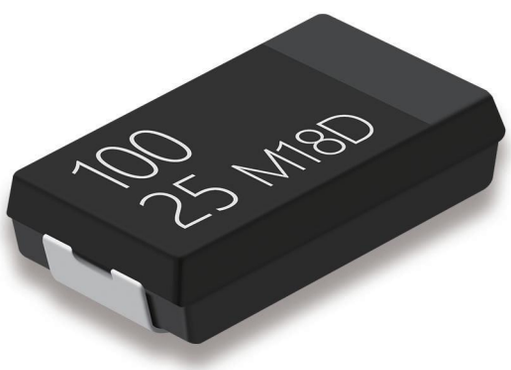
SHANGHAI YONGMING ELECTRONICS CO., LTD.

Multilayer Polymer Solid Aluminum Electrolytic Capacitor

LAMINATED POLYMER SOLID STATE ALUMINUM ELECTROLYTIC CAPACITOR



FULL RANGE OF TANTALUM CAPACITOR SIZES

SUPERIOR PERFORMANCE, HIGHER SAFETY

Capacitor Solutions,
Ask YMIN for your Applications

COMPANY PROFILE

Company Profile »»

Shanghai Yongming Electronics Co., Ltd. possesses leading independent R&D capabilities, advanced manufacturing equipment and processes, and boasts eight major product lines: Multilayer polymer solid aluminum electrolytic capacitors; Supercapacitors – Leaded, SMD, Button, Modular, Horn-shaped, and Lithium-ion capacitors; Polymer solid aluminum electrolytic capacitors – Leaded and SMD; Polymer hybrid aluminum electrolytic capacitors – Leaded and SMD; Liquid aluminum electrolytic capacitors – Leaded, SMD, Horn-shaped, and Bolt-shaped; Multilayer ceramic chip capacitors; Conductive polymer tantalum electrolytic capacitors; Metallized polypropylene film capacitors.

Founded in 2001, Shanghai Yongming Electronics Co., Ltd. has always adhered to the service philosophy of "For capacitor applications, if you have difficulties, find Yongming."

Yongming is a high-tech enterprise specializing in the development, high-precision manufacturing, and application promotion of various capacitors. It is a key new product enterprise, a high-tech enterprise, a brand product enterprise, and an AAA credit-rated enterprise in Shanghai. With a registered capital of 30 million RMB, it covers an area of 40,000 square meters (60 mu). Currently, it has obtained ISO9001, ISO14001, ISO45001, IATF16949 (international standard for the automotive industry), and national military standard quality management system certifications. Its products comply with national grid metrology and testing certifications, RoHS, REACH, and AEC-Q200 (passive component automotive-grade quality certification). Yongming insists on developing innovative products based on customer needs, increasing research investment, and contributing to industry progress.

■ Image retrieval

■ Product List

category	series	Features	High pressure resistant products	Large capacity items	Low ESR products	Miniaturized products	Customized products	Rated Voltage Range (V)	Capacitance Range (μF)	ESR (mΩ)	Operating temperature range (° C)	page number
Multilayer polymer Solid aluminum electrolytic capacitor	MQD10	Ultra-thin bottom-side terminals	●		●	●		2~100	8.2~330	3~80	-55~+105	5
	MQD15	Slim bottom-side terminals			●			2~100	10~330	3~40	-55~+105	7
	MQD19	Standard bottom-side terminals	●		●			2~100	8.2~820	3~80	-55~+105	9
	MQD28	High-capacity bottom-side terminals	●	●	●			2~100	15~1200	3~45	-55~+105	11
	MPD10	Ultra-thin L-type terminals			●	●		2~20	10~330	4.5~80	-55~+105	13
	MPD15	Slim L-type terminals			●	●		2~25	10~330	4.5~80	-55~+105	14
	MPD19	Standard L-type terminals	●		●			2~50	8.2~560	4.5~80	-55~+105	16
	MPD28	High-capacity L-type terminals	●	●	●			2~80	4.7~820	7~50	-55~+105	18
	MPS	Ultra-low ESR L-type terminals			●	●		2~2.5	330~560	3	-55~+105	20
	MPX	High-temperature, long-life L-type terminals	●	●	●			2~6.3	120~470	3~15	-55~+125	21
	MKD	Custom-made terminals					●	Voltage requirements	Capacity requirements	Customer needs	Temperature requirements	/

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MPD19

■ List of Standard Products

Rated voltage (V)	Nominal capacity (μF)	size(mm)			L.C. (μA,2min)	Tan δ 120Hz	ESR (mΩ100kHz)	Rated ripple current (mA/r.m.s)45℃100kHz
		L	W	H				
2	330	7.3	4.3	1.9	66	0.06	4.5	8500
	390	7.3	4.3	1.9	78	0.06	4.5	8500
	470	7.3	4.3	1.9	94	0.06	4.5	8500
	560	7.3	4.3	1.9	112	0.06	4.5	8500
2.5	330	7.3	4.3	1.9	83	0.06	4.5	8500
	390	7.3	4.3	1.9	98	0.06	4.5	8500
	470	7.3	4.3	1.9	118	0.06	4.5	8500
	560	7.3	4.3	1.9	140	0.06	4.5	8500
4	150	7.3	4.3	1.9	60	0.06	6	7200
	220	7.3	4.3	1.9	88	0.06	6	7200
	270	7.3	4.3	1.9	108	0.06	6	7200
6.3	100	7.3	4.3	1.9	63	0.06	15	5100
	150	7.3	4.3	1.9	95	0.06	9	6300
	220	7.3	4.3	1.9	139	0.06	9	6300
10	100	7.3	4.3	1.9	100	0.06	10	6500
	150	7.3	4.3	1.9	150	0.06	10	6500
16	33	7.3	4.3	1.9	53	0.06	50	2850
	47	7.3	4.3	1.9	75	0.06	45	3000
	68	7.3	4.3	1.9	109	0.06	40	3200
	100	7.3	4.3	1.9	160	0.06	40	3200
20	10	7.3	4.3	1.9	20	0.06	80	2200
	22	7.3	4.3	1.9	44	0.06	65	2500
	33	7.3	4.3	1.9	66	0.06	45	3000
	47	7.3	4.3	1.9	94	0.06	40	3200
	68	7.3	4.3	1.9	136	0.06	40	3200
25	10	7.3	4.3	1.9	25	0.06	80	2200
	22	7.3	4.3	1.9	55	0.06	65	2500
	33	7.3	4.3	1.9	83	0.06	45	3000
	39	7.3	4.3	1.9	98	0.06	40	3200
	47	7.3	4.3	1.9	118	0.06	40	3200
	68	7.3	4.3	1.9	170	0.06	40	3200
35	15	7.3	4.3	1.9	53	0.06	50	2850
	22	7.3	4.3	1.9	77	0.06	40	3200
50	8.2	7.3	4.3	1.9	41	0.06	55	2700
	10	7.3	4.3	1.9	50	0.06	45	3000

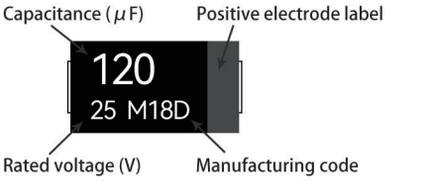
MPD28

- ◆Low ESR, high ripple current
- ◆105℃, 2000-hour warranty
- ◆High voltage withstand (80V max.), high capacity (820μF max.)
- ◆RoHS compliant (2011/65/EU)

■ Main technical parameters

project	characteristic
Operating temperature range	－55 ~ +105℃
Rated operating voltage	2 ~ 80V
Capacity range	4.7 ~ 820μF 120Hz 20℃
Capacity tolerance	±20% (120Hz 20℃)
Loss tangent	Values below the standard product list: 120Hz, 20℃
Leakage current	I≦0.1CV, charged for 2 minutes at rated voltage, 20℃
Equivalent series resistance (ESR)	Values below the standard product list: 100kHz, 20℃
Surge voltage (V)	1.15 times the rated voltage
Durability	After being subjected to the rated operating voltage for 2000 hours at 105℃ and placed at 20℃ for 16 hours, the product should meet the following requirements. Rate of change of capacitance: ±20% of the initial value Loss tangent: ≦ 200% of the initial specification value Leakage current: ≦ Initial specification value
High temperature and humidity	After being placed at 60℃ and 90%~95% RH for 500 hours without applying voltage, and then placed at 20℃ for 16 hours, the product should meet the following requirements. Rate of change of capacitance: ±20% of the initial value Loss tangent: ≦ 200% of the initial specification value Leakage current: ≦ Initial specification value

■ logo



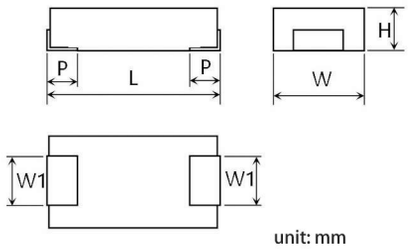
Manufacturing Coding Rules:

The first digit represents the manufacturing month.

Month	1	2	3	4	5	6	7	8	9	10	11	12
Code	A	B	C	D	E	F	G	H	J	K	L	M

The middle two digits represent the year of manufacture, followed by the last two digits.The last digit is the shell number.

■ External dimensions



unit: mm

L±0.2	W±0.2	H±0.1	W1±0.1	P±0.2
7.3	4.3	2.8	2.4	1.3

■ Temperature coefficient of rated ripple current

temperature	T≦45℃	45℃<T≦85℃	85℃<T≦105℃
2~10V	1.0	0.7	0.25
16~80V	1.0	0.8	0.5

Note: The capacitor surface temperature should not exceed the product's maximum operating temperature.

■ Rated ripple current frequency correction factor

Frequency (Hz)	120Hz	1kHz	10kHz	100~300kHz
Correction Factor	0.10	0.45	0.50	1.00

MPD28

■ List of Standard Products

Rated voltage (V)	Nominal capacity (μF)	size(mm)			L.C. (μA,2min)	Tan δ 120Hz	ESR (mΩ100kHz)	Rated ripple current (mA/r.m.s)45℃100kHz
		L	W	H				
6.3	270	7.3	4.3	2.8	170	0.06	9	6300
	330	7.3	4.3	2.8	208	0.06	7	7000
	390	7.3	4.3	2.8	246	0.06	7	7000
10	150	7.3	4.3	2.8	150	0.06	10	6800
	220	7.3	4.3	2.8	220	0.06	10	6800
16	82	7.3	4.3	2.8	131	0.06	40	3200
	100	7.3	4.3	2.8	160	0.06	40	3200
	150	7.3	4.3	2.8	240	0.06	40	3200
25	100	7.3	4.3	2.8	250	0.06	40	3200
35	33	7.3	4.3	2.8	116	0.06	40	3200
	39	7.3	4.3	2.8	137	0.06	40	3200
	47	7.3	4.3	2.8	165	0.06	40	3200
50	15	7.3	4.3	2.8	75	0.06	45	3000
63	8.2	7.3	4.3	2.8	51.7	0.06	50	2800
80	4.7	7.3	4.3	2.8	37.6	0.06	50	2800

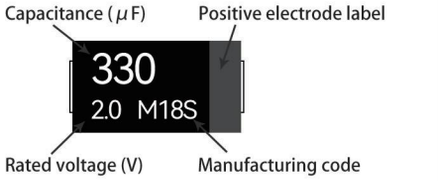
MPS NEW

- ◆ Ultra-low ESR (3mΩ) and high ripple current
- ◆ 2000-hour warranty at 105℃
- ◆ RoHS compliant (2011/65/EU)

■ Main technical parameters

project	characteristic
Operating temperature range	－55 ~ +105℃
Rated operating voltage	2 ~ 2.5V
Capacity range	330 ~ 560μF 120Hz 20℃
Capacity tolerance	±20% (120Hz 20℃)
Loss tangent	Values below those in the standard product list: 120Hz, 20℃
Leakage current	I≦0.2CV or 200μA (maximum value) Charge for 2 minutes at rated voltage, 20℃
Equivalent series resistance (ESR)	Values below those in the standard product list: 100kHz, 20℃
Surge voltage (V)	1.15 times the rated voltage
Durability	After being subjected to the rated operating voltage for 2000 hours at 105℃ and placed at 20℃ for 16 hours, the product should meet the following requirements. Rate of change of capacitance: ±20% of the initial value Loss tangent: ≦ 200% of the initial specification value Leakage current: ≦ Initial specification value
High temperature and humidity	After being placed at 60℃ and 90%~95% RH for 500 hours without applying voltage, and then placed at 20℃ for 16 hours, the product should meet the following requirements. Rate of change of capacitance: ±20% of the initial value Loss tangent: ≦ 200% of the initial specification value Leakage current: ≦ Initial specification value

■ logo



Manufacturing Coding Rules:

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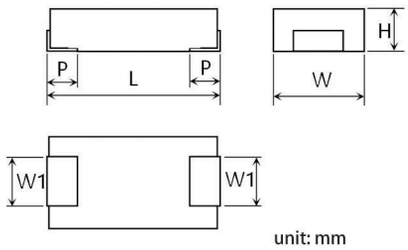
Code	A	B	C	D	E	F	G	H	J	K	L	M

The middle two digits represent the year of manufacture, followed by the last two digits.The last digit is the shell number.

■ External dimensions



L±0.2	W±0.2	H±0.1	W1±0.1	P±0.2
7.3	4.3	1.9	2.4	1.3

■ Temperature coefficient of rated ripple current

Temperature	T≦45℃	45℃<T≦85℃	85℃<T≦105℃
Coefficient	1.0	0.7	0.25

Note: The capacitor surface temperature should not exceed the product's maximum operating temperature.

■ Rated ripple current frequency correction factor

Frequency (Hz)	120Hz	1kHz	10kHz	100~300kHz
Correction Factor	0.10	0.45	0.50	1.00

MPS

■ List of Standard Products

Rated voltage (V)	Nominal capacity (μF)	size(mm)			L.C. (μA,2min)	Tan δ 120Hz	ESR (mΩ100kHz)	Rated ripple current (mA/r.m.s)45℃100kHz
		L	W	H				
2	330	7.3	4.3	1.9	200	0.06	3	10200
	470	7.3	4.3	1.9	200	0.06	3	10200
	560	7.3	4.3	1.9	224	0.06	3	10200
2.5	330	7.3	4.3	1.9	200	0.06	3	10200
	390	7.3	4.3	1.9	200	0.06	3	10200
	470	7.3	4.3	1.9	235	0.06	3	10200

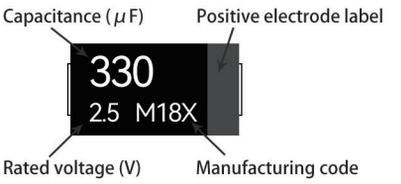
MPX NEW

- ◆ Ultra-low ESR (3mΩ) High ripple current
- ◆ 3000-hour warranty at 125℃
- ◆ RoHS compliant (2011/65/EU)
- ◆ +60℃ 90%RH 1000H
- ◆ AEC-Q200 compliant

■ Main technical parameters

project	characteristic
Operating temperature range	－55 ~ +125℃
Rated operating voltage	2 ~ 6.3V
Capacity range	120 ~ 470μF 120Hz 20℃
Capacity tolerance	±20% (120Hz 20℃)
Loss tangent	Values below the standard product list: 120Hz, 20℃
Leakage current	I≦0.1CV, charged for 2 minutes at rated voltage, 20℃
Equivalent series resistance (ESR)	Values below the standard product list: 100kHz, 20℃
Surge voltage (V)	1.15 times the rated voltage
Durability	After applying a class voltage to the capacitor at +125° C for 3000 hours and then placing it at 20° C for 16 hours, the product should meet the following requirements. Rate of change of capacitance: ±20% of the initial value Loss tangent: ≦ 200% of the initial specification value Leakage current: ≦ Initial specification value
High temperature and humidity	After being subjected to rated voltage for 1000 hours at +60℃ and 90% RH, and then placed at 20℃ for 16 hours, the product should meet the following requirements. Rate of change of capacitance: +50% -20% of the initial value Loss tangent: ≦ 200% of the initial specification value Leakage current: ≦ Initial specification value

■ logo



Manufacturing Coding Rules:

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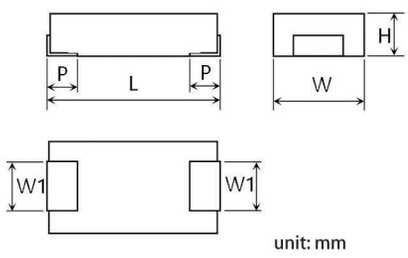
Code	A	B	C	D	E	F	G	H	J	K	L	M

The middle two digits represent the year of manufacture, followed by the last two digits.The last digit is the shell number.

■ External dimensions



L±0.2	W±0.2	H±0.1	W1±0.1	P±0.2
7.3	4.3	1.9	2.4	1.3

■ Temperature coefficient of rated ripple current

temperature	T≦45℃	45℃<T≦85℃	85℃<T≦105℃
coefficient	1.0	0.7	0.25

Note: The capacitor surface temperature should not exceed the product's maximum operating temperature.

■ Rated ripple current frequency correction factor

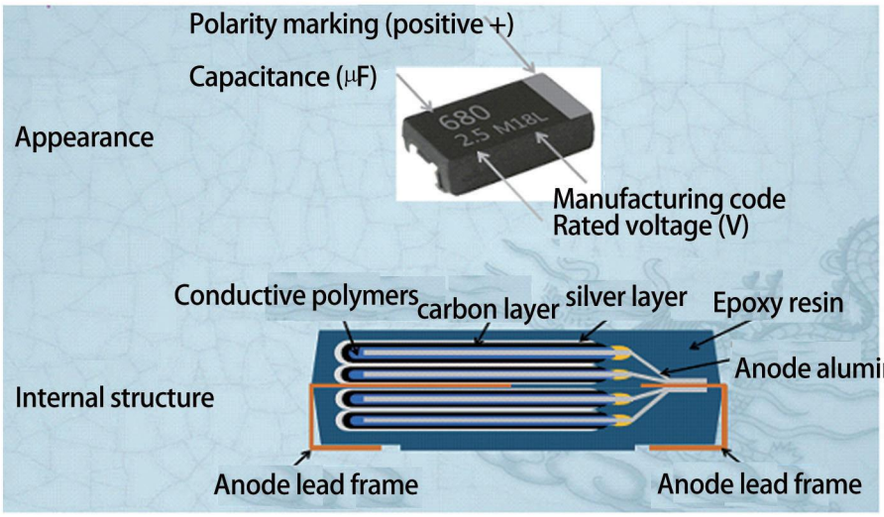
Frequency (Hz)	120Hz	1kHz	10kHz	100~300kHz
Correction Factor	0.10	0.45	0.50	1.00

MPX

■ List of Standard Products

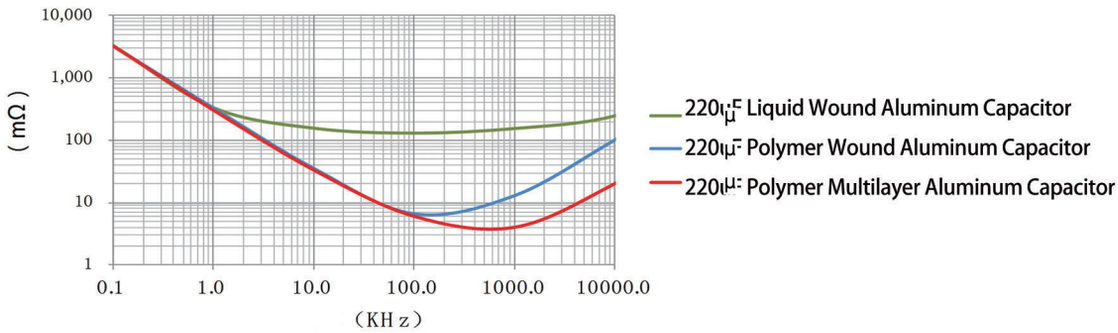
Rated voltage 105℃(V)	Nominal capacity (μF) 125℃(V)	Nominal capacity (μF)	size(mm)			L.C. (μA,2min)	Tan δ 120Hz	ESR (mΩ100kHz)	Rated ripple current (mA/r.m.s)45℃100kHz
			L	W	H				
2	1.6	330	7.3	4.3	1.9	66	0.06	9	6300
		330	7.3	4.3	1.9	66	0.06	6	7200
		330	7.3	4.3	1.9	66	0.06	3	10200
		470	7.3	4.3	1.9	94	0.06	9	6300
		470	7.3	4.3	1.9	94	0.06	6	7200
		470	7.3	4.3	1.9	94	0.06	4.5	8500
		470	7.3	4.3	1.9	94	0.06	3	10200
2.5	2	220	7.3	4.3	1.9	55	0.06	9	6300
		330	7.3	4.3	1.9	82.5	0.06	9	6300
		330	7.3	4.3	1.9	82.5	0.06	6	8500
		330	7.3	4.3	1.9	82.5	0.06	3	10200
		470	7.3	4.3	1.9	117.5	0.06	9	6300
		470	7.3	4.3	1.9	117.5	0.06	6	7200
		470	7.3	4.3	1.9	117.5	0.06	4.5	8500
		470	7.3	4.3	1.9	117.5	0.06	3	10200
4	3.2	150	7.3	4.3	1.9	60	0.06	15	5100
		180	7.3	4.3	1.9	72	0.06	15	5100
		220	7.3	4.3	1.9	88	0.06	15	5100
6.3	5.0	120	7.3	4.3	1.9	75.6	0.06	15	5100
		150	7.3	4.3	1.9	94.5	0.06	15	5100

I. Appearance and Internal Structure

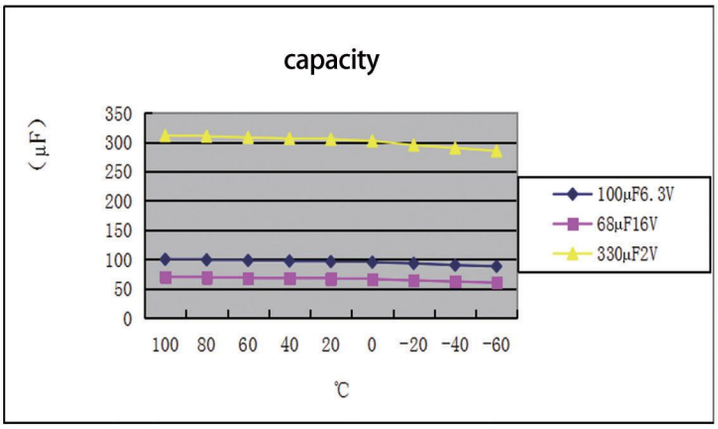


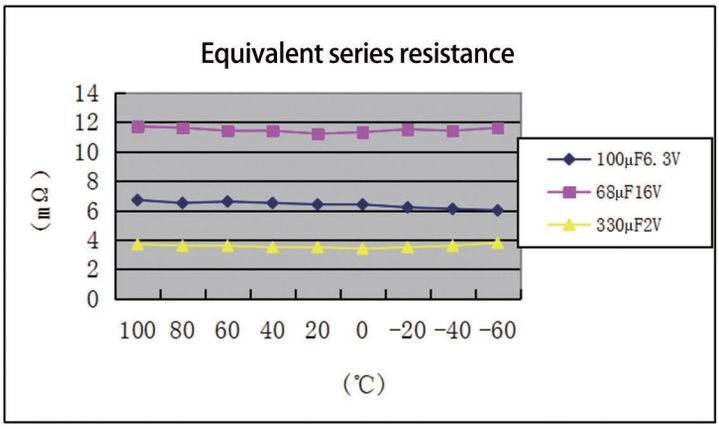
II. Product Characteristics

1. Extremely low ESR: Due to its multilayer structure, equivalent to multiple capacitors connected in parallel, it has lower ESR and ESL compared to wound polymer solid capacitors. Therefore, it has a lower impedance value at high frequencies than wound polymer solid capacitors. It has a better filtering effect on the ripple voltage and other high-frequency noise of switching power supplies.

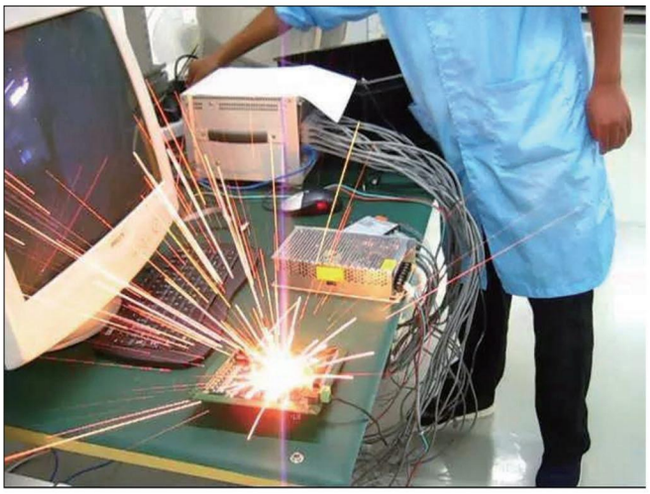


2. Extremely high temperature stability: Thanks to the electronic conductivity of polymer molecules, the capacitance and ESR of multilayer solid aluminum capacitors are very stable throughout the entire operating temperature range.





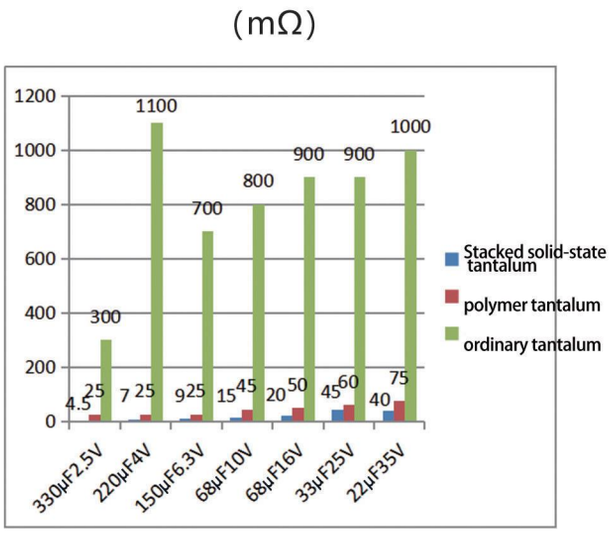
1. Safety Performance Advantages: When a molybdenum capacitor experiences a short circuit, a large current flows through it, causing the manganese dioxide, the electrolyte, to decompose and release oxygen. This oxygen can then react violently with tantalum at high temperatures, resulting in combustion. In contrast, when a multilayer solid aluminum capacitor experiences a short circuit, the polymer decomposes without releasing a large amount of oxygen, and the reaction between aluminum and oxygen is slower, preventing ignition.

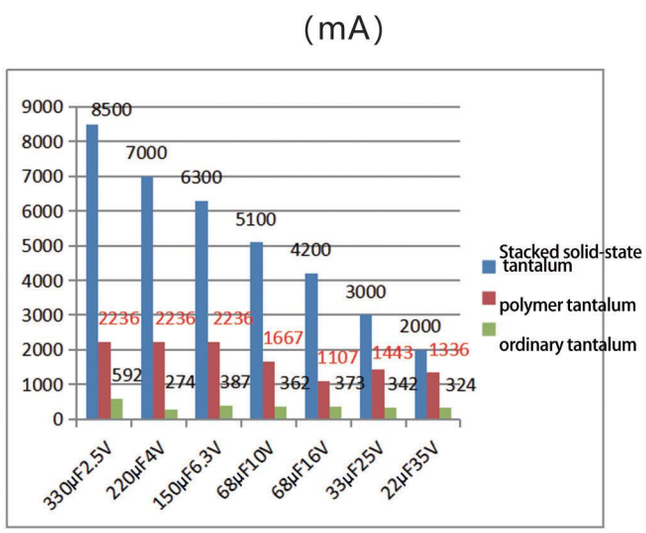


Ordinary tantalum flashover scene

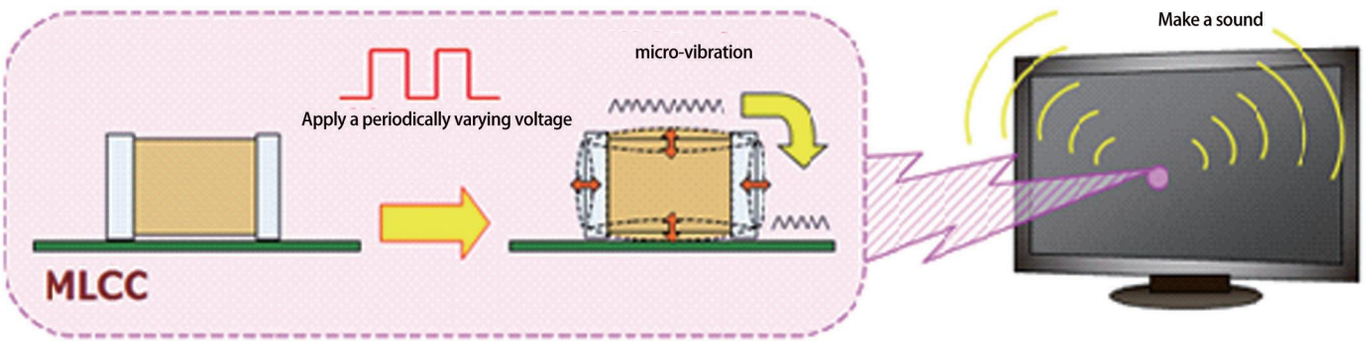
Experimental Results	Multilayer polymer solid capacitors	Multilayer tantalum capacitors
Combustion Reaction	Al+O2	Ta+O2
Reaction Onset Temperature	~600℃	250℃~450℃
Activation Energy	170kJ/mol	115kJ/mol

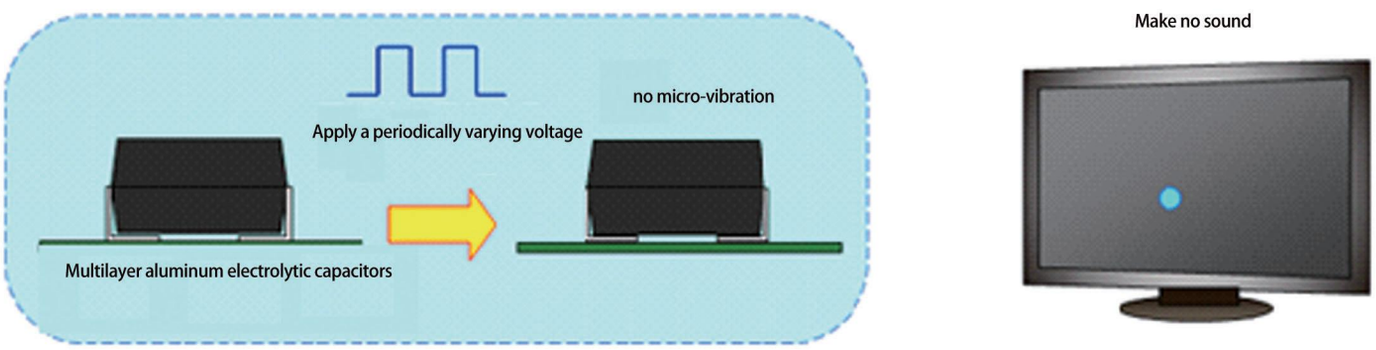
2. ESR and Ripple Tolerance Advantages: Thanks to the stacking process of multilayer solid capacitors, which is equivalent to multiple capacitors connected in parallel, it has an ESR several orders of magnitude lower than that of single-layer capacitors and a ripple tolerance of tens of times. It has a lower ESR and stronger ripple tolerance than capacitors.





1. No piezoelectric oscillation noise: When a periodically changing voltage is applied to a ceramic capacitor, the capacitor body will vibrate slightly due to the piezoelectric effect, producing audio noise. Multilayer solid aluminum capacitors, however, do not have the piezoelectric effect, do not vibrate, and therefore do not produce piezoelectric oscillation noise.





Second, it has stronger stress resistance. Ceramic capacitors are prone to cracking when subjected to thermal shock or mechanical stress, while multilayer solid aluminum capacitors are encapsulated in resin, which has a certain degree of toughness and is not prone to cracking. Therefore, they have stronger stress resistance than ceramic capacitors.

Cracks in ceramics

Short circuit mode

Cracks in solder fillet

Opening mode

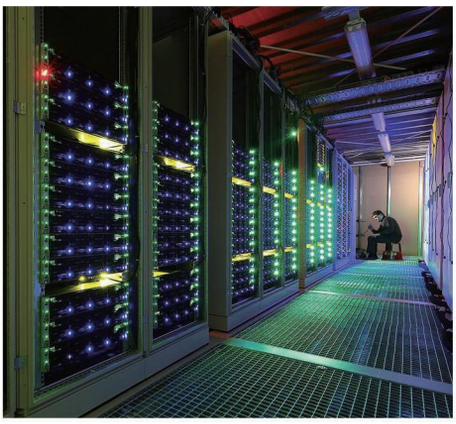
Router

Communication base station

Set-top box

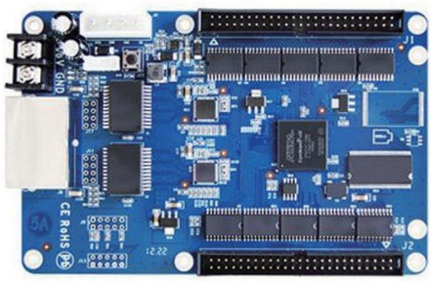
Laptop

LCD display screen



Server

Wireless Meter Reading System



LED light strip control board

LED strip driver power supply

Security Monitoring

Intelligent robot

Automotive electronics

Product coding rules

1	2	3

series	code
MPD10	MPD
MPD15	MPD
MPD19	MPD
MPD28	MPD
MPU41	MPU
MPB19	MPB
MPS	MPS
MPX	MPX

4	5	6

Rated capacity (μF)	code
8.2	8R2
10	100
15	150
22	220
27	270
33	330
39	390
47	470
56	560
68	680
82	820
100	101
120	121
150	151
180	181
220	221
270	271
330	331
390	391
470	471
560	561
680	681
820	821
1000	102
1200	122

7

Capacity tolerance	code
±20%	M
-30%~+10%	3
-35%~+10%	Y

8	9

Voltage(V)	code
2	0D
2.5	0E
4	0J
6.3	0L
10	1A
16	1C
20	1D
25	1E
35	1V
50	1H
63	1J
80	1K

10	11	12

size(mm)	code
7.3*4.3*1.0	D10
7.3*4.3*1.5	D15
7.3*4.3*1.9	D19
7.3*4.3*2.8	D28
7.2*6.1*4.1	U41

13	14	15	16

ESR(mΩ)	code
4.5	4R5R
6	006R
9	009R
12	012R
15	015R
20	020R
25	025R
30	030R
40	040R
80	080R

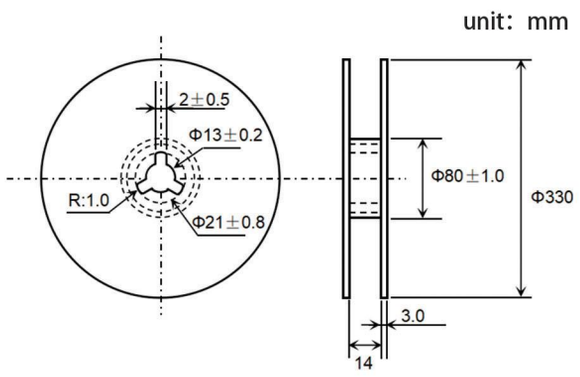
17

Subsidiary code (appearance)	code
Automotive grade products	C

Code rules: Add the first two digits to the number of trailing zeros, where R represents the decimal point.

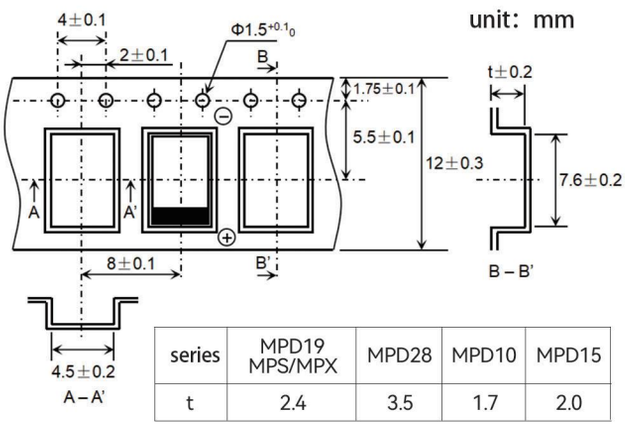
Packaging Quantity Table

Reel Specifications

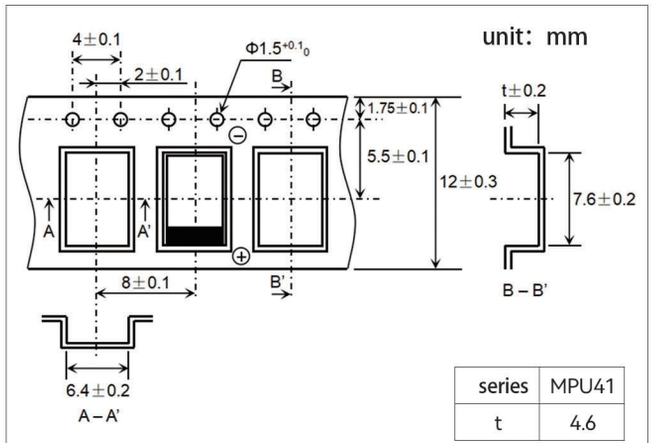


Applicable series	MPD19	MPD28	MPD10	MPU41
	MPD15	MPS	MPX	

braiding specifications



series	MPD19 MPS/MPX	MPD28	MPD10	MPD15
t	2.4	3.5	1.7	2.0



series	MPU41
t	4.6

Packaging quantity

Packaging quantity	One volume (pcs)	Inner box (roll)	Total number of packages (pcs)
7.3*4.3*1.9	3500	2	14000
7.3*4.3*2.8	3000	2	12000
7.3*4.3*1.0	4000	2	16000
7.2*6.1*4.1	1500	2	6000
7.3*4.3*1.5	4000	2	16000

MPD10

◆Slim profile (1mm height)

◆105℃ 2000-hour warranty

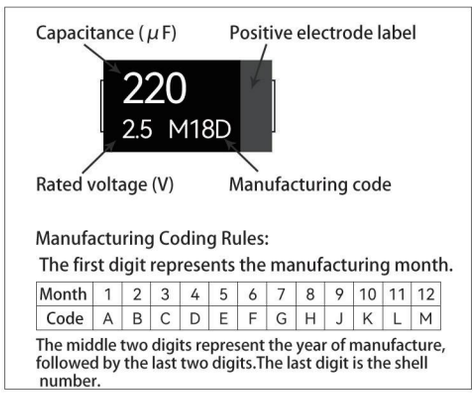
◆High voltage withstand (20V max.)

◆RoHS compliant (2011/65/EU)

■ Main technical parameters

project	characteristic
Operating temperature range	－55 ~ +105℃
Rated operating voltage	2 ~ 20V
Capacity range	10 ~ 330μF 120Hz 20℃
Capacity tolerance	±20% (120Hz 20℃)
Loss tangent	Values below the standard product list: 120Hz, 20℃
Leakage current	I≦0.1CV, charged for 2 minutes at rated voltage, 20℃
Equivalent series resistance (ESR)	Values below the standard product list: 100kHz, 20℃
Surge voltage (V)	1.15 times the rated voltage
Durability	After being subjected to the rated operating voltage for 2000 hours at 105℃ and placed at 20℃ for 16 hours, the product should meet the following requirements. Rate of change of capacitance: ±20% of the initial value Loss tangent: ≦ 200% of the initial specification value Leakage current: ≦ Initial specification value
High temperature and humidity	After being placed at 60℃ and 90%~95% RH for 500 hours without applying voltage, and then placed at 20℃ for 16 hours, the product should meet the following requirements. Rate of change of capacitance: +50% -20% of the initial value Loss tangent: ≦ 200% of the initial specification value Leakage current: ≦ Initial specification value

■ logo



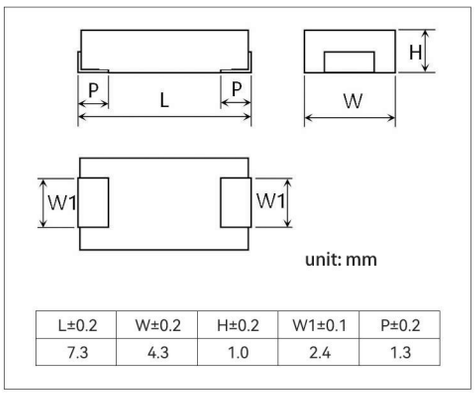
Manufacturing Coding Rules:

The first digit represents the manufacturing month.

Month	1	2	3	4	5	6	7	8	9	10	11	12
Code	A	B	C	D	E	F	G	H	J	K	L	M

The middle two digits represent the year of manufacture, followed by the last two digits.The last digit is the shell number.

■ External dimensions



unit: mm

L±0.2	W±0.2	H±0.2	W1±0.1	P±0.2
7.3	4.3	1.0	2.4	1.3

■ Temperature coefficient of rated ripple current

temperature	T≦45℃	45℃<T≦85℃	85℃<T≦105℃
2~10V	1.0	0.7	0.25
16~80V	1.0	0.8	0.5

Note: The capacitor surface temperature should not exceed the product's maximum operating temperature.

■ Rated ripple current frequency correction factor

Frequency (Hz)	120Hz	1kHz	10kHz	100~300kHz
Correction Factor	0.10	0.45	0.50	1.00

MPD10

■ List of Standard Products

Rated voltage (V)	Nominal capacity (μF)	size(mm)			L.C. (μA,2min)	Tan δ 120Hz	ESR (mΩ100kHz)	Rated ripple current (mA/r.m.s)45℃100kHz
		L	W	H				
2	330	7.3	4.3	1.0	66	0.06	4.5	8500
2.5	220	7.3	4.3	1.0	82.5	0.06	4.5	8500
6.3	100	7.3	4.3	1.0	63	0.06	12	5600
10	33	7.3	4.3	1.0	33	0.06	20	4200
	47	7.3	4.3	1.0	47	0.06	18	4600
	82	7.3	4.3	1.0	82	0.06	15	5100
16	15	7.3	4.3	1.0	24	0.06	70	2400
	33	7.3	4.3	1.0	53	0.06	50	2850
	47	7.3	4.3	1.0	75	0.06	30	3500
20	10	7.3	4.3	1.0	20	0.06	80	2200
	22	7.3	4.3	1.0	44	0.06	65	2500
	33	7.3	4.3	1.0	66	0.06	45	3000

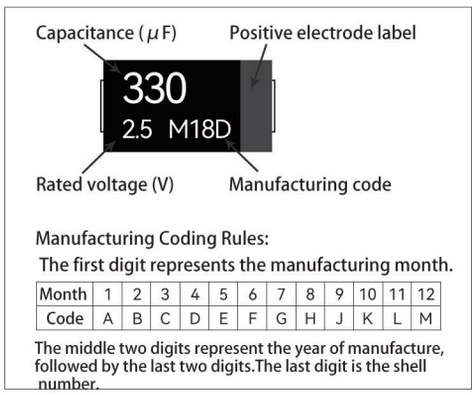
MPD15 NEW

- ◆Low ESR, high ripple current
- ◆105℃, 2000-hour warranty
- ◆High voltage withstand (25V max.)
- ◆RoHS compliant (2011/65/EU)

■ Main technical parameters

project	characteristic
Operating temperature range	－55 ~ +105℃
Rated operating voltage	2 ~ 25V
Capacity range	10 ~ 330μF 120Hz 20℃
Capacity tolerance	±20% (120Hz 20℃)
Loss tangent	Values below the standard product list: 120Hz, 20℃
Leakage current	I≦0.1CV, charged for 2 minutes at rated voltage, 20℃
Equivalent series resistance (ESR)	Values below the standard product list: 100kHz, 20℃
Surge voltage (V)	1.15 times the rated voltage
Durability	After being subjected to the rated operating voltage for 2000 hours at 105℃ and placed at 20℃ for 16 hours, the product should meet the following requirements. Rate of change of capacitance: ±20% of the initial value Loss tangent: ≦ 200% of the initial specification value Leakage current: ≦ Initial specification value
High temperature and humidity	After being placed at 60℃ and 90%~95% RH for 500 hours without applying voltage, and then placed at 20℃ for 16 hours, the product should meet the following requirements. Rate of change of capacitance: +50% -20% of the initial value Loss tangent: ≦ 200% of the initial specification value Leakage current: ≦ Initial specification value

■ logo



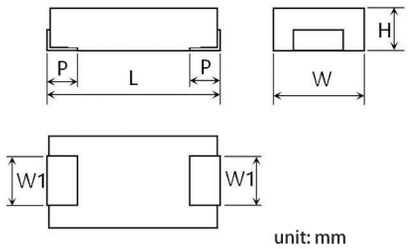
Manufacturing Coding Rules:

The first digit represents the manufacturing month.

Month	1	2	3	4	5	6	7	8	9	10	11	12
Code	A	B	C	D	E	F	G	H	J	K	L	M

The middle two digits represent the year of manufacture, followed by the last two digits.The last digit is the shell number.

■ External dimensions



unit: mm

L±0.2	W±0.2	H±0.1	W1±0.1	P±0.2
7.3	4.3	1.5	2.4	1.3

■ Temperature coefficient of rated ripple current

temperature	T≦45℃	45℃<T≦85℃	85℃<T≦105℃
2~10V	1.0	0.7	0.25
16~80V	1.0	0.8	0.5

Note: The capacitor surface temperature should not exceed the product's maximum operating temperature.

■ Rated ripple current frequency correction factor

Frequency (Hz)	120Hz	1kHz	10kHz	100~300kHz
Correction Factor	0.10	0.45	0.50	1.00

MPD15

■ List of Standard Products

Rated voltage (V)	Nominal capacity (μF)	size(mm)			L.C. (μA,2min)	Tan δ 120Hz	ESR (mΩ100kHz)	Rated ripple current (mA/r.m.s)45℃100kHz
		L	W	H				
2	330	7.3	4.3	1.5	66	0.06	4.5	8500
2.5	330	7.3	4.3	1.5	83	0.06	9	6300
4	220	7.3	4.3	1.5	88	0.06	9	6300
6.3	100	7.3	4.3	1.5	63	0.06	15	5100
	150	7.3	4.3	1.5	95	0.06	9	6300
10	100	7.3	4.3	1.5	100	0.06	15	5100
	150	7.3	4.3	1.5	150	0.06	15	5100
16	15	7.3	4.3	1.5	24	0.06	70	2400
	33	7.3	4.3	1.5	53	0.06	50	2850
	47	7.3	4.3	1.5	75	0.06	45	3000
	68	7.3	4.3	1.5	109	0.06	40	3200
20	10	7.3	4.3	1.5	20	0.06	80	2200
	22	7.3	4.3	1.5	44	0.06	65	2500
	33	7.3	4.3	1.5	66	0.06	45	3000
	47	7.3	4.3	1.5	94	0.06	40	3200
25	10	7.3	4.3	1.5	25	0.06	80	2200
	22	7.3	4.3	1.5	55	0.06	65	2500
	33	7.3	4.3	1.5	83	0.06	40	3200

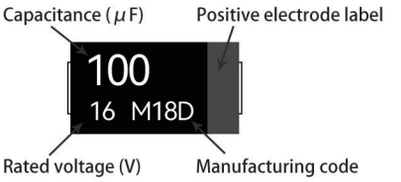
MPD19

◆Low ESR, high ripple current
◆105℃, 2000-hour warranty
◆High voltage withstand (50V max.)
◆RoHS compliant (2011/65/EU)

■ Main technical parameters

project	characteristic
Operating temperature range	－55 ~ +105℃
Rated operating voltage	2 ~ 50V
Capacity range	8.2 ~ 560μF 120Hz 20℃
Capacity tolerance	±20% (120Hz 20℃)
Loss tangent	Values below the standard product list: 120Hz, 20℃
Leakage current	I≦0.1CV, charged for 2 minutes at rated voltage, 20℃
Equivalent series resistance (ESR)	Values below the standard product list: 100kHz, 20℃
Surge voltage (V)	1.15 times the rated voltage
Durability	After being subjected to the rated operating voltage for 2000 hours at 105℃ and placed at 20℃ for 16 hours, the product should meet the following requirements. Rate of change of capacitance: ±20% of the initial value Loss tangent: ≦ 200% of the initial specification value Leakage current: ≦ Initial specification value
High temperature and humidity	After being placed at 60℃ and 90%~95% RH for 500 hours without applying voltage, and then placed at 20℃ for 16 hours, the product should meet the following requirements. Rate of change of capacitance: +50% -20% of the initial value Loss tangent: ≦ 200% of the initial specification value Leakage current: ≦ Initial specification value

■ logo

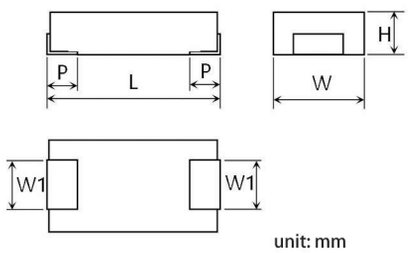


Manufacturing Coding Rules:
The first digit represents the manufacturing month.

Month	1	2	3	4	5	6	7	8	9	10	11	12
Code	A	B	C	D	E	F	G	H	J	K	L	M

The middle two digits represent the year of manufacture, followed by the last two digits.The last digit is the shell number.

■ External dimensions



unit: mm

L±0.2	W±0.2	H±0.1	W1±0.1	P±0.2
7.3	4.3	1.9	2.4	1.3

■ Temperature coefficient of rated ripple current

temperature	T≦45℃	45℃<T≦85℃	85℃<T≦105℃
2~10V	1.0	0.7	0.25
16~80V	1.0	0.8	0.5

Note: The capacitor surface temperature should not exceed the product's maximum operating temperature.

■ Rated ripple current frequency correction factor

Frequency (Hz)	120Hz	1kHz	10kHz	100~300kHz
Correction Factor	0.10	0.45	0.50	1.00