.5×21	1050	18×21	1400								
470	18×21	1400										

Voltage (V)	450		Voltage (V)	450		Voltage (V)	450		Voltage (V)	450	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	6.3×10	60	2.7	8×10	120	6.8	10×14.5	260	15	12.5×16.5	410
1.0	6.3×10	60	3.3	8×12.5	120	8.2	8×20.5	260	22	12.5×21	500
1.5	6.3×10	60	3.9	8×12.5	130	8.2	10×14.5	260	33	16×21	820
1.8	8×10	84	4.7	8×14.5	130	10	10×16.5	320	47	18×21	980
2.2	8×10	90	5.6	10×13	140	10	12.5×14.5	360			

VKL(R)

◆High temperature resistance, low impedance, and high reliability V-CHIP products

◆2000-hour lifespan at 135℃

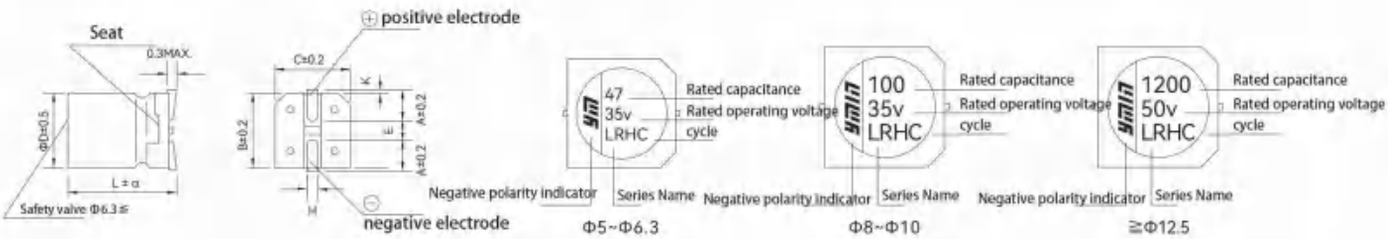
◆Compliant with AEC-Q200 RoHS directive

◆Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering

■ Main technical parameters

project	characteristic
Operating Temperature Range	-55~+135℃
Nominal Voltage Range	10~50V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~50WV I≤0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 10 / 16 / 25 / 35 / 50 tg δ: 0.30 / 0.26 / 0.22 / 0.20 / 0.20 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 10 / 16 / 25 / 35 / 50 Impedance ratio Z(-40℃)/Z(20℃): 12 / 8 / 6 / 4 / 4
Durability	After applying the rated voltage for a specified time in a 135℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below the specified value Load life: 2000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD	L	B	C	A	H	E	K	α
6.3	10	6.6	6.6	2.6	0.75±0.20	1.8	0.5MAX	±0.5
8	10	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
10	10	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.5
12.5	13.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
16	16.5	17.0	17.0	5.5	1.20±0.30	6.7	0.70±0.30	±1.0
16	21	17.0	17.0	5.5	1.20±0.30	6.7	0.70±0.30	±1.0
18	16.5	19.0	19.0	6.7	1.20±0.30	6.7	0.70±0.30	±1.0
18	21	19.0	19.0	6.7	1.20±0.30	6.7	0.70±0.30	±1.0

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.35	0.50	0.83	1.00

VKL(R)

■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 135℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 135℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 135℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 135℃ 120Hz)
47										6.3×10	0.5	197
47										8×10	0.4	270
68										8×10	0.4	270
100				6.3×10	0.5	197	8×10	0.4	270	6.3×10	0.5	197
100				8×10	0.4	270				8×10	0.4	270
220	8×10	0.4	270	8×10	0.4	270	10×10	0.3	500	10×10	0.3	500
330	8×10	0.4	270	10×10	0.3	500	10×10	0.3	500			
330	10×10	0.3	500									
470	10×10	0.3	500	10×10	0.3	500				12.5×13.5	0.14	750
560										12.5×13.5	0.14	750
680										12.5×13.5	0.14	750
820							12.5×13.5	0.14	750	16×16.5	0.1	1200
1000							12.5×13.5	0.14	750	16×16.5	0.1	1200
1200							16×16.5	0.1	1200	18×16.5	0.1	1400
1500							16×16.5	0.1	1200	16×21	0.08	1900
1500										18×16.5	0.1	1400
1800							16×16.5	0.1	1200	18×21	0.07	2200
2200							18×16.5	0.1	1400	18×21	0.07	2200
2700							16×21	0.08	1900			
3300							18×21	0.07	2200			

Voltage (V)	50		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 135℃ 120Hz)
47	8×10	0.5	270
100	10×10	0.4	500
390	12.5×13.5	0.18	750
470	16×16.5	0.14	1000
560	16×16.5	0.14	1000
680	18×16.5	0.14	1200
820	18×16.5	0.14	1200
1000	16×21	0.1	1600
1200	18×21	0.08	1900

L3M

◆Low impedance, thin profile, high capacitance

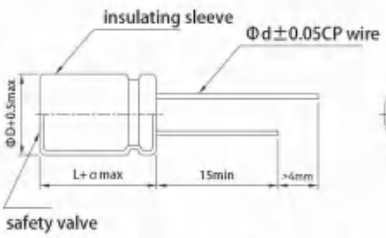
◆2000~5000 hours at 105℃

◆Compliant with AEC-Q200 RoHS directive

■ Main technical parameters

project	characteristic
Operating Temperature Range	≤100V －55~+105℃ ; 160V －40~+105℃
Nominal Voltage Range	6.3~160V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	6.3~100WV I≤0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Reading in 2 minutes 160WV I≤0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Reading in 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 / 160 tg δ: 0.26 / 0.19 / 0.16 / 0.14 / 0.12 / 0.12 / 0.12 / 0.12 / 0.12 / 0.14 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 / 160 Impedance ratio Z(－40℃)/Z(20℃): 3 / 3 / 3 / 3 / 3 / 3 / 5 / 5 / 5 / 5
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below the specified value Load life: ≦Φ10 2000h ; >Φ10 5000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



L<20	α=1.0
L≧20	α=2.0

Note: Products ≥ Φ6.3 have a safety valve.

D	4	5	6.3	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.45	0.5(0.45)	0.5	0.6(0.5)	0.6	0.7	0.6	0.8	0.8	0.8
F	1.5	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.35	0.50	0.83	1.00

L3M

■ List of Standard Products

Voltage (V)	6.3			10			16			25		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
150										6.3×7	0.32	600
220										6.3×7	0.32	600
330				6.3×7	0.32	600	6.3×7	0.32	600			
470	6.3×7	0.32	600	6.3×7	0.32	600				8×9	0.16	850
680	6.3×7	0.32	600				8×9	0.16	850			
820										10×9	0.12	1190
1000				8×9	0.16	850	10×9	0.12	1190			
1500	8×9	0.16	850	10×9	0.12	1190				12.5×13	0.116	1420
2200	10×9	0.12	1190									

Voltage (V)	35			50			63			80		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
100				6.3×7	0.68	350						
150	6.3×7	0.32	600									
220				8×9	0.36	670				12.5×13	0.36	1050
330	8×9	0.16	850	10×9	0.24	900						
470				12.5×13	0.24	1340	12.5×16	0.28	1250	16×16	0.20	1500
560	10×9	0.12	1190									
680							16×16	0.164	1740	16×20	0.132	2040
820							18×16	0.16	1880	18×20	0.126	2140
1000	12.5×14	0.116	1420	16×16	0.16	1820						
1200							16×20	0.108	2430			
1500				16×20	0.10	2440						

Voltage (V)	100			160		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
100				12.5×16	4.60	1040
150	12.5×13	0.36	1050	16×20	3.28	1520
220	12.5×16	0.22	1250	18×20	2.58	2140
330	16×16	0.20	1500			
470	16×20	0.132	2040			
560	18×20	0.126	2140			

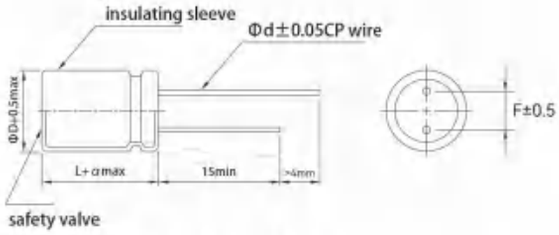
LMM

- ◆ Flat, miniaturized design, specifically for high-end power supplies
- ◆ Withstands 3000~8000 hours at 105℃
- ◆ Complies with AEC-Q200 RoHS directive

■ Main technical parameters

project	characteristic
Operating Temperature Range	≤100V －55~+105℃ ; 160~500V －40~+105℃
Nominal Voltage Range	6.3~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	6.3~100WV I≤0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≤0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V) 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 80 tg δ 0.32 / 0.28 / 0.24 / 0.20 / 0.18 / 0.16 / 0.16 / 0.14 Rated voltage (V) 100 / 160 / 200 / 250 / 350 / 400 / 450 / 500 tg δ 0.14 / 0.15 / 0.15 / 0.15 / 0.20 / 0.20 / 0.20 / 0.25 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V) 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 80 Impedance ratio Z(－40℃)/Z(20℃) 14 / 12 / 10 / 10 / 10 / 7 / 7 / 7 Rated voltage (V) 100 / 160 / 200 / 250 / 350 / 400 / 450 / 500 Impedance ratio Z(－40℃)/Z(20℃) 7 / 10 / 10 / 10 / 10 / 10 / 10 / 12
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below the specified value Load life: 6.3~100WV — External dimensions: / Load life: ΦD*5 3000; ΦD*7 4000; Others Φ5~Φ6.3 5000; Others Φ8 6000; Others Φ10 and above 8000 160~500WV — External dimensions: / Load life: ΦD*5 3000; ΦD*7 5000; Others Φ5~Φ6.3 6000; Others Φ8 7000; Others Φ10andabove 8000
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



L≦7	α=1.5
L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

Note: Products ≥ Φ6.3 have a safety valve.

D	4	5	6.3	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.45	0.5(0.45)	0.5	0.6(0.5)	0.6	0.7	0.6	0.8	0.8	0.8
F	1.5	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.65	1.00	1.37	1.50

LMM

■ List of Standard Products

Voltage (V)	6.3		10		16		25		35		50	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
18											5×7	40
22											5×7	57
33											6.3×7	72
39							5×7	49			6.3×7	80
47							5×7	54			6.3×7	88
56					5×7	53	5×7	60	6.3×7	74		
56											8×7	120
68					5×7	58			6.3×7	105		
68											8×7	140
82					5×7	64	6.3×7	115	6.3×7	116		
82											8×7	150
100									8×7	160		
120							6.3×7	180	8×7	180	10×7	180
150					6.3×7	109			8×7	180	10×7	220
180			6.3×7	94			8×7	170	10×7	225	10×9	310
180											8×12	310
220			6.3×7	103					10×7	315	10×12	340
270	6.3×7	123	6.3×7	163					10×7	350	10×12	375
270					8×7	180	10×7	310				
330									10×9	420	12.5×13	415
330	6.3×7	135			8×7	200	10×7	345			10×14	415
390	8×5	166	8×7	196					10×12	525	12.5×13	455
390							10×7	380				
470	8×7	200	8×7	210	10×7	295	10×9	490	10×12.5	570	12.5×13	500
560	8×7	231	10×7	253	10×7	325	10×12	580	12.5×13	586	12.5×14	550
680	8×7	254	10×7	275	10×9	420	10×12	640	12.5×13	640	12.5×16	610
820	10×7	304	10×7	345	10×9	465	12.5×13	710	12.5×14	710	16×16	680
820	8×9	304										
1000	10×7	362	10×9	450	10×12	580	12.5×13	780	12.5×16	780	16×16	680
1000	8×9	362										
1200	8×12	430	10×12	540	10×12.5	600	12.5×13	860	12.5×16	850	18×16	750
1200	10×9	430										
1500	10×12	520	10×12.5	600	12.5×13	665	12.5×16	925	16×16	925	16×20	830
1800	10×12	520	12.5×13	730	12.5×13	730	12.5×16	1010	16×16	1010	18×20	910
2200	10×12.5	570	12.5×13	800	12.5×14	860	16×16	1100	18×16	1100		
2700	10×16	686	12.5×13	810	12.5×16	980	16×16	1230	18×20	1230		
2700	12.5×13	686										
3300	10×16	760	12.5×16	970	16×16	1130	18×16	1350				
3300	12.5×13	760										
3900	12.5×14	830	12.5×16	1060	16×16	1250	18×20	1480				
4700	12.5×16	910	16×16	1360	18×16	1580	18×20	1650				

LMM

■ List of Standard Products

Voltage (V)	63		80		100		160		200		250	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.5											5×7	22
1.8									5×7	22	5×7	22
2.2							5×7	20	5×7	22		
2.7							5×7	22			6.3×7	35
3.3											6.3×7	35
3.9									6.3×7	40	6.3×7	40
4.7							6.3×7	28	6.3×7	45		
5.6					5×7	22	6.3×7	40			8×7	55
6.8					5×7	24			8×7	65	8×7	65
8.2			5×7	26					8×7	65		
8.2											10×7	80
10			5×7	28		28	8×7	56	8×7	72		
10											10×7	95
12	5×7	45			6.3×7	31	8×7	62	8×9	90	10×7	105
12									10×7	90		
15	5×7	50	6.3×7	38	6.3×7	34	8×9	87	10×7	105	10×9	125
15							10×7	87				
18			6.3×7	44			10×7	95	10×9	125	10×12	140
22			6.3×7	49	8×7	60	10×9	110	10×12	180	10×12	180
27	6.3×7	65			8×7	78	10×12	150	10×12.5	225	10×14	225
33	6.3×7	72	8×7	78	10×7	86	10×12	165	10×14	250	12.5×13	270
39			8×7	86	10×7	110	10×12.5	185	12.5×13	300	12.5×14	300
47	8×7	88	10×7	110	10×7	140	12.5×13	300	12.5×13	330	12.5×16	375
56	8×7	98	10×7	140	10×9	170	12.5×13	330	12.5×14	340	12.5×16	375
68	8×7	110	10×7	155	10×12	200	12.5×14	365	12.5×16	375	16×16	450
82	10×7	155	10×9	180	10×12.5	250	12.5×16	440	16×16	450	16×16	450
82												
100	10×7	180	10×9	200	12.5×13	310	12.5×16	440	16×16	480	18×16	500
100												
120	10×9	200	10×12	250	12.5×13	320	16×16	525	18×16	575	16×20	540
120												
150	10×12	250	12.5×13	310	12.5×13	320	18×16	630	16×20	575	18×20	670
150												
180	10×12	275	12.5×13	320	12.5×16	390	18×16	630	18×20	690		
180												
220	12.5×13	320	12.5×13	320	12.5×16	480	18×20	835				
270	12.5×13	350	12.5×14	390	16×16	530						
330	12.5×13	390	12.5×16	480	16×16	590						
330												

◆ My Company's Corresponding Contents

Currently, environmental issues are receiving widespread international attention. To protect the global environment, our company is actively promoting environmental improvement activities. "Lead-free" has become a challenge for the electronic industry. Through the correct use of plating materials for electrode terminals and outer sleeve materials, we have achieved lead-free products and solved this problem. This has enabled our products to become standardized according to the 【EU RoHS Directive】, which prohibits the use of certain hazardous substances.

◆ Correspondence Contents

1. Plating Types of Electrode Terminals

Product Category		Terminal Plating Material
(SMD type)	[standard type]	Sn
	[sleeved type]	Sn
(Through-hole type)		Sn

*If you wish to use methods other than the above terminal plating materials, please consult us separately.

2. Outer Sleeve Materials (Countermeasures to achieve lead-free)

Product Category		Outer Sleeve Material
(SMD type)	[standard type]	PET
(Through-hole type)	[sleeved type]	PET

*If you wish to use methods other than the above outer sleeve materials, please consult us separately.

◆ Compliant with EU REACH Regulations

Our products comply with the requirements of the 【Specific Substance Regulations within the Articles】 of the EU REACH guidelines.

LMM

■ List of Standard Products

Voltage (V)	63		80		100	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
390	12.5×16	440	16×16	530	18×16	700
470	12.5×16	480	16×16	590	16×20	700
560	16×16	550	18×16	700	18×20	850
680	16×16	610	16×20	700		
820	18×16	730	18×20	850		
1000	18×16	750				
1200	16×20	830				
1500	18×20	910				

Voltage (V)	350		400		450		500	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	5×7	18	5×7	18			6.3×7	20
1.2	5×7	20			6.3×7	24	6.3×7	20
1.5			6.3×7	28	6.3×7	28		
1.8	6.3×7	31	6.3×7	31			8×7	25
2.2	6.3×7	40	6.3×7	40	8×7	44	8×7	30
2.7					8×7	48	8×9	36
3.3			8×7	55	8×7	55	10×7	36
3.9	8×7	62	8×7	62	10×7	66	8×12	44
3.9							10×9	44
4.7	8×7	70			10×7	72	8×14	50
4.7							10×9	50
5.6	8×9	84	8×9	84	10×9	88	10×12	55
5.6	10×7	84	10×7	84				
6.8	8×9	84	8×12	88	10×12	105	10×12	60
6.8	10×7	88	10×7	88				
8.2	8×12	105	10×9	105	10×12	120	10×12.5	66
8.2	10×9	105						
10	10×9	105	10×12	120	10×12.5	126	10×14	72
10							12.5×13	86
12	10×12	126	10×12	126	12.5×13	150	12.5×14	95
15	10×12.5	132	12.5×13	150	12.5×13	150	12.5×14	105
18	10×14	145	12.5×13	150	12.5×14	165	12.5×16	125
22	12.5×13	150	12.5×14	165	12.5×16	200	16×16	150
27	12.5×14	165	12.5×16	182	16×16	234	16×16	165

LMM

■ List of Standard Products

Voltage (V)	350		400		450		500	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
33	12.5×16	182	12.5×16	200	16×16	258	18×16.5	180
39	12.5×16	200	16×16	234	18×16	310	16×20	215
47	16×16	258	16×16	258	16×20	340	18×20	258
56	18×16	310	18×16	310	18×20	380		
68	18×16	340	16×20	340				
82	18×20	380	18×20	380				
100	18×20	410						

LK7

◆7mm high, ultra-compact design, specifically for high-end power supplies
◆5000~6000 hours of operation at 105℃
◆Compliant with AEC-Q200 RoHS directive

■ Main technical parameters

project	characteristic
Operating Temperature Range	－40~+105℃
Nominal Voltage Range	6.3~400V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	6.3~100WV I≤0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~400WV I≤0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes

Loss Tangent (25 ± 2° C 120Hz)

Rated voltage (V)	6.3	10	16	25	35	50	63
tg δ	0.32	0.28	0.24	0.20	0.16	0.14	0.14
Rated voltage (V)	80	100	160	200	250	350	400
tg δ	0.12	0.12	0.15	0.15	0.15	0.15	0.15

For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Temperature Characteristics (120Hz)

Rated voltage (V)	6.3	10	16	25	35	50	63
Impedance ratio Z(－40℃)/Z(20℃)	12	10	8	6	4	4	4
Rated voltage (V)	80	100	160	200	250	350	400
Impedance ratio Z(－40℃)/Z(20℃)	4	4	4	5	5	7	7

Durability

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

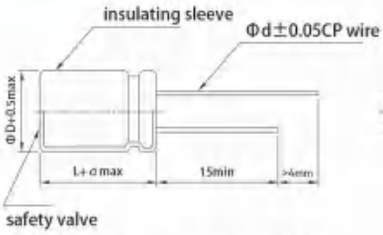
Capacity change rate	Within ±30% of the initial value	
Loss tangent	Below 300% of the specified value	
Leakage current	Below the specified value	
Load life	Φ5、Φ6.3	5000h
	Φ8、Φ10	6000h

High Temperature Storage

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

Capacity change rate	Within ±30% of the initial value
Loss tangent	Below 300% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)



D	5	6.3	8(≦100V)	8(≧160V)	10	12.5~13	12.5~13(高度≥30)	14.5
d	0.45	0.5	0.5	0.6	0.6	0.7	0.6	0.8
F	2.0	2.5	3.5		5.0	5.0	5.0	7.5
α	1.0				1.5			

Note: Products ≥ Φ6.3 have a safety valve.

■ Ripple current compensation coefficient

① Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
Correction Factor	0.65	1.00	1.37	1.50

② Temperature correction factor

Ambient temperature (° C)	50℃	70℃	85℃	105℃
Correction factor	2.1	1.8	1.4	1.0

LK7

■ List of Standard Products

Voltage (V)	6.3		10		16		25		35		50	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
2.2											5×7	31
2.7											5×7	31
3.3											5×7	31
3.9											5×7	31
4.7							5×7	50	5×7	50	5×7	31
5.6							5×7	50	5×7	50	5×7	31
6.8							5×7	55	5×7	50	5×7	31
8.2							5×7	55	5×7	50	5×7	31
10	5×7	55	5×7	55	5×7	55	5×7	60	5×7	50	5×7	31
12	5×7	55	5×7	55	5×7	55	5×7	60	5×7	60	5×7	37
15	5×7	60	5×7	60	5×7	60	5×7	60	5×7	60	5×7	44
18	5×7	60	5×7	60	5×7	60	5×7	60	5×7	60	6.3×7	55
22	5×7	60	5×7	70	5×7	70	5×7	60	5×7	70	6.3×7	65
27	5×7	70	5×7	70	5×7	70	5×7	70	6.3×7	80	6.3×7	78
33	5×7	80	5×7	80	5×7	80	5×7	85	6.3×7	90	8×7	85
39	5×7	80	5×7	80	5×7	80	5×7	85	6.3×7	98	8×7	100
47	5×7	90	5×7	90	5×7	90	5×7	90	6.3×7	105	8×7	120
56	5×7	90	5×7	90	5×7	90	6.3×7	98	8×7	115	8×7	125
68	5×7	90	5×7	90	5×7	90	6.3×7	105	8×7	125	10×7	140
82	5×7	100	5×7	98	6.3×7	105	6.3×7	115	8×7	140	10×7	160
100	5×7	105	6.3×7	115	6.3×7	115	8×7	125	8×7	170	10×7	180
120	5×7	110	6.3×7	115	6.3×7	128	8×7	140	10×7	180		
150	6.3×7	115	6.3×7	135	8×7	140	8×7	170	10×7	210		
180	6.3×7	135	8×7	160	8×7	170	10×7	190				
220	6.3×7	160	8×7	170	8×7	190	10×7	220				
270	8×7	170	8×7	190	10×7	220						
330	8×7	180	10×7	220	10×7	240						
390	8×7	190	10×7	240	10×7	260						
470	8×7	200	10×7	260								
560	10×7	240										
680	10×7	280										

LK7

■ List of Standard Products

Voltage (V)	63		80		100		160		200		250	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0									5×7	20	5×7	20
1.2									5×7	20	5×7	20
1.5									5×7	22	5×7	22
1.8									5×7	22	5×7	22
2.2	5×7	30	5×7	30	5×7	28	5×7	20	6.3×7	25	6.3×7	25
2.7	5×7	30	5×7	30	5×7	28	5×7	20	6.3×7	35	6.3×7	35
3.3	5×7	30	5×7	30	5×7	28	6.3×7	22	6.3×7	40	6.3×7	40
3.9	5×7	30	5×7	30	5×7	28	6.3×7	22	8×7	50	8×7	50
4.7	5×7	30	5×7	30	5×7	28	6.3×7	22	8×7	55	8×7	55
5.6	5×7	30	5×7	30	5×7	28	8×7	50	8×7	65	8×7	65
6.8	5×7	30	5×7	30	6.3×7	30	8×7	55	8×7	72	10×7	80
8.2	5×7	30	5×7	30	6.3×7	40	8×7	60	10×7	95	10×7	95
10	5×7	30	6.3×7	50	6.3×7	50	8×7	65	10×7	108	10×7	108
12	6.3×7	50	6.3×7	55	8×7	75	10×7	95				
15	6.3×7	56	6.3×7	70	8×7	85	10×7	115				
18	6.3×7	70	6.3×7	75	8×7	100						
22	8×7	75	8×7	85	8×7	120						
27	8×7	85	8×7	100	10×7	130						
33	8×7	100	8×7	120	10×7	150						
39	8×7	120	10×7	130								
47	10×7	130	10×7	150								
56	10×7	150	10×7	160								
68	10×7	160										

Voltage (V)	350		400	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	6.3×7	25	6.3×7	25
1.2	6.3×7	30	6.3×7	30
1.5	6.3×7	35	6.3×7	35
1.8	6.3×7	40	6.3×7	40
2.2	8×7	50	8×7	50
2.7	8×7	55	8×7	55
3.3	8×7	70	8×7	70
3.9	10×7	80	10×7	80
4.7	10×7	95	10×7	95
5.6	10×7	108		

LK

◆ Compact size, withstands high frequency and high ripple current, high frequency and low impedance, designed for high-end power supplies

◆ 6000~8000 hours at 105℃

◆ Compliant with AEC-Q200 RoHS directive

■ Main technical parameters

project	characteristic
Operating Temperature Range	≦120V －55~+105℃；160~500V －40~+105℃
Nominal Voltage Range	10~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~120WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes

Loss Tangent (25 ± 2° C 120Hz)

Rated voltage (V)	10	16	25	35	50	63	80	100
tg δ	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.09
Rated voltage (V)	120	160	200	250	350	400	450	500
tg δ	0.09	0.09	0.08	0.08	0.10	0.10	0.12	0.20

For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Temperature Characteristics (120Hz)

Rated voltage (V)	10	16	25	35	50	63	80	100
Impedance ratio Z(－40℃)/Z(20℃)	6	4	3	3	3	3	3	3
Rated voltage (V)	120	160	200	250	350	400	450	500
Impedance ratio Z(－40℃)/Z(20℃)	5	5	5	5	7	7	7	8

Durability

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

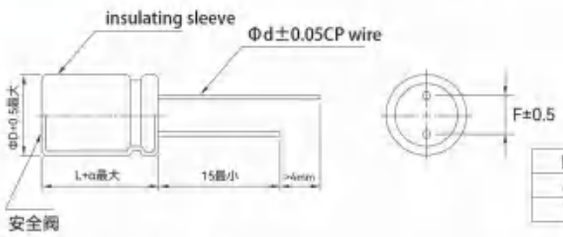
Capacity change rate	Within ±20% of the initial value	
Loss tangent	Below 200% of the specified value	
Leakage current	Below the specified value	
Load life	≦Φ5~Φ6.3	6000h
	≧Φ8	8000h

High Temperature Storage

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)



备注：≧Φ6.3 产品有安全阀

L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

D	5	6.3	8	10	12.5~13	12.5~13(高度≥30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

■ Ripple current compensation coefficient

① Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

② Temperature correction factor

Ambient temperature (° C)	50℃	70℃	85℃	105℃
Correction factor	2.1	1.8	1.4	1.0

LK

■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10	5×9	1.10	55	5×9	1.10	70	5×9	1.10	90	5×9	1.60	100
15	5×9	1.10	75	5×9	1.10	90	5×9	1.10	110	5×9	1.10	120
22	5×9	0.42	90	5×9	0.42	110	5×9	1.10	120	5×9	1.10	160
33	5×9	0.42	105	5×9	0.42	120	5×9	0.42	150	5×9	0.42	215
39	5×9	0.42	135	5×9	0.42	150	5×9	0.42	180	5×9	0.42	215
47	5×9	0.28	142	5×9	0.28	160	5×9	0.28	210	5×11	0.38	310
56	5×9	0.28	150	5×9	0.28	170	5×9	0.28	290	5×11	0.38	310
68	5×9	0.28	160	5×9	0.28	180	5×11	0.25	310	6.3×9	0.36	390
82	5×9	0.28	170	5×9	0.28	210	5×11	0.25	310	6.3×9	0.36	390
100	5×9	0.28	180	5×9	0.28	290	5×11	0.25	310	6.3×11	0.17	404
100										8×9	0.17	441
120	5×9	0.28	210	5×11	0.25	310	6.3×9	0.25	390	8×9	0.17	441
150	5×9	0.28	290	6.3×9	0.25	390	6.3×11	0.17	404	8×11.5	0.13	830
150							8×9	0.17	441	10×9	0.13	765
180	5×11	0.28	290	6.3×9	0.25	390	6.3×11	0.17	404	8×11.5	0.13	830
180							8×9	0.17	441	10×9	0.13	765
220	5×11	0.25	310	6.3×11	0.17	404	6.3×11	0.17	404	8×11.5	0.13	830
220				8×9	0.17	441	8×9	0.17	441	10×9	0.13	765
270	6.3×9	0.25	390	6.3×11	0.17	404	8×11.5	0.10	830	8×16	0.10	1150
270				8×9	0.17	441	10×9	0.10	765	10×12.5	0.10	1150
330	6.3×11	0.17	404	6.3×11	0.17	650	8×11.5	0.10	830	8×16	0.10	1170
330	8×9	0.17	441	8×9	0.17	765	10×9	0.10	765	10×12.5	0.10	1150
390	6.3×11	0.17	650	8×11.5	0.10	830	8×14	0.12	1150	8×20	0.0505	1350
390	8×9	0.17	765	10×9	0.10	765	10×12.5	0.10	1150	10×16	0.0505	1550
470	6.3×11	0.17	650	8×11.5	0.10	830	8×16	0.10	1170	8×20	0.0505	1350
470	8×9	0.17	765	10×9	0.10	765	10×12.5	0.10	1150	10×16	0.0505	1550
560	8×11.5	0.10	830	8×11.5	0.10	830	8×20	0.0505	1350	10×16	0.0420	1550
560	10×9	0.10	765	10×9	0.10	765	10×12.5	0.10	1150	12.5×14	0.0500	1808
680	8×11.5	0.10	830	8×16	0.10	1125	8×20	0.0505	1350	10×20	0.0420	1590
680	10×9	0.10	765	10×12.5	0.13	1150	10×16	0.0505	1550	12.5×16	0.0500	1910
820	8×11.5	0.10	830	8×20	0.0505	1350	10×16	0.0505	1550	10×20	0.0420	1590
820				10×14	0.0805	1350	12.5×14	0.0600	1808	12.5×16	0.0500	1910
1000	8×16	0.10	1125	8×20	0.0505	1350	10×20	0.0505	1808	12.5×20	0.0300	2250
1000	10×12.5	0.10	1150	10×14	0.0805	1350	12.5×14	0.0600	1808			
1200	8×16	0.10	1125	10×16	0.0505	1550	10×23	0.0500	2050	10×27	0.0300	2220
1200	10×14	0.0805	1350	12.5×14	0.0600	1808	12.5×16	0.0500	1910	12.5×20	0.0300	2250
1500	8×20	0.0805	1350	10×20	0.0420	1590	12.5×20	0.0300	2250	12.5×25	0.0270	2620
1500	10×14	0.0805	1350	12.5×14	0.0600	1808				16×20	0.0270	2925
1800	10×20	0.0620	1590	10×20	0.0420	1590	12.5×20	0.0300	2250	12.5×35	0.0210	3215

LK

■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1800	12.5×14	0.0600	1808	12.5×16	0.0500	1910	10×27	0.03	2580	12.5×27	0.035	2800
1800										14.5×16	0.0210	3180
1800										16×20	0.0210	3270
2200	10×20	0.0620	1590	10×23	0.0300	2050	12.5×25	0.0270	2620	12.5×35	0.0160	3215
2200	12.5×14	0.0600	1808	12.5×20	0.0300	2250	14.5×16	0.0270	2620	14.5×20	0.0160	3215
2200										16×25	0.0160	3270
2700	10×20	0.0620	1590	12.5×20	0.0300	2250	12.5×27	0.026	3050	13×27	0.025	3020
2700	12.5×16	0.0500	1910				12.5×30	0.0250	3110	14.5×23	0.0160	3320
2700										16×31.5	0.0140	3500
2700										18×25	0.0270	3600
3300	12.5×20	0.0300	2250	10×27	0.0312	2800	12.5×35	0.0250	3215			
3300				12.5×25	0.0268	2620	13×27	0.025	3150			
3300				14.5×16	0.0268	2620	14.5×20	0.0250	3180	14.5×25	0.0150	3400
3300							14.5×23	0.0240	3270	16×31.5	0.0123	3500
3300							16×25	0.0250	3270	18×25	0.0135	3600
3900	12.5×20	0.0300	2250	12.5×30	0.0255	3110	14.5×25	0.0230	3350	14.5×27	0.0140	3520
3900				16×20	0.0268	2925	16×31.5	0.0200	3500	16×35.5	0.0100	3610
3900							18×25	0.0135	3300	18×25	0.0135	3600
4700	10×27	0.035	2500	12.5×27	0.0285	3050						
4700	12.5×25	0.0270	2620	12.5×30	0.0255	3110						
4700	14.5×16	0.0280	2450	14.5×20	0.0255	3110	14.5×27	0.0220	3460	16×40	0.0100	3680
4700				16×25	0.0246	3270	18×25	0.0135	3600	18×35.5	0.0100	3680
5600	12.5×25	0.0270	2620	12.5×35	0.0246	3215						
5600	12.5×27	0.027	2680	14.5×23	0.0250	3200						
5600				16×25	0.0246	3270	18×31.5	0.0120	3610			
6800	12.5×30	0.0155	3110	13×27	0.0255	3280						
6800	13×27	0.016	3110	14.5×25	0.0246	3270						
6800	14.5×20	0.0180	2780	16×31.5	0.0213	3500						
6800	16×25	0.0146	3270	18×25	0.0235	3600	18×35.5	0.0110	3680			
8200	12.5×40	0.0123	3500	16×35.5	0.0220	3610	18×40	0.0100	3735			
8200	14.5×25	0.0160	3160	14.5×27	0.0238	3450						
8200	16×25	0.0146	3270	18×31.5	0.0220	3610						
10000	14.5×27	0.0150	3280	14.5×27	0.0238	3450						
10000	16×31.5	0.0123	3500									
10000	18×25	0.0135	3600	18×35.5	0.0210	3680						

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×9	5.50	20	5×9	3.00	22	5×9	3.00	23	5×9	5.00	23
1.0	5×9	5.50	30	5×9	3.00	33	5×9	3.00	34	5×9	3.00	34
1.8	5×9	5.50	36	5×9	3.00	40	5×9	3.00	42	5×9	3.00	42
2.2	5×9	1.60	38	5×9	3.00	44	5×9	3.00	46	5×9	3.00	46
2.7	5×9	1.60	46	5×9	3.00	51	5×9	1.50	54	5×9	3.00	54
3.3	5×9	1.60	53	5×9	3.00	58	5×9	1.50	61	5×9	1.50	61

LK

■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
3.9	5×9	1.60	70	5×9	3.00	77	5×9	1.50	80	5×9	1.50	80
4.7	5×9	1.60	88	5×9	3.00	97	5×9	1.50	100	5×9	1.50	100
5.6	5×9	1.60	90	5×9	1.50	99	5×9	1.50	105	5×11	1.50	105
6.8	5×9	1.60	93	5×9	1.50	102	5×9	1.50	110	5×11	1.50	110
8.2	5×9	1.60	97	5×9	1.50	108	5×9	1.50	125	5×11	1.50	125
10	5×9	1.60	100	5×9	1.50	110	5×9	1.50	135	5×11	1.50	135
12	5×9	1.60	110	5×9	1.50	120	5×11	1.50	150	6.3×9	1.00	216
15	5×9	1.60	120	5×9	1.50	145	5×11	1.50	150	6.3×9	1.00	216
18	5×9	1.40	130	5×9	1.00	155	6.3×9	1.00	216	6.3×11	0.64	240
18										8×9	0.64	216
22	5×9	1.40	145	5×11	1.00	160	6.3×9	1.00	216	6.3×11	0.64	240
22										8×9	0.64	216
27	5×11	0.38	215	6.3×9	0.60	225	6.3×11	0.64	240	8×9	0.64	369
27							8×9	0.64	260			
33	5×11	0.38	215	6.3×9	0.60	225	6.3×11	0.64	240	8×11.5	0.41	410
33							8×9	0.64	260	10×9	0.41	369
39	6.3×9	0.38	315	6.3×9	0.40	250	8×9	0.64	260	8×11.5	0.41	410
39										10×9	0.41	369
47	6.3×9	0.36	350	6.3×11	0.40	250	8×11.5	0.41	410	8×16	0.29	510
47				8×9	0.50	260	10×9	0.41	450	10×12.5	0.29	510
56	6.3×11	0.36	350	8×9	0.50	350	8×11.5	0.41	410	8×16	0.29	510
56	8×9	0.25	450				10×9	0.41	450	10×12.5	0.26	565
68	6.3×11	0.36	350	8×11.5	0.25	480	8×11.5	0.41	410	8×20	0.22	660
68	8×9	0.25	450	10×9	0.25	490	10×9	0.41	450	10×14	0.22	660
82	8×9	0.25	585	8×11.5	0.25	480	8×16	0.29	510	8×20	0.22	660
82				10×9	0.25	490	10×12.5	0.29	565	10×16	0.20	710
100	8×9	0.25	585	8×14	0.25	550	8×16	0.29	510	10×16	0.20	710
100				10×9	0.25	500	10×12.5	0.26	565	12.5×14	0.18	833
120	8×11.5	0.16	630	8×16	0.19	620	8×20	0.22	660	10×20	0.14	950
120	10×9	0.16	650	10×12.5	0.18	630	10×14	0.20	660	12.5×14	0.18	833
150	8×14	0.12	760	8×20	0.14	775	10×16	0.20	710	10×20	0.15	950
150	10×9	0.12	650	10×14	0.14	810	12.5×14	0.18	833	12.5×16	0.15	880
180	8×16	0.12	860	8×20	0.14	775	10×20	0.14	950	12.5×20	0.0959	1290
180	10×12.5	0.12	875	10×16	0.14	900	12.5×14	0.18	833			
220	8×16	0.12	860	10×16	0.14	900	10×20	0.14	950	12.5×20	0.0959	1290
220	10×12.5	0.12	875				12.5×16	0.18	1020			
270	8×20	0.0768	1080	10×20	0.0877	1080	12.5×20	0.0959	1290	10×27	0.072	1440
270	10×16	0.0768	1250	12.5×14	0.0920	1022				12.5×25	0.0673	1460
330	10×16	0.0768	1250	10×20	0.0877	1080	12.5×20	0.0959	1290	12.5×30	0.0571	1760
330										14.5×16	0.0570	1500
330	12.5×14	0.0810	1022	12.5×16	0.0920	1080				16×20	0.0653	1560

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■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
390	10×20	0.0695	1430				10×27	0.0675	1420	12.5×27	0.056	1760
390	12.5×14	0.0810	1022	12.5×20	0.0673	1415	12.5×25	0.0673	1460	12.5×35	0.0520	1930
390							12.5×25	0.0673	1460	16×25	0.0480	1990
470	10×20	0.0695	1430	12.5×20	0.0673	1415	12.5×30	0.0571	1760	13×27	0.050	1950
470	12.5×16	0.0675	1080	12.5×25	0.0479	1800	14.5×16	0.0760	1460	14.5×20	0.0520	1890
470							16×20	0.0653	1560	16×25	0.0480	1990
470										18×20	0.0465	1990
560	12.5×16	0.0675	1598	10×27	0.06	1800	12.5×27	0.056	1850	14.5×23	0.048	1950
560										14.5×25	0.0420	2010
560							16×25	0.0480	1990	16×31.5	0.0368	2160
560										18×25	0.0427	2050
680	12.5×20	0.0600	1850	12.5×30	0.0410	2370	12.5×35	0.0520	1930			
680							13×27	0.055	1920			
680				14.5×16	0.0560	1620	14.5×20	0.0630	1720	14.5×27	0.0360	2150
680				16×20	0.0482	1890	14.5×23	0.0570	1860	16×35.5	0.0326	2340
680							16×25	0.0480	1990	18×31.5	0.0346	2230
820	10×27	0.062	1950	12.5×27	0.0480	2220	14.5×25	0.0520	1990			
820	12.5×25	0.0625	2170	12.5×35	0.0367	2360	16×31.5	0.0368	2160	16×40	0.0305	2580
820	14.5×16	0.0580	2480	16×25	0.0385	2460	18×25	0.0427	2050	18×35.5	0.0305	3160
1000				13×27	0.0430	2480						
1000	12.5×27	0.0580	2520	14.5×20	0.0480	2180						
1000	12.5×30	0.0580	2580	14.5×23	0.0440	2300	14.5×27	0.0480	2080			
1000	16×20	0.0580	2460	16×25	0.0385	2460	16×35.5	0.0326	2340			
1000				18×20	0.0426	2550	18×31.5	0.0346	2230	18×40	0.0305	3160
1200	12.5×30	0.0580	2580									
1200	13×27	0.0520	2560	14.5×25	0.0420	2420						
1200	14.5×20	0.0480	2580	16×31.5	0.0350	2695	16×40	0.0305	2580			
1200	16×25	0.0455	2710	18×25	0.0350	2520	18×31.5	0.0246	2970			
1500	12.5×40	0.0211	2745									
1500	14.5×23	0.0390	2620	14.5×27	0.0390	2540						
1500	14.5×25	0.0300	2680	16×31.5	0.0350	2695						
1500	16×25	0.0240	2710	18×31.5	0.0350	2970	18×35.5	0.0246	3160			
1800	16×31.5	0.0265	2960	16×40	0.0350	3215						
1800	18×25	0.0347	2760	18×31.5	0.0350	2970	18×40	0.0204	3160			
2200	14.5×27	0.0280	2780									
2200	18×31.5	0.0286	2970	18×35.5	0.0350	3215						
2700	18×35.5	0.0224	3215	18×40	0.0350	3310						
3300	18×40	0.0204	3410									

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×9	6.60	23									
1.0	5×9	6.60	34	5×11	40.00	50	5×11	40.00	50	6.3×9	30.00	95
1.2	5×9	6.60	34	5×11	40.00	55	5×11	40.00	55	6.3×9	30.00	95

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■ List of Standard Products

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ω max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ω max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ω max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ω max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.5	5×9	6.60	42	5×11	40.00	60	5×11	40.00	60	6.3×9	30.00	95
1.8	5×9	6.60	42	5×11	40.00	65	5×11	40.00	66	6.3×9	30.00	95
2.2	5×9	1.80	46	5×11	40.00	75	5×11	40.00	75	6.3×9	30.00	104
2.7	5×9	1.80	54	5×11	40.00	80	5×11	40.00	80	6.3×9	30.00	113
3.3	5×9	1.80	61	5×11	40.00	90	6.3×9	30.00	95	6.3×9	30.00	113
3.9	5×9	1.80	80	5×11	40.00	90	6.3×9	30.00	104	6.3×9	15.00	113
4.7	5×9	1.80	100	6.3×9	25.00	104	6.3×11	15.00	115	6.3×11	15.00	125
4.7							8×9	15.00	135	8×9	15.00	135
5.6	5×11	1.80	105	6.3×9	25.00	104	6.3×11	15.00	115	8×9	15.00	135
5.6							8×9	15.00	135			
6.8	5×11	1.60	110	6.3×9	25.00	122	8×9	15.00	135	8×9	15.00	135
8.2	5×11	1.60	125	6.3×11	22.00	125	8×9	15.00	135	8×11.5	15.00	150
8.2				8×9	22.00	130				10×9	15.00	150
10	6.3×9	1.21	135	8×9	22.00	130	8×11.5	15.00	150	8×11.5	15.00	150
10							10×9	15.00	150	10×9	15.00	150
12	6.3×9	1.21	163	8×11.5	20.00	135	8×14	12.00	220	8×14	12.00	220
15	6.3×11	0.83	195	8×11.5	16.00	135	8×16	8.92	250	8×16	8.92	250
15	8×9	0.83	195	10×9	16.00	140	10×12.5	8.92	260	10×12.5	8.92	250
18	8×9	0.83	215	8×11.5	16.00	135	8×20	6.80	315	8×20	6.80	315
18				10×9	16.00	140	10×14	6.80	290	10×14	6.80	290
22	8×9	0.83	215	8×16	8.92	250	8×20	6.80	315	8×20	6.80	315
22				10×12.5	8.92	250	10×14	6.80	290	10×14	6.80	290
27	8×11.5	0.64	369									
33	8×11.5	0.50	369	8×20	6.80	315	10×20	6.60	575	10×20	6.60	575
33	10×9	0.50	369	10×12.5	6.80	450	12.5×14	6.60	670	12.5×14	6.00	650
39	8×14	0.41	410									
39	10×12.5	0.41	410									
47	8×16	0.32	451	10×16	6.60	580	12.5×20	4.65	870	12.5×20	4.65	870
47	10×12.5	0.32	451	12.5×14	6.60	650						
56	8×20	0.29	510	10×20	6.60	600	12.5×20	4.65	870	10×27	4.65	870
56	10×14	0.29	565	12.5×14	6.60	670				12.5×20	4.65	870
68	8×23	0.22	660	10×23	4.65	670	12.5×25	4.31	1150	12.5×25	4.31	1150
68	10×16	0.22	660	12.5×16	4.65	770	16×20	4.31	1200	16×20	4.31	1200
82	10×16	0.22	660	10×23	4.65	770	12.5×25	4.31	1150	12.5×25	4.31	1150
82										14.5×16	4.31	1150
82	12.5×14	0.20	710	12.5×20	4.65	1040	16×20	4.31	1200	16×20	4.31	1200
100	10×20	0.20	710	10×27	4.80	1040	10×27	4.50	1050	12.5×27	3.60	1150
100							12.5×25	4.31	1150	12.5×30	3.35	1260
100							14.5×16	4.31	1150	14.5×20	3.35	1200
100	12.5×16	0.18	833	12.5×20	4.65	1040	16×20	4.31	1200	16×25	3.05	1350
120										13×27	3.35	1260
120	10×23	0.18	850	12.5×25	4.09	1260	12.5×30	3.05	1440	14.5×25	3.05	1280
120				14.5×16	4.50	1050				16×25	3.05	1350

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■ List of Standard Products

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
120	12.5×16	0.18	833	16×20	4.09	1260	16×25	3.05	1670			
150	12.5×20	0.15	950	12.5×27	4.50	1600	12.5×27	3.90	1520			
150				12.5×30	4.09	1600	14.5×20	3.05	1510			
150							14.5×23	2.90	1650	16×31.5	2.71	1780
150				16×25	3.92	1670	16×25	3.05	1670	18×25	2.71	1780
180	12.5×25	0.11	1290	12.5×35	3.01	1720						
180				13×27	4.20	1700	13×27	3.20	1620	14.5×27	2.60	1325
180				14.5×20	4.00	1520	14.5×25	2.85	1720	16×35.5	2.10	2025
180				14.5×23	3.8	1700	16×35.5	2.10	2025	18×31.5	2.10	2025
180				16×25	3.92	1670	18×25	2.71	2025	18×35.5	1.04	2365
220	16×20	0.11	1290	14.5×25	3.50	1880	14.5×27	2.7	1880			
220				16×31.5	2.71	2160						
220				18×25	2.71	2090	18×31.5	2.10	2200			
270	12.5×30	0.0859	1460	14.5×27	3.10	2020						
270	16×20	0.0859	1460									
330	16×25	0.0671	1760									
330	18×20	0.0671	1560	18×31.5	1.25	2400						
390	16×31.5	0.0520	1930									
390	18×25	0.0520	1990	18×35.5	1.15	2850						
470	16×31.5	0.0480	1990									
470	18×25	0.0480	1990									
560	16×35.5	0.0368	2160									
560	18×31.5	0.0368	2050									
680	18×35.5	0.0326	2340									

Voltage (V)	350			400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	6.3×9	38.00	68	6.3×9	58.00	68	6.3×9	58.00	77	6.3×11	52.00	40
1.2	6.3×9	38.00	95	6.3×9	38.00	77	6.3×9	55.00	77	6.3×11	52.00	40
1.5	6.3×9	38.00	95	6.3×9	38.00	77	6.3×9	55.00	85	6.3×11	52.00	40
1.8	6.3×9	38.00	104	6.3×9	33.00	90	6.3×11	55.00	90	8×9	48.00	72
1.8							8×9	45.00	90			
2.2	6.3×9	33.00	120	6.3×9	33.00	90	8×9	45.00	90	8×11.5	45.00	72
2.7	6.3×11	33.00	120	6.3×11	33.00	110	8×9	45.00	90	8×11.5	45.00	76
2.7	8×9	27.00	130	8×9	27.00	117						
3.3	6.3×11	33.00	120	6.3×12	33.00	110	8×11.5	25.50	130	8×11.5	45.00	76
3.3	8×9	27.00	130	8×9	27.00	117	10×9	25.50	130			
3.9	6.3×12	33.00	120	6.3×12	33.00	110	8×11.5	25.50	130	8×14	35.00	92
3.9	8×9	27.00	130	8×9	27.00	117	10×9	25.50	130			
4.7	6.3×12	33.00	120	6.3×12	33.00	120	8×11.5	25.50	130	8×16	29.00	102

LK

■ List of Standard Products

Voltage (V)	350			400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
4.7	8×9	27.00	130	8×11.5	27.00	135	10×9	18.00	130	10×12.5	22.50	102
5.6	8×11.5	21.00	135	8×14	18.00	180	8×16	13.50	135	10×14	18.00	117
5.6	10×9	21.00	150	10×9	18.00	180	10×12.5	13.50	180			
6.8	8×11.5	21.00	135	8×16	13.50	180	8×20	9.50	200	10×14	18.00	117
6.8	10×9	21.00	150	10×12.5	13.50	180	10×12.5	13.50	180			
8.2	8×16	13.50	180	8×16	13.50	180	8×20	9.50	200	10×16	15.00	152
8.2	10×12.5	13.50	190	10×12.5	13.50	180	10×14	12.00	205			
10	8×16	13.50	180	8×20	9.50	250	10×16	9.50	205	10×20	11.00	216
10	10×12.5	13.50	220	10×14	9.50	250	12.5×14	9.20	315	12.5×14	10.00	234
12	10×14	11.00	240	10×16	9.00	280	10×20	8.15	300	12.5×16	9.50	240
15	10×16	9.50	280	10×20	8.15	310	10×20	8.15	300	12.5×16	9.00	240
15	12.5×14	8.15	530	12.5×14	8.15	310	12.5×16	8.15	410			
18	10×20	8.15	550	10×20	8.15	310	12.5×20	8.15	410	12.5×20	8.00	288
18	12.5×14	8.15	530	12.5×16	8.15	330						
22							10×27	8.15	410	10×27	8.00	305
22	12.5×16	8.15	600	12.5×20	8.15	500	12.5×20	8.15	410	12.5×25	7.00	423
27										14.5×16	7.00	423
33	12.5×20	8.15	865	10×27	5.88	670	12.5×25	6.50	650	12.5×30	6.50	508
33				12.5×25	5.14	670	14.5×16	4.14	550			
33				16×20	4.54	670	16×20	4.14	650			
39										14.5×20	5.50	600
47	12.5×25	4.14	960	12.5×30	4.14	1035	12.5×27	4.20	850	12.5×27	6.50	580
47							12.5×35	3.50	950	12.5×35	5.50	630
47				14.5×16	4.14	1035	14.5×20	4.06	610	14.5×23	3.80	630
47										14.5×25	2.50	750
47	16×20	4.14	1000	16×25	4.14	1035	16×25	3.50	950	16×25	3.50	630
56	12.5×25	4.14	960	12.5×27	4.28	985	13×27	3.50	860	13×27	5.50	630
56				14.5×20	3.80	1150	14.5×23	4.03	650	14.5×25	2.50	750
56							14.5×25	4.00	650			
56	16×20	4.14	1000	16×25	4.14	1035	16×31.5	3.50	1100	16×31.5	2.50	648
56				18×20	4.14	1280	18×25	3.50	1060			
68				13×27	4.14	1035						
68				14.5×23	3.65	1180	14.5×25	4.00	650	14.5×27	2.00	770
68	16×25	4.05	1150	16×31.5	3.50	1315	16×35.5	3.05	1240	16×35.5	2.30	756
68	18×20	3.50	1330	18×25	3.50	1330	18×31.5	3.05	1290	18×31.5	2.30	756
82				14.5×25	3.50	1230	14.5×27	3.80	860			
82	16×31.5	3.50	1400	16×35.5	3.05	1720	16×40	2.95	1510	18×35.5	1.80	990
82	18×25	3.50	1600	18×31.5	3.05	1720	18×31.5	3.05	1290	18×40	1.50	1020
100	16×31.5	3.50	2010	14.5×27	3.35	1350	18×35.5	2.75	1490			
100	18×25	3.50	2010	18×31.5	3.05	2010						
120	16×35.5	3.05	2080	18×35.5	2.05	2250	18×40	2.05	1740			
120	18×31.5	3.05	2010									
150	18×35.5	2.05	2450	18×40	2.00	2500	18×45	2.00	1950			

KCX

◆Ultra-compact size, high voltage, dedicated product for direct charging and fast charging power supplies

◆2000~3000 hours of operation at 105℃

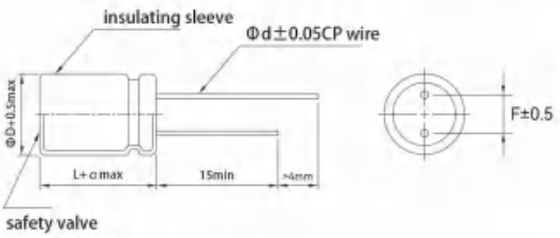
◆Lightning resistant, low leakage current (low standby power consumption), high ripple current, high frequency and low impedance

◆RoHS compliant

■ Main technical parameters

project	characteristic
Operating Temperature Range	－40~+105℃
Nominal Voltage Range	400~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	400~500WV I≦0.015CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 400 / 420 / 450 / 500 tg δ: 0.15 / 0.15 / 0.18 / 0.20 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 400 / 420 / 450 / 500 Impedance ratio Z(－40℃)/Z(20℃): 7 / 7 / 9 / 9
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below the specified value Load life: ≦Φ6.3 2000h; ≧Φ8 3000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



Note: Products ≥ Φ6.3 have a safety valve.

D	5	6.3	7	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5
α	L<20 α=±1.0 L≧20 α=±2.0									

■ Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
coefficient	0.40	0.50	0.80	0.90	1.00

KCX

■ List of Standard Products

Voltage (V)	400			420			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
4.7	6.3×12	9.60	116				8×9	15.7	111	6.3×16	17.5	80
							8×10	15.7	111	8×10	17.5	80
							8×12	27	128			
							6.3×13	18.6	90			
							6.3×16	15.7	111			
6.8	6.3×13	8.40	128				8×11.5	12.80	111	10×10	15.30	88
							10×10	12.80	128			
8.2	6.3×15	7.50	171				8×13	9.27	163	10×10	11.13	110
10	7×13	5.40	190				8×12	5.40	163	10×13	9.85	145
	8×10	5.40	190				8×13	9.27	163			
							8×15	8.21	190			
							8×16	8.21	190			
							10×11	8.21	190			
							10×16	9.50	205			
12	8×11	4.20	200				8×15	8.21	190			
	8×13	4.20	230				10×11	8.21	190	10×13.5	7.66	206
							10×13	6.38	228			
15	7×19	4.00	250				8×17	5.78	230			
	8×13	4.20	230				8×18	5.78	230			
	8×15	4.00	260	8×15	6.08	250	10×12	3.20	228	10×15	7.30	220
							10×13	6.38	228			
							10×13.5	6.08	251			
							10×15	5.78	260			
18	8×15	4.00	260				8×17	3.10	230			
	8×17	3.20	295	8×17	3.20	285	8×18	5.78	230	10×17	6.78	240
							8×20	5.78	251			
							10×14	6.08	251			
							10×15	5.78	295			
							12.5×12.5	5.48	295			
22	8×18	3.10	314	10×15	5.78	314	8×18	3.10	319	12.5×17	5.65	312
	10×13.5	3.10	314				8×20	5.48	290			
							8×21	5.48	290			
							8×25	4.58	314			
							10×17	5.48	314			
							12.5×13	5.48	314			
							12.5×14	5.48	314			
							13×14	3.00	314			

KCX

■ List of Standard Products

Voltage (V)	400			420			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
27	8×20	3.00	330				8×25	4.58	314			
	10×15	3.00	370	10×18	2.50	330	10×18	5.48	350	10×23	5.47	348
							10×19	4.56	350			
							10×20	4.56	370			
							10×25	4.56	370			
							12.5×17	4.56	440			
33	8×25	3.00	420				10×20	2.50	370			
	10×18	2.50	440	10×20	3.50	370	10×25	4.56	400	12.5×20	4.28	400
	12.5×16	2.50	440				10×35	3.26	440			
							13×17	2.18	440			
							13×18	4.26	314			
39	10×21	2.50	520				12.5×19	4.56	314			
	13×17	2.18	480	13×18	2.98	515	13×17	2.50	680			
							13×19	1.98	500			
							13×20	2.0	314			
47	10×25	2.18	560	13×17	1.98	668	10×45	2.71	616	16×20	3.25	560
	13×18	1.98	515				12.5×25	3.84	738			
							13×20	2.25	920			
							13×21.5	2.00	570			
							14.5×16	2.40	900			
56	12.5×24	1.40	738				12.5×30	2.26	620			
	13×17	1.98	560	13×20	2.05	1000	13×23	2.00	1020			
	13×20	1.90	738	14.5×16	2.00	1000	14.5×20	2.20	950			
	18×16	1.40	1000									
68	12.5×30	1.40	1000				10×50	1.64	1000			
	13×20	1.90	1050	13×23	1.80	1100	13×25	1.80	1050			
	14.5×16	1.60	1150	14.5×20	1.80	1050	14.5×23	2.00	1000			
	16×19	1.40	1000							18×20	2.30	800
82	12.5×35	1.20	1050	13×25	1.70	1150	13×27	1.70	1100			
	13×23	1.50	1150	14.5×23	1.70	1100	14.5×25	1.80	1050			
	14.5×20	1.50	1200				16×25	1.37	1178			
	18×19	1.08	1180							18×25	1.97	968
100	10×50	1.40	1220	13×27	1.50	1200	12.5×45	1.64	1180			
	13×25	1.40	1280	14.5×25	1.50	1160	14.5×27	1.60	1120			
	14.5×23	1.40	1280				18×25	1.08	1226			
	18×20	1.08	1180									
120	13×27	1.30	1330				12.5×50	1.50	1298			
	14.5×25	1.30	1330	14.5×27	1.30	1220						
	18×24	0.90	1318									
150	14.5×27	1.20	1450									
	16×35.5	0.80	1180				18×35.5	1.40	1618			
180							16×45	1.37	2200			
220	18×40	0.80	1880				18×45	0.85	2300			
270	16×50	0.70	2320									

KCG NEW

◆Ultra-compact size, high voltage, large capacity, dedicated product for direct charging and fast charging power supplies

◆105℃ 4000H/115℃ 2000H

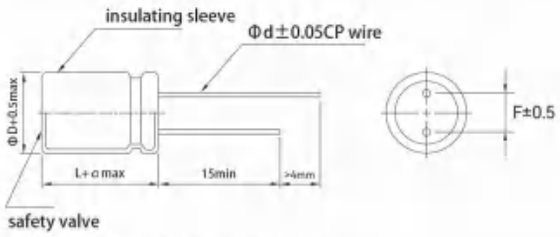
◆Lightning resistant, low leakage current (low standby power consumption), high ripple current, high frequency and low impedance

◆RoHS compliant product

■ Main technical parameters

project	characteristic
Operating Temperature Range	－40~+105℃
Nominal Voltage Range	400V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	400WV I≦0.015CV+10(μA) C: Nominal Capacity (μF) V: Rated Voltage (V) Reading after 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 400; tg δ: 0.15 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 400; Impedance ratio Z(－40℃)/Z(20℃): 7
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below the specified value Load life: ≧Φ8: 115℃ 2000h; 105℃ 4000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



Note: Products ≥ Φ6.3 have a safety valve.

D	5	6.3	7	8	10	12.5~13	12.5~13(高度≥30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5
α	+1									

■ Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
coefficient	0.40	0.50	0.80	0.90	1.00

KCG

■ List of Standard Products

Voltage (V)	400		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10	8×11	5.40	205
12	8×13	4.20	248
15	8×14	3.20	281
18	8×17	3.20	319
22	8×20	3.10	340
	10×14	3.10	340
27	8×25	3.00	372
	10×17	3.00	396
33	10×19	2.50	475
	12.5×16	2.50	475
39	10×23	2.18	562
	12.5×18	2.18	562
47	12.5×20	1.98	665
56	12.5×25	1.40	797
	16×20	1.68	797
68	12.5×30	1.40	1000
82	16×25	1.08	1242
	12.5×35	1.20	1050
100	18×25	0.90	1423
120	18×30	0.90	1648

KCM NEW

◆Ultra-small size, high temperature and high pressure resistance, long lifespan

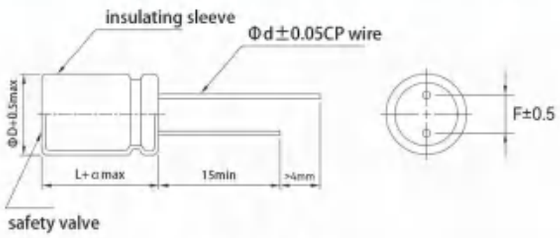
◆3000 hours at 105℃

◆Lightning protection, low leakage current, high frequency and low impedance, high ripple resistance

■ Main technical parameters

project	characteristic
Operating Temperature Range	－40~+105℃
Nominal Voltage Range	400~450V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	400~500WV I≦0.015CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 400 / 450; tg δ: 0.15 / 0.18
Temperature Characteristics (120Hz)	Rated voltage (V): 400 / 450; Impedance ratio Z(－40℃)/Z(20℃): 7 / 9
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.
	Capacity change rate: Within ±20% of the initial value
	Loss tangent: Below 200% of the specified value
	Leakage current: Below the specified value
	Load life: ≦Φ6.3: 2000小时; ≧Φ8: 3000小时
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.
	Capacity change rate: Within ±20% of the initial value
	Loss tangent: Below 200% of the specified value
	Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



Note: Products ≥ Φ6.3 have a safety valve.

D	5	6.3	7	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5
α	L<20 α=±1.0 L≧20 α=±2.0									

■ Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
coefficient	0.40	0.50	0.80	0.90	1.00

KCM

■ List of Standard Products

Voltage (V)	400			450		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
8.2	7*10	6.60	135			
12	6.3*18	7.80	218			
	8*10	5.40	260			
	8*11	5.40	260			
15	6.3*20	4.20	255			
	7*15	4.40	240			
	8*11	5.50	281			
	8*12	3.7	288			
18	7*18	4.00	255			
	8*13	4.00	278			
	8*14	3.70	314			
	10*11	4.00	335			
22	7*20	4.00	260	8*18	3.10	319
	8*15	4.00	305	10*14	6.08	305
	8*16	3.80	406			
	10*12.5	3.20	365			
27	8*18	4.05	355	10*18	5.48	375
	10*14	3.10	380			
	12.5*13	5.48	380			
33	8*20	2.80	390	10*18	5.48	390
	8*25	3.10	389			
	10*15	2.50	478			
	10*16	2.80	475			
	12.5*14	2.50	502			
39	8*30	2.50	440			
	10*17	2.50	523			
	10*18	2.50	523			
	10*19	2.60	550			
	12.5*16	2.50	562			
47	8*30	2.50	440			
	10*20	2.30	602			
	12.5*18	2.18	668			
	13*17	2.10	668			
56	8*35	1.85	575			
	13*18	2.20	658			
	13*19	1.70	825			
68	10*30	1.55	785	10*40	1.60	890
	13*20	1.50	825	18*16	1.60	870
	16*16	1.58	885			

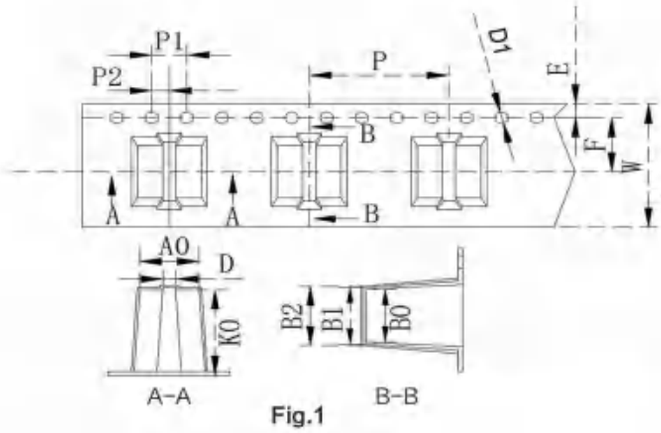


Fig.1

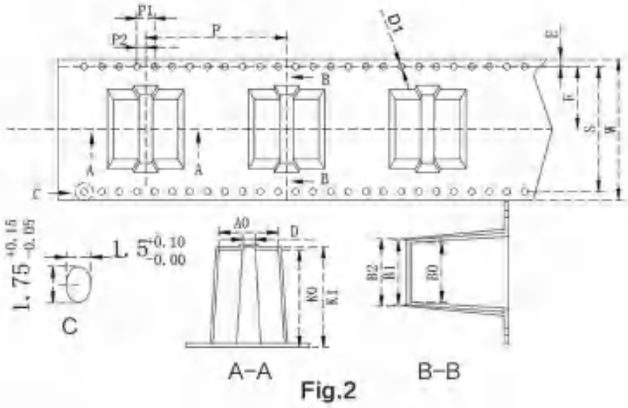


Fig.2

unit:

standard / Product Name	W	A0	B0	B1	B2	D	D1	E	F	K0	K1	P	t	
Φ4×3.95	12	4.6	4.6	5.2	5.9	1.6	1.5	1.75	5.5	4.6	/	8.0	0.4	
Φ4×5.4~5.8	12	4.6	4.6	5.2	5.9	1.6	1.5	1.75	5.5	6.3	/	8.0	0.4	
Φ5×3.95	12	5.7	5.7	6.3	7.1	1.6	1.5	1.75	5.5	4.6	/	12.0	0.4	
Φ5×5.4~5.8	12	5.7	5.7	6.3	7.1	1.6	1.5	1.75	5.5	5.8	/	12.0	0.4	
Φ5×7.7~7.9	16	5.7	5.7	6.3	7.1	1.6	1.5	1.75	7.5	8.3	8.6	12.0	0.4	
Φ5×10	16	5.7	5.7	6.3	7.1	1.6	1.5	1.75	7.5	9.6	9.9	12.0	0.5	
Φ5×12	16	5.7	5.7	6.3	7.1	1.6	1.5	1.75	7.5	11.7	12.0	12.0	0.5	
Φ6.3×3.95	16	7.0	7.0	8.0	8.7	1.6	1.5	1.75	7.5	4.6	/	12.0	0.4	
Φ6.3×5.4~5.8	16	7.0	7.0	8.0	8.7	1.6	1.5	1.75	7.5	5.9	/	12.0	0.4	
Φ6.3×7.7	16	7.0	7.0	8.0	8.7	1.6	1.5	1.75	7.5	8.3	8.6	12.0	0.4	
Φ6.3×7.7不开槽	16	7.0	7.0	8.0	8.7	1.6	1.5	1.75	7.5	8.1	/	12.0	0.4	
Φ6.3×10	16	6.8	6.8	8.1	8.7	1.6	1.5	1.75	7.5	10	10.3	12.0	0.5	
Φ6.3×12	16	6.8	6.8	8.1	8.7	1.6	1.5	1.75	7.5	11.7	12.0	12.0	0.5	FIG.1
Φ8×5.7~6.2	24	8.7	8.7	9.9	11.3	2.0	1.5	1.75	7.5	7.2	/	16.0	0.4	
Φ8×7.7~7.9	24	8.7	8.7	9.9	11.3	2.0	1.5	1.75	11.5	8.3	8.6	16.0	0.4	
Φ8×10	24	8.7	8.7	9.9	11.3	2.0	1.5	1.75	11.5	10.7	11.0	16.0	0.4	
Φ8×11~12.5	24	8.7	8.7	9.9	11.3	2.0	1.5	1.75	11.5	12.7	13.0	16.0	0.4	
Φ8×13.5~14.5	24	8.7	8.7	9.9	11.3	2.0	1.5	1.75	11.5	13.7	14.0	16.0	0.5	
Φ8×15.5~16.5	24	8.7	8.7	9.9	11.3	2.0	1.5	1.75	11.5	17.2	17.5	16.0	0.5	
Φ8×20.5	32	8.7	8.7	9.9	11.3	2.0	1.5	1.75	14.2	21.2	21.5	24.0	0.5	
Φ10×5.7~6.9	24	10.7	10.7	11.0	13.3	2.0	1.5	1.75	11.5	7.5	/	16.0	0.4	
Φ10×7.7~8.4	24	10.7	10.7	11.9	13.3	2.0	1.5	1.75	11.5	8.7	9.0	16.0	0.4	
Φ10×10	24	10.7	10.7	11.9	13.3	2.0	1.5	1.75	11.5	10.7	11.0	16.0	0.4	
Φ10×13~14.5	24	10.7	10.7	11.9	13.3	2.0	1.5	1.75	11.5	14.7	15.0	16.0	0.5	
Φ10×16~16.5	24	10.7	10.7	11.9	13.3	2.0	1.5	1.75	11.5	16.7	17.0	16.0	0.5	
Φ10×21	32	10.7	10.7	11.9	13.3	2.0	1.5	1.75	14.2	21.2	21.5	24.0	0.5	
Φ12.5×13.5~14.5	32	13.4	13.4	16.0	17.4	2.5	1.5	1.75	14.2	14.2	14.5	24.0	0.4	
Φ12.5×16.5~17	32	13.4	13.4	16.0	17.4	2.5	1.5	1.75	14.2	17.2	17.5	24.0	0.5	
Φ12.5×21	32	13.4	13.4	16.0	17.4	2.5	1.5	1.75	14.2	21.2	21.5	24.0	0.5	
Φ16×16.5~17	44	17.5	17.5	22.1	23.5	2.5	1.5	1.75	20.2	17.2	17.5	28.0	0.5	FIG.2
Φ16×21~21.5	44	17.5	17.5	22.1	23.5	2.5	1.5	1.75	20.2	21.7	22.0	28.0	0.5	
Φ18×16.5~17	44	19.2	19.2	23.0	24.4	3.3	1.5	1.75	20.2	17.2	17.5	32.0	0.5	
Φ18×21~21.5	44	19.2	19.2	23.0	24.4	3.3	1.5	1.75	20.2	21.7	22.0	32.0	0.5	

KCM

■ List of Standard Products

Voltage (V)	400			450		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
82	10*35	1.40	860	16*20	1.45	1000
	16*18	1.40	960			
	18*16	1.40	960			
100	10*40	1.35	1000	18*20	1.38	1178
	12.5*30	1.35	1000			
	16*20	1.35	1050			
	18*19	1.35	1080			
120	10*50	1.25	1220			
	12.5*35	1.25	1180			
	13*30	1.25	1220			
	16*25	1.20	1250			
	18*20	1.20	1250			
150	16*30	1.15	1450	13*50	1.05	1450
	18*25	1.15	1420			
180	18*25	0.90	1560			

LKF

◆Standard product, withstands high frequency and high ripple current, high frequency and low impedance, power supply specific product

◆7000~10000 hours at 105℃

◆Complies with AEC-Q200 RoHS directive

■ Main technical parameters

project	characteristic
Operating Temperature Range	≦120V －55~+105℃ ; 160~500V －40~+105℃
Nominal Voltage Range	10~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~120WV I≦0.01CV or 3 μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	For nominal capacities exceeding 1000 μF, the loss tangent increases by 0.02 for every additional 1000 μF.
Temperature Characteristics (120Hz)	
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

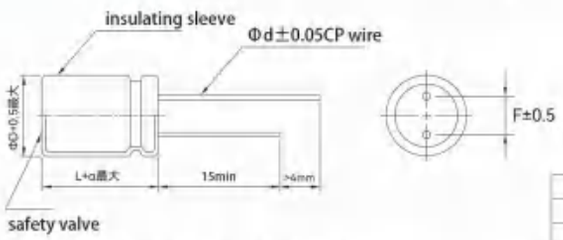
Rated voltage (V)	10	16	25	35	50	63	80	100
tg δ	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.09
Rated voltage (V)	120	160	200	250	350	400	450	500
tg δ	0.09	0.09	0.08	0.08	0.10	0.10	0.12	0.20

Rated voltage (V)	10	16	25	35	50	63	80	100
Impedance ratio Z(－40℃)/Z(20℃)	6	4	3	3	3	3	3	3
Rated voltage (V)	120	160	200	250	350	400	450	500
Impedance ratio Z(－40℃)/Z(20℃)	5	5	5	5	7	7	7	8

Capacity change rate	Within ±20% of the initial value	
Loss tangent	Below 200% of the specified value	
Leakage current	Below the specified value	
Load life	Φ5	7000小时
	Φ6.3	9000小时
	≧Φ8	10000小时

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below the specified value

■ Product dimension drawing (unit: mm)



Note: Products ≥ Φ6.3 have a safety valve.

L=9	α=1.0
L≦16	α=1.5
L > 16	α=2.0

D	5	6.3	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

■ Ripple current compensation coefficient

① Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

② Temperature correction factor

Ambient temperature (° C)	50℃	70℃	85℃	105℃
Correction factor	2.1	1.8	1.4	1.0

LKF

■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ω)max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ω)max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ω)max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ω)max/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10	5×9	1.10	56	5×9	1.10	71	5×9	1.10	91	5×9	1.40	101
15	5×9	1.10	76	5×9	1.10	91	5×9	1.10	111	5×9	1.10	121
22	5×9	0.40	91	5×9	0.40	111	5×9	1.10	121	5×9	1.10	160
33	5×9	0.40	106	5×9	0.40	121	5×9	0.40	151	5×9	0.40	215
39	5×9	0.26	136	5×9	0.40	151	5×9	0.40	181	5×11	0.40	345
47	5×9	0.26	143	5×9	0.26	161	5×9	0.26	211	5×11	0.37	345
56	5×9	0.26	151	5×9	0.26	171	5×9	0.26	310	6.3×9	0.34	486
68	5×9	0.26	161	5×9	0.26	181	5×11	0.24	345	6.3×11	0.260	540
68										8×9	0.260	550
82	5×9	0.26	171	5×9	0.26	211	6.3×9	0.34	486	6.3×11	0.250	540
82										8×9	0.250	550
100	5×9	0.26	181	5×11	0.24	345	6.3×9	0.34	486	6.3×11	0.250	540
100										8×9	0.250	550
120	5×9	0.26	211	5×11	0.24	345	6.3×11	0.10	540	8×9	0.250	550
120							8×9	0.10	550			
150	5×11	0.24	345	6.3×9	0.34	486	6.3×11	0.10	540	8×11.5	0.1980	945
150							8×9	0.10	550	10×9	0.1980	950
180	5×11	0.24	345	6.3×9	0.34	486	8×9	0.10	550	8×11.5	0.1980	945
180										10×9	0.1980	950
220	6.3×9	0.34	486	6.3×11	0.21	540	8×11.5	0.0980	945	8×11.5	0.1980	945
220				8×9	0.21	550	10×9	0.0980	950			
270	6.3×9	0.34	486	8×9	0.21	550	8×11.5	0.0980	945	8×16	0.0950	1250
270							10×9	0.0980	950	10×12.5	0.0900	1330
330	6.3×11	0.21	540	8×9	0.2100	550	8×11.5	0.0980	945	10×12.5	0.0900	1330
330	8×9	0.15	550									
390	8×9	0.15	550	8×11.5	0.0980	945	8×16	0.0900	1250	8×20	0.0719	1500
390				10×9	0.0980	950	10×12.5	0.0900	1330	10×16	0.0719	1850
470	8×9	0.15	550	8×11.5	0.0680	945	10×12.5	0.0900	1330	10×16	0.0540	1850
470				10×9	0.0980	950				12.5×14	0.0540	1900
560	8×11.5	0.0980	945	8×16	0.0900	1250	8×20	0.0400	1500	10×20	0.0420	1960
560	10×9	0.0980	950	10×9	0.0980	950	10×14	0.0400	1760	12.5×16	0.0420	2120
680	8×11.5	0.0980	945	8×16	0.0900	1250	10×16	0.0400	1850	10×23	0.0280	2250
680	10×9	0.0980	950	10×12.5	0.0900	1330				12.5×20	0.0280	2480
820	8×16	0.0900	1250	8×20	0.0619	1500	10×20	0.0320	1960	12.5×20	0.0280	2480
820	10×12.5	0.0900	1330	10×14	0.0600	1760	12.5×16	0.0320	2120			
1000	8×16	0.0900	1250	8×20	0.0619	1500	10×20	0.0320	1960	12.5×20	0.0280	2480
1000	10×12.5	0.0900	1330	10×16	0.0400	1850	12.5×16	0.0320	2120			
1200	8×20	0.0619	1500	10×16	0.0400	1850	12.5×20	0.0280	2480	12.5×25	0.0280	2900
1200	10×14	0.0600	1760									

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■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1500	8×20	0.0619	1500	10×20	0.0320	1960	12.5×20	0.0280	2480	12.5×30	0.0243	3450
1500	10×16	0.0400	1850	12.5×16	0.0420	2120				16×20	0.0243	3250
1800	10×20	0.0320	1960	10×20	0.0320	1960	12.5×25	0.0280	2900	12.5×35	0.0230	3570
1800	12.5×16	0.0420	2120	12.5×16	0.0420	2120				16×25	0.0230	3630
2200	10×20	0.0320	1960	12.5×20	0.0280	2480	12.5×25	0.0230	2900	16×25	0.0230	3630
2200	12.5×16	0.0420	2120				16×20	0.0230	3250			
2700	10×23	0.0280	2250	12.5×20	0.0280	2480	12.5×35	0.0132	3570	16×35.5	0.0132	4010
2700	12.5×20	0.0280	2480				16×25	0.0143	3630	18×31.5	0.0132	4010
3300	12.5×20	0.0280	2480	12.5×25	0.0280	2900	12.5×40	0.0121	3890	16×40	0.0120	4080
3300							16×25	0.0143	3630	18×35.5	0.0120	4080
3900	12.5×25	0.0280	2900	12.5×30	0.0143	3450	16×31.5	0.0121	3890	18×35.5	0.0100	4080
3900				16×20	0.0230	3250	18×25	0.0132	3650			
4700	12.5×30	0.0143	3450	12.5×30	0.0143	3450	16×31.5	0.0121	3890			
4700	16×20	0.0230	3250	16×25	0.0143	3630	18×25	0.0110	4010			

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×9	5.50	21	5×9	5.00	23	5×9	6.05	24	5×9	6.05	24
1.0	5×9	5.50	31	5×9	5.00	35	5×9	6.05	37	5×9	6.05	37
1.2				5×9	5.00	35	5×9	6.05	37	5×9	6.05	37
1.5				5×9	5.00	41	5×9	6.05	43	5×9	6.05	43
1.8	5×9	5.50	32	5×9	5.00	41	5×9	6.05	43	5×9	6.05	43
2.2	5×9	1.50	39	5×9	1.50	45	5×9	1.50	47	5×9	1.60	47
2.7				5×9	1.50	52	5×9	1.50	55	5×9	1.60	55
3.3	5×9	1.50	54	5×9	1.50	59	5×9	1.50	62	5×9	1.60	62
3.9	5×9	1.50	54	5×9	1.50	78	5×9	1.50	81	5×9	1.60	81
4.7	5×9	1.50	89	5×9	1.50	98	5×9	1.50	101	5×9	1.60	101
5.6	5×9	1.50	91	5×9	1.50	100	5×9	1.50	106	5×11	1.40	106
6.8	5×9	1.50	94	5×9	1.50	103	5×9	1.50	111	5×11	1.40	111
8.2	5×9	1.50	98	5×9	1.50	109	5×9	1.50	121	5×11	1.40	121
10	5×9	1.50	101	5×9	1.50	111	5×11	1.40	163	6.3×9	0.80	240
12				5×9	1.50	121	5×11	1.40	163	6.3×11	0.63	267
12										8×9	0.63	290
15	5×9	1.50	121	5×9	1.50	150	6.3×9	0.80	240	6.3×11	0.63	267
15										8×9	0.63	290

LKF

■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
18				5×11	1.10	173	6.3×9	0.80	267	6.3×11	0.63	267
18										8×9	0.63	290
22	5×11	0.97	238	6.3×9	0.58	250	6.3×11	0.63	267	8×11.5	0.40	450
22							8×9	0.63	290	10×9	0.63	470
27				6.3×9	0.58	278	6.3×11	0.63	267	8×11.5	0.40	450
27							8×9	0.63	290	10×9	0.63	470
33	6.3×9	0.36	344	6.3×11	0.39	344	6.3×11	0.63	267	8×11.5	0.40	450
33				8×9	0.39	390	8×9	0.63	290	10×9	0.63	470
39	6.3×9	0.36	344	6.3×11	0.39	344	8×11.5	0.40	450	8×16	0.28	565
39				8×9	0.39	390	10×9	0.63	470	10×12.5	0.28	624
47	6.3×11	0.34	385	6.3×11	0.39	385	8×11.5	0.40	450	8×16	0.28	585
47	8×9	0.23	390	8×9	0.39	525	10×9	0.63	470	10×12.5	0.25	624
56	6.3×11	0.34	385	8×9	0.39	525	8×11.5	0.40	450	10×12.5	0.25	624
56	8×9	0.23	390				10×9	0.63	470			
68	8×9	0.23	390	8×11.5	0.24	724	8×16	0.28	565	8×20	0.21	735
68				10×9	0.26	750	10×12.5	0.25	624	10×14	0.21	750
82	8×11.5	0.15	724	8×11.5	0.24	724	8×20	0.21	735	10×16	0.19	780
82	10×9	0.18	750	10×9	0.26	756	10×12.5	0.25	624	12.5×14	0.18	900
100	8×11.5	0.15	724	8×16	0.18	950	8×20	0.21	735	10×20	0.13	1040
100	10×9	0.18	750	10×12.5	0.19	979	10×16	0.19	780	12.5×16	0.14	1040
120	8×14	0.11	880	8×16	0.18	950	10×16	0.19	780	10×23	0.12	1170
120	10×12.5	0.11	880	10×12.5	0.19	979	12.5×14	0.18	900	12.5×20	0.0930	1430
150	8×16	0.11	950	8×20	0.13	950	10×20	0.13	1040	12.5×20	0.0930	1430
150	10×12.5	0.11	975	10×16	0.19	1190	12.5×16	0.14	1040			
180	8×20	0.0810	1190	10×16	0.19	1190	10×20	0.13	1040	12.5×25	0.0660	1620
180	10×14	0.11	1230				12.5×16	0.14	1040			
220	8×20	0.0510	1190	10×20	0.0860	1300	12.5×20	0.13	1248	12.5×25	0.0660	1620
220	10×16	0.0510	1370	12.5×16	0.0902	1500						
270	10×20	0.0450	1580	10×20	0.0860	1300	12.5×20	0.0940	1430	12.5×30	0.0560	1950
270	12.5×14	0.0550	1450	12.5×16	0.0902	1500				16×20	0.0640	1750
330	10×20	0.0450	1580	10×23	0.0760	1700	12.5×20	0.0940	1430	12.5×35	0.0470	2140
330	12.5×16	0.0550	1650	12.5×20	0.0660	1870				16×25	0.0480	2210
390	10×20	0.0450	1580	12.5×20	0.0660	1870	12.5×30	0.0560	1950	12.5×40	0.0400	2340
390							16×20	0.0640	1750	16×25	0.0480	2210
470	12.5×20	0.0500	2050	12.5×25	0.0470	2100	12.5×35	0.0470	2140	16×31.5	0.0360	2400
470							16×25	0.0480	2210	18×25	0.0420	2270
560	12.5×20	0.0500	2050	12.5×30	0.0385	2410	12.5×40	0.0400	2340	16×35.5	0.0320	2600
560				16×20	0.0473	2500	16×25	0.0480	2210	18×31.5	0.0340	2860
680	12.5×25	0.0450	2410	12.5×30	0.0385	2410	16×31.5	0.0360	2400	16×40	0.0300	2860

LKF

■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
680				16×25	0.0350	2730	18×25	0.0420	2270	18×35.5	0.0300	2860
820	12.5×25	0.0450	2410	12.5×35	0.0360	2620	16×35.5	0.0320	2600	18×40	0.0290	3510
820	16×20	0.0420	2730	16×25	0.0350	2730	18×25	0.0420	2270			
1000	12.5×30	0.0350	2860	16×31.5	0.0260	2990	16×40	0.0300	2860			
1000	16×25	0.0350	3010	18×25	0.0340	2800	18×31.5	0.0340	2470			
1200	16×31.5	0.0340	3280	16×31.5	0.0260	2990	18×35.5	0.0300	2860			
1200	18×25	0.0340	3300	18×25	0.0340	3300						
1500	16×31.5	0.0260	3280	16×35.5	0.0230	3280	18×40	0.0290	3510			
1500	18×25	0.0340	3300	18×31.5	0.0280	3300						
1800	16×35.5	0.0230	3300	16×40	0.0210	3570						
1800	18×31.5	0.0280	3300	18×35.5	0.0220	3570						
2200	18×35.5	0.0220	3570	18×40	0.0200	3670						
2700	18×40	0.0200	3670									

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×9	6.05	24									
1.0	5×9	6.05	37	5×11	28.00	68	5×11	28.00	50	6.3×9	28.00	59
1.2	5×9	6.05	37	5×11	28.00	68	5×11	28.00	55	6.3×9	28.00	59
1.5	5×9	6.05	43	5×11	28.00	95	5×11	28.00	60	6.3×9	28.00	59
1.8	5×9	6.05	43	5×11	28.00	95	5×11	28.00	65	6.3×9	28.00	68
2.2	5×9	1.60	47	5×11	28.00	95	5×11	28.00	75	6.3×9	28.00	104
2.7	5×9	1.60	55	5×11	28.00	95	5×11	28.00	80	6.3×9	28.00	113
3.3	5×9	1.60	62	5×11	28.00	95	6.3×9	28.00	104	6.3×9	28.00	113
3.9	5×9	1.60	81	5×11	28.00	95	6.3×9	28.00	104	6.3×11	14.90	135
3.9										8×9	14.90	140
4.7	5×9	1.60	101	6.3×9	23.00	104	6.3×11	14.90	125	6.3×11	14.90	135
4.7							8×9	14.90	140	8×9	14.90	140
5.6	5×11	1.40	106	6.3×9	23.00	110	6.3×11	14.90	125	8×9	14.90	140
5.6							8×9	14.90	140			
6.8	5×11	1.40	111	6.3×11	15.00	125	8×9	14.90	140	8×9	14.90	140
6.8				8×9	15.00	140						
8.2	6.3×9	1.40	127	8×9	15.00	140	8×9	14.90	140	8×11.5	12.50	150
8.2										10×9	12.50	170
10	6.3×9	1.10	220	8×9	15.00	140	8×11.5	12.50	160	8×11.5	10.00	150

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■ List of Standard Products

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10							10×9	12.50	170	10×9	12.50	170
12	6.3×11	0.80	220	8×11.5	12.50	150	8×14	6.00	240	8×14	6.00	240
12				10×9	12.50	160						
15	6.3×11	0.80	267	8×11.5	12.50	150	8×16	3.85	270	8×16	3.85	270
15	8×9	0.80	267	10×9	12.50	160	10×12.5	4.9	280	10×12.5	4.90	280
18	8×11.5	0.63	290	8×14	7.90	160	8×20	3.58	350	8×20	3.58	280
18				10×9	12.50	160	10×14	3.58	320	10×14	3.58	320
22	8×11.5	0.63	290	8×14	7.90	160	8×20	3.58	350	8×20	3.58	350
22				10×12.5	7.90	250	10×14	3.58	320	10×14	3.58	320
27	8×14	0.49	420	8×16	7.90	270						
27	10×9	0.49	420	10×12.5	7.90	250						
33	8×14	0.49	450	8×20	5.90	350	10×20	1.78	635	10×20	1.78	635
33	10×9	0.49	450	10×14	5.90	360	12.5×14	1.78	745	12.5×14	1.78	745
39	8×16	0.38	565	10×16	5.55	580						
39	10×12.5	0.38	565	12.5×14	5.55	745						
47	8×20	0.28	585	10×20	5.55	635	12.5×20	1.46	960	12.5×20	1.46	960
47	10×14	0.28	624	12.5×14	5.55	745						
56	8×23	0.25	624	10×20	5.55	850	12.5×20	1.46	960	12.5×20	1.46	960
56	10×16	0.25	624	12.5×16	5.55	850						
68	10×16	0.21	735	12.5×16	5.55	850	12.5×25	1.35	1270	12.5×25	1.35	1270
68	12.5×14	0.21	750				16×20	1.35	1270	16×20	1.35	1270
82	10×20	0.19	780	12.5×20	4.36	1155	12.5×25	1.35	1270	12.5×30	1.25	1470
82	12.5×16	0.19	900				16×20	1.35	1270	16×20	1.35	1270
100	10×23	0.14	1040	12.5×20	4.36	1155	12.5×30	1.25	1360	16×25	1.32	1500
100	12.5×16	0.14	1040				16×20	1.35	1270	18×20	1.32	1410
120	12.5×20	0.12	1240	12.5×25	3.01	1390	12.5×30	1.25	1360	16×25	1.32	1500
120				16×20	3.01	1420	16×25	1.32	1850			
150	12.5×25	0.0930	1368	12.5×30	3.01	1520	16×25	1.32	1850	16×31.5	1.25	1990
150	16×20	0.0930	1368	16×25	2.31	1850				18×25	1.25	1920
180	12.5×30	0.0660	1530	16×25	2.31	1850	16×35.5	0.95	2250	16×35.5	0.95	2250
180							18×31.5	0.95	2250	18×31.5	0.95	2250
220	16×25	0.0660	1620	16×31.5	1.88	2400	18×31.5	0.91	2625	18×35.5	0.91	2625
220	18×20	0.0660	1620	18×25	1.88	2320						
270	16×25	0.0560	1750	16×35.5	1.80	2715						
270	18×20	0.0640	1750	18×31.5	0.98	2660						
330	16×31.5	0.0470	2140	18×31.5	0.98	2660						
330	18×25	0.0480	2140									
390	16×35.5	0.0400	2210	18×35.5	0.91	2715						
390	18×31.5	0.0400	2210									
470	18×31.5	0.0400	2270									
560	18×35.5	0.0320	2600									
560	18×40	0.0300	2860									

LKF

■ List of Standard Products

Voltage (V)	350			400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	6.3×9	55.00	77	6.3×9	55.00	77	6.3×9	55.00	77	6.3×12	52.00	45
1.2	6.3×9	36.00	95	6.3×9	36.00	81	6.3×9	52.00	81	6.3×12	52.00	45
1.5	6.3×9	36.00	95	6.3×9	36.00	81	6.3×9	52.00	90	6.3×12	52.00	45
1.8	6.3×9	36.00	104	6.3×9	36.00	95	6.3×11	52.00	95	8×11.5	45.00	80
1.8							8×9	42.00	100			
2.2	6.3×9	36.00	125	6.3×9	29.00	105	8×9	42.00	100	8×11.5	45.00	80
2.7	6.3×11	18.00	125	8×9	25.00	131	8×9	42.00	100	8×14	18.50	85
2.7	8×9	18.00	131									
3.3	8×9	18.00	131	8×9	25.00	131	8×11.5	25.00	130	8×14	18.50	85
3.3							10×9	23.50	135			
3.9	8×9	17.00	131	8×11.5	25.00	140	8×11.5	25.00	130	8×16	13.00	102
3.9				10×9	23.50	150	10×9	23.50	135			
4.7	8×11.5	17.00	140	8×11.5	23.5	140	8×14	18.50	135	8×20	13.00	130
4.7	10×9	17.00	150	10×9	23.50	150	10×9	18.50	135			
5.6	8×11.5	17.00	140	8×14	15.00	200	8×16	15.00	140	10×16	13.00	130
5.6	10×9	17.00	150	10×12.5	15.00	250	10×12.5	13.50	140			
6.8	8×14	15.00	200	8×16	11.25	220	8×20	8.05	220	10×16	13.00	130
6.8	10×9	17.00	150	10×12.5	15.00	250	10×14	12.00	200			
8.2	8×16	11.25	220	8×20	8.05	275	8×20	8.05	220	10×20	11.00	240
8.2	10×12.5	15.00	250	10×14	11.00	270	10×14	12.00	200			
10	8×20	8.05	275	8×20	8.05	275	10×16	8.05	260	10×20	11.00	240
10	10×14	11.00	270	10×14	11.00	270	12.5×14	7.70	350	12.5×14	10.00	260
12	10×16	8.00	360	10×20	7.50	340	10×20	7.70	370	12.5×16	9.00	265
15	10×16	6.50	360	10×20	6.50	340	10×20	7.70	370	12.5×20	8.00	270
15	12.5×14	6.50	585	12.5×16	6.50	360	12.5×16	7.70	370			
18	10×20	6.50	480	12.5×16	6.50	360	12.5×20	6.70	450	12.5×25	7.00	470
18	12.5×14	6.50	585									
22	10×20	6.50	585	12.5×20	6.50	570	12.5×20	6.70	450	12.5×25	7.00	470
22	12.5×16	6.50	585									

LKF

■ List of Standard Products

Voltage (V)	350			400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
33	12.5×20	6.50	960	12.5×25	3.25	850	12.5×30	3.05	755	12.5×35	5.50	650
33				16×20	3.25	900	16×20	3.05	740	16×25	3.50	650
47	12.5×25	2.25	1115	12.5×30	2.25	1100	12.5×35	1.60	1215	16×31.5	2.50	720
47	16×20	2.25	1060	16×25	2.25	1155	16×25	1.60	1215			
56	12.5×30	2.25	1115	16×25	2.25	1155	16×31.5	1.60	1215	16×35.5	2.30	840
56	16×25	2.25	1155	18×20	2.25	1400	18×25	1.60	1300	18×31.5	2.30	840
68	16×25	2.25	1115	16×31.5	1.60	1460	16×31.5	1.60	1215	18×31.5	2.30	840
68	18×20	2.25	1400	18×25	1.60	1530						
82	16×31.5	1.60	1550	16×35.5	1.60	1740	16×40	1.35	1675	18×35.5	1.80	1100
82	18×25	1.60	1530	18×31.5	1.60	1740	18×31.5	1.45	1700			
100	16×35.5	1.60	2230	18×31.5	1.60	1740	18×35.5	1.35	1800	18×40	1.50	1150
100	18×31.5	1.60	2230									
120	18×31.5	1.60	2305	18×35.5	1.50	2305	18×40	1.25	1930	18×45	1.40	1600
150	18×35.5	1.50	2720	18×40	1.50	3330	18×45	1.15	2350			

LKM

◆ Compact size, high frequency and high ripple current withstand, high frequency and low impedance, dedicated power supply product

◆ 7000~10000 hours at 105℃

◆ Compliant with AEC-Q200 RoHS directive

■ Main technical parameters

project	characteristic
Operating Temperature Range	≦120V －55~+105℃ ; 160~500V －40~+105℃
Nominal Voltage Range	10~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~120WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	
Durability	In a 105℃ oven, apply the rated voltage containing the rated ripple current for a specified time, then place at room temperature for 16 hours before testing. The test temperature is 25±2℃. The capacitor's performance should meet the following requirements.
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

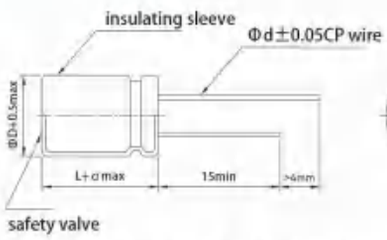
Rated voltage (V)	10	16	25	35	50	63	80	100
tg δ	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.09
Rated voltage (V)	120	160	200	250	350	400	450	500
tg δ	0.09	0.09	0.08	0.08	0.10	0.10	0.12	0.20

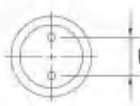
Rated voltage (V)	10	16	25	35	50	63	80	100
Impedance ratio Z(－40℃)/Z(20℃)	6	4	3	3	3	3	3	3
Rated voltage (V)	120	160	200	250	350	400	450	500
Impedance ratio Z(－40℃)/Z(20℃)	5	5	5	5	7	7	7	8

Capacity change rate	Within ±20% of the initial value	
Loss tangent	Below 200% of the specified value	
Leakage current	Below the specified value	
Load life	Φ5	7000h
	Φ6.3	9000h
	≧Φ8	10000h

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)





L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

D	5	6.3	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

Note: Products ≥ Φ6.3 have a safety valve.

■ Ripple current compensation coefficient

① Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

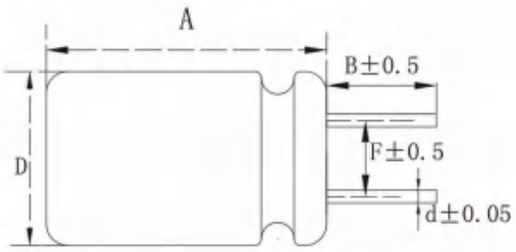
② Temperature correction factor

Ambient temperature (° C)	50℃	70℃	85℃	105℃
Correction factor	2.1	1.8	1.4	1.0

Cutting and braiding product specifications

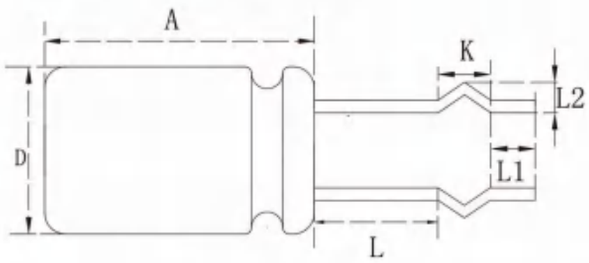
This specification applies to the lead-cutting and tape-forming aluminum electrolytic capacitor products manufactured by our company, including technical requirements, judgment criteria, and acceptance specifications.

Lead cutting and shaping diagram A



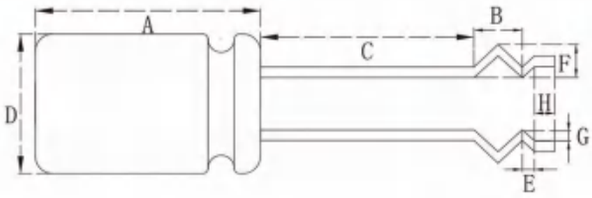
D	5	6.3	8	10	12.5	14.5	16	18	error
B	2.5~10								±0.5
d	0.5		0.6		0.7	0.8			±0.05
F	2.0	2.5	3.5	5.0		7.5			±0.5

Lead cutting and shaping diagram B



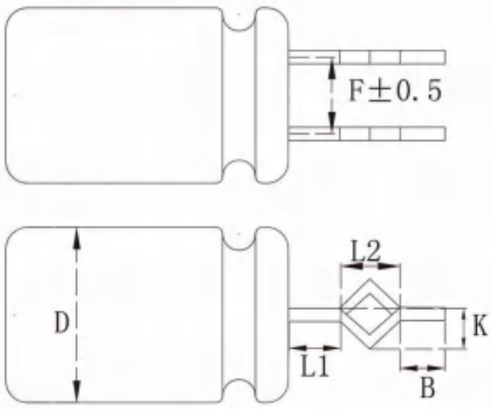
D	A	L±0.5	K±0.5	L2±0.3	L1±0.5	Notes
≤Φ14.5	≤25	2.5~22	2.5	1.5	2.5~5.0	Outer K molding

Lead cutting and shaping diagram c



D	A	C±0.5	B±0.5	E±0.3	F±0.3	G±0.3	H±0.5	Notes
≤Φ14.5	≤25	2.5~22	3.0	1.2	1.8	0.8	2.0~5.0	Intersland external forming

Lead cutting and shaping diagram D



ΦD	8	error
F	3.5	±0.5
L1	2.5~21.0	±0.5
L2	3.5	±0.5
K	1.2	±0.2
B	1.2	±0.5