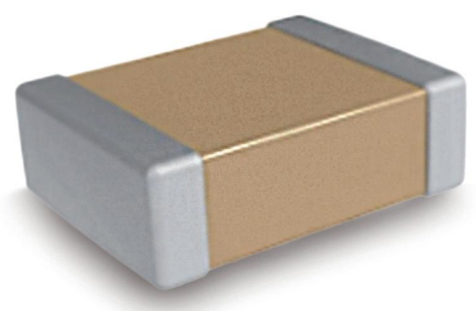
SHANGHAI YONGMING ELECTRONICS CO., LTD.

Multilayer ceramic chip capacitor

MUITILAYER CERAMIC CHIP CAPACITOR



HIGH-VOLTAGE MLCC

SUPERIOR PERFORMANCE, HIGHER SAFETY.

NP0

Q

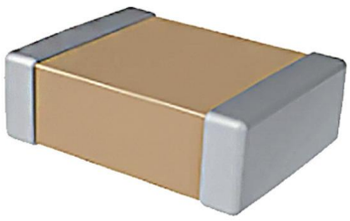
High-frequency corresponding products
−55℃~125℃
1000V，2000V，3000V
2~18000pF

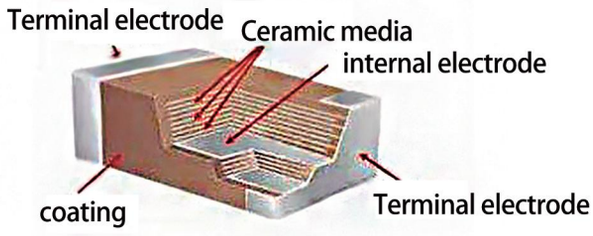
X7R

H

High-frequency corresponding products
−55℃~125℃
630V,1000V,2000V,3000V
100～220000pF

I. Appearance and Internal Structure





II. Product Characteristics

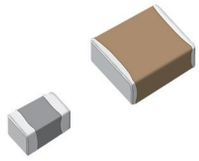
1. Q Series Overview: High-Q products guaranteed for high-frequency operation, suitable for high-frequency environments up to 125° C.

Features: High Q, High Frequency
Rated Voltage 1000~3000V
Operating Temperature Range: -55° C to 125° C

2. H Series Overview: Utilizing a special internal electrode structure, these capacitors possess high voltage withstand characteristics. They are suitable for high-voltage circuits with rated voltages exceeding 1000V.

Features: Rated Voltage 630~3000V
Operating Temperature Range: -55° C to 125° C
The Q series, with its stable temperature and bias characteristics, is also suitable for...

Q 、 Hseries



◆YMIN high-voltage MLCC products are designed and manufactured in accordance with international standards.

These products are ideal for commercial and industrial use.

Including NP0 and X7R characteristics, sizes range from 1206 to 2220, and operating voltages up to 3KV.

◆ Product Features

◇Special internal electrode design provides the highest voltage rating

◇Suitable for wave soldering, reflow soldering, and surface mount applications

◇High reliability

◇RoHS compliant

◆ Application Areas

◇LAN/WLAN interface

◇Inverter

◇DC-DC converter

◇Modem power supply

◇Ballast

■ Main technical parameters

project	characteristic	
Nominal voltage range	630~3000V	
Temperature characteristics	X7R	-55~+125℃(±15%)
	NP0	-55~+125℃(0±30ppm/℃)
Loss tangent	NP0: Q≧1000 ; X7R: D.F.≦2.5%	
Insulation resistance value	10GΩ or 500/CΩ Take the smaller value	
aging	NP0: 0% X7R: 2.5% every ten years	
Compressive strength	100V≦V≦500V : 200% of rated voltage	
	500V≦V≦1000V : 150% of rated voltage	
	1000V≦V : 120% of rated voltage	

■ Encoding rules

H	1206	X7R	102	K	202	N	S	F	J

Product Series	size(mm)	Material	nominal capacity	Precision level	Rated voltage	Terminal electrode type	Packaging	Thickness designation (mm)	Reel Specifications
Q、H High-voltage type	1206 1210 1812 2220	NP0 X7R	R75=0.75pF 0R5=0.5pF 1R0=1pF 100=10pF 101=100pF 102=1000pF 103=10nF 104=100nF 105=1μF 106=10μF 107=100μF	A=±0.05pF B=±0.1pF C=±0.25pF D=±0.5pF F=±1% G=±2% J=±5% K=±10% L=±15% M=±20% S=-20%~+50%	102=1kV 202=2kV 302=3kV 402=4kV 502=5kV 602=6kV	N=Cu/Ni/Sn C=Cu/Resin/Ni/Sn	T = Paper tape B = Bulk packaging S = Plastic tape	K=0.125mm H=0.13mm E=0.18mm C=0.2mm P=0.3mm K=0.45mm W=0.5mm A=0.8mm D=0.85mm F=1.15mm G=1.25mm L=1.6mm N=1.9mm Y=2.0mm M=2.5mm	J=7Inch D=13Inch

■ List of Standard Products

Temperature characteristics	size	Operating voltage	Capacity range (pF)
Q series (NP0)	1206	1KV	2R0 3R3 3R9 5R0 8R2 100 120 150 180 220 270 330 390 470 560 680 820 101 121 151 181 221 271 331 391 471 561 681 821 102 122 152 182 222 272 332 392 472 562 682 822 103 123 153 183 223 273 333 393 473
		2KV	2R0 3R3 3R9 5R0 8R2 100 120 150 180 220 270 330 390 470 560 680 820 101 121 151 181
		3KV	2R0 3R3 3R9 5R0 8R2 100 120 150 180 220 270 330 390
	1210	1KV	100 120 150 180 220 270 330 390 470 560 680 820 101 121 151 181 221 271 331 391 471 561 681 821 102 122 152 182 222 272
	1812	1KV	150 180 220 270 330 390 470 560 680 820 101 121 151 181 221 271 331 391 471 561 681 821 102 122 152 182 222 272 332 392 472 562
		2KV	470 560 680 820 101 121 151 181 221 271 331 391 471 561 681 821 102
		3KV	2R0 3R3 3R9 5R0 8R2 100 120 150 180 220 270 330 390 470 560 680 820 101 121 151 181
	2220	1KV	391 471 561 681 821 102 122 152 182 222 272 332 392 472 562 682 822 103 123 153 183 223 273 333 393 473
		2KV	222
		3KV	2R0 3R3 3R9 5R0 8R2 100 120 150 180 220 270 330 390 470 560 680 820 101 121 151 181

Temperature characteristics	size	Operating voltage	Capacity range (pF)
H series (X7R)	630V	1206	181 221 271 331 391 471 561 681 821 102 122 152 182 222 272 332 392 472 562 682 822 103 123 153 183 223 273 333 393 473
		1210	472 562 682 822 103 123 153 183 223 273 333 393 473 563 683 823 104
		1812	472 562 682 822 103 123 153 183 223 273 333 393 473 563 683 823 104
		2220	223 563

Temperature characteristics	size	Operating voltage	Capacity range (pF)
H series (X7R)	1KV	1206	101 151 181 181 221 271 331 391 471 561 681 821 102 122 152 182 222 272 332 392 472 562 682 822 103 123 153 183 223 273 333 393 473 563 683 823 104 124 154 184 224 274 334 394 474 564 684 824 844 864
		1210	123 153 183 223 273 333 393 473 563 683 823 104 124 154 184 224 274 334 394 474 564 684 824 844 864
		1812	221 271 331 391 471 561 681 821 102 122 152 182 222 272 332 392 472 562 682 822 103 123 153 183 223 273 333 393 473 563 683 823 104 124 154 184 224 274 334 394 474 564 684 824 844 864
		2220	331 391 471 561 681 821 102 122 152 182 222 272 332 392 472 562 682 822 103 123 153 183 223 273 333 393 473 563 683 823 104 124 154 184 224 274 334 394 474 564 684 824 844 864

Temperature characteristics	size	Operating voltage	Capacity range (pF)
H series (X7R)	2KV	1206	101 151 181 181 221 271 331 391 471 561 681 821 102 122 152 182 222 272 332 392 472 562 682 822 103 123 153 183 223 273 333 393 473 563 683 823 104 124 154 184 224 274 334 394 474 564 684 824 844 864
		1210	221 271 331 391 471 561 681 821 102 122 152 182 222 272 332 392 472 562 682 822 103 123 153 183 223 273 333 393 473 563 683 823 104 124 154 184 224 274 334 394 474 564 684 824 844 864
		1812	151 181 181 221 271 331 391 471 561 681 821 102 122 152 182 222 272 332 392 472 562 682 822 103 123 153 183 223 273 333 393 473 563 683 823 104 124 154 184 224 274 334 394 474 564 684 824 844 864
		2220	331 391 471 561 681 821 102 122 152 182 222 272 332 392 472 562 682 822 103 123 153 183 223 273 333 393 473 563 683 823 104 124 154 184 224 274 334 394 474 564 684 824 844 864

Temperature characteristics	size	Operating voltage	Capacity range (pF)
H series (X7R)	3KV	1206	101 151 181 181 221 271 331 391 471 561 681 821 102 122 152 182 222 272 332 392 472 562 682 822 103 123 153 183 223 273 333 393 473 563 683 823 843 863 104 124 154 184 224 274 334 394 474 564 684 824
		1812	221 331 391 471 561 681 821 102 122 152 182 222 272 332 392 472 562 682 822 103 123 153 183 223 273 333 393 473 563 683 823 104 124 154 184 224 274 334 394 474 564 684 824
		2220	391 471 561 681 821 102 122 152 182 222 272 332 392 472 562 682 822 103 123 153 183 223 273 333 393 473 563 683 823 104 124 154 184 224 274 334 394 474 564 684 824

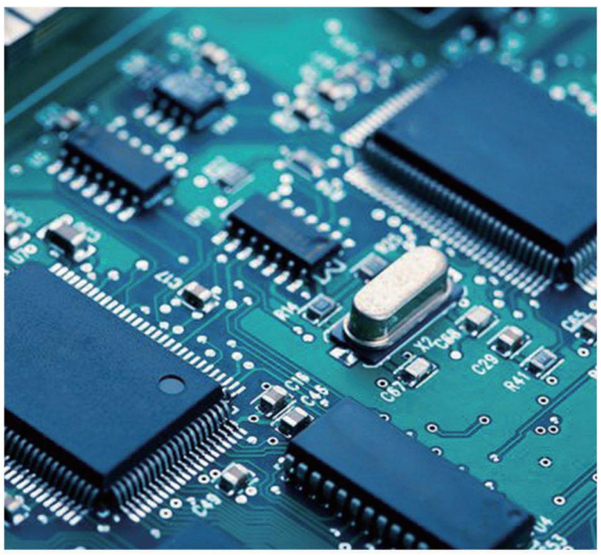
Multilayer ceramic chip capacitor applications

cookie charger

DC-DC converter

adapter

LAN/WLAN interface



Computer motherboard

Wireless charging unit

1. Precautions Before Use

MLCCs may be damaged under harsh working environments or external mechanical overpressure exceeding the usage conditions described in this approval document. Therefore, please first consider applying them according to the relevant instructions in this approval document.

2. PC Board Design Recommended Layout

2.1 The amount of solder used affects the chip's resistance to mechanical stress, which may lead to MLCC breakage or cracking. Therefore, the size and arrangement of the pads must be carefully considered when designing the substrate, as these have a decisive effect on the amount of solder used to form the substrate.

2.2 When designing the position of the pads and SMD MLCCs, stress should be minimized. MLCCs should be mounted in the least affected position on the PC board.

3. Considerations for Automatic Mounting

If the pick-up tube is lowered beyond the minimum limit, the following points should be noted when lowering the pick-up tube:

3.1 After correcting for PC board misalignment, the lower limit of the pick-up tube should be adjusted to a horizontal position on the surface of the PC board.

3.2 The suction pressure should be adjusted to between 1 and 3 N.

3.3 To reduce the deformation of the PC board caused by the impact of the suction tube, the support pins should be placed under the PC board.

4. Welding

4.1 MLCCs are a combination of ceramic and metal. As a ceramic body, especially a large-format ceramic body, its thermoplasticity is poor, and its response to heat is relatively slow. Under rapid cooling and heating, the ceramic body is prone to cracking. It is recommended to perform continuous preheating for more than 1 minute before welding.

4.2 The interior of an MLCC contains metal electrodes. Metal has excellent thermoplasticity and a rapid response to heat. Therefore, under heating, there will inevitably be a certain degree of uneven expansion between the metal and ceramic parts, resulting in internal stress and easily causing the ceramic body to crack. It is recommended to perform continuous preheating for more than 1 minute before welding.

4.3 When manually soldering, the maximum diameter of the soldering iron tip should be 1.0mm, and the maximum power should be 25 watts. The soldering iron should not directly touch the MLCC components.

4.4 It is recommended to avoid wave soldering for MLCCs and larger.

5. Cleaning

5.1 The temperature difference between the components and the cleaning process should not exceed 100℃.

5.2 When using ultrasonic cleaning, excessive output power will subject the PC board to excessive vibration, which can cause cracking of the MLCC solder joints or reduce the strength of the terminal electrodes. Therefore, pay special attention to the following: Ultrasonic output: below 20W/L; Ultrasonic frequency: below 40KHz; Ultrasonic cleaning time: 5 minutes or less.

6. Cutting the PC Board

6.1 After installing the MLCCs and other components, when splitting the PC board, be careful not to apply any force to the board. Do not subject the MLCCs to excessive mechanical impact.

6.2 The board should not be split manually; appropriate equipment should be used.

7. Storage Method To maintain the solderability of the terminals and ensure the packaging materials are in good condition, the recommended storage conditions are as follows: Storage temperature: 5-40℃; Storage relative humidity: 20-70% RH. Even under ideal storage conditions, the solderability of MLCC terminals will decrease over time; therefore, MLCC multilayer ceramic capacitors should be used within 6 months from the date of shipment.

Capacitor Solutions, Ask YMIN for your Applications.

Respond quickly and accurately to customer needs

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