SHANGHAI JINPEI ELECTRONICS CO., LTD

AXIAL MULTILAYER CERAMIC CAPACITOR

CC42
CT42

FEATURE

- Miniature size, large capacitance, tape and reel packaging suitable for auto-placement
- Epoxy resin coating creates excellent performance in humidity resistance, mechanical strength and heat resistance
- Standard size, various lead configuration

Dielectric Type	Class I	Class II		
Dielectric Material	Temperature Compensating	X7R(B)	Z5U(E)	Y5V(Y/F)
Electrical Properties	The electrical properties is the most stable one and has little change with temperature, voltage and time.	X7R material has high dielectric constant,and its capacitance is higher than class I. These capacitors are classified as having a semi-stable T.C..	Temperature characteristic is between that of X7R and Y5V. The capacitance is unstable and sensible to temperature and voltage.	Y5V material has highest dielectric constant. Its capacitance and dissipation is sensible to temperature and voltage.
Application	Used in applications where low-losses and highstability are required, such as filters, oscillators, and timing circuits so on.	Used over a wide temperature range , such in these kinds of circuits, DC-blocking, coupling, bypassing, frequency discriminating etc.	Ideally suited for bypassing and coupling application circuits operating with low DC bias in the environment approaching to room	Used over a moderate temperature range in application where high capacitance is required.
Available capacitance range	0.5pF~10uF	100pF~4.7uF	2.2nF~4.7uF	

ORDERING CODE

CT42	-	104	M	17	Y	500	P	52
↑		↑	↑	↑	↑	↑	↑	↑
A		B	C	D	E	F	G	H

Unit: inches

Product Type	
CC42	Class I Dielectric Axial Leaded Capacitor
CT42	Class II Dielectric Axial Leaded Capacitor

Nominal Body Length(Unit:inches)			
0805	0.17 ×0.15	1812	0.34 ×0.26
1206	0.20 ×0.18	2225	0.41 ×0.37
1210	0.20 ×0.22	3035	0.50 ×0.41

Temperature Characteristics			
CG	C0G	0±30ppm/℃	-55~+125℃
N	NP0		
B	X7R	±15%	-55~+125℃
Y/F	Y5V	-80%~+30%	-25~+85 ℃
E	Z5U	-56%~+22%	+10~+85℃

Nominal Capacitance

First two digits are significant, and the third digit is number of zero.

For example:
104=100000pF 5R6=5.6pF

Tolerance			
C	±0.25pF	K	±10%
D	±0.5pF	M	±20%
J	±5.0%	Z	-20~+80%

Rated Voltage

First two digits are significant, and the third digit is number of zero.

For example: 500=50V; 101=100V

Packaging Style		
P	Ammo	Tape
T	Reel	
F	Bulk	

Lead Configuration	
26	Tape Width:26mm
52	Tape Width:26mm
2	5.08mm pitch formed lead
3	7.5mm pitch formed lead
4	10mm pitch formed lead

RELIABILITY AND TEST METHOD FOR GENERAL LEADED MLCC

Item	Technical Specification		Test Method and Remarks		
Capacitance(C)	Class I	within the specified tolerance.	Capacitance	Measuring Frequency	Measuring Voltage
			≤1000pF	1MHZ±10%	1.0±0.2V
			>1000 pF	1KHZ±10%	
	ClassII	within the specified tolerance.	The capacitance should be pretreated before measured(only for class Ⅱ).		
			Measuring Frequency	Measuring Voltage	
			1KHZ±10%	B:1.0±0.2V	E/Y(F)0.3±0.2V
Dissipation Factor(DF)	Class I	$C_R \geq 50pF$ DF≤0.15% $C_R < 50pF$ DF≤1.5[(150/CR)+7] X10^{-4}	Capacitance	Measuring Frequency	Measuring Voltage
			≤1000pF	1MHZ±10%	1.0±0.2V
			>1000 pF	1KHZ±10%	
	ClassII	B: DF ≤3.5%	1KHZ±10%; Measuring Frequency 1.0±0.2V Measuring Voltage		
		E/Y(F): ≤7.5% ($C_R \leq 0.1uF$) ≤10.0% (1uF > C_R > 0.1uF) ≤15% ($C_R \geq 1uF$)	1KHZ±10%Measuring Frequency 0.3±0.2V Measuring Voltage		

<table>
<tr><th>Item</th><th colspan="2">Technical Specification</th><th>Test Method and Remarks</th></tr>
<tr><td rowspan="2">Insulation Resistance</td><td>Class I</td><td>C≤10nF
IR≥10000MΩ
C>10nF
R.C≥100 ΩF</td><td rowspan="2">Measuring Voltage: Rated Voltage
Duration: 60±5s</td></tr>
<tr><td>ClassII</td><td>C≤25nF
IR≥4000MΩ
C>25nF
R.C≥100 ΩF</td></tr>
<tr><td>Withstandi-ng Voltage</td><td colspan="2">No breakdown or damage.</td><td>Between terminals:
Measuring Voltage: Duration: 5 ± 1s
Class Ⅰ:300% Rated voltage
Class Ⅱ:250% Rated voltage
rrent is less than 50mA.

Between terminals and body:
Voltage: 2.5 times rated voltage Duration: 1~5s
Small metallic ball method
Small metallic balls with 1mm diameters shall be put in a vessel and the test capacitor shall be submerged except 2mm from the top of its comp–onent body and the terminals. The test voltage shall be applied between the short–circuited terminals and the metallic balls.</td></tr>
<tr><td>Solder ability</td><td colspan="2">Lead wire shall be at least 75% covered with a new solder coating.</td><td>The terminal of capacitor is dipping into a 25% rosin solution of ethanol and then into molten solder(63Sn/37Pb) of 230±5℃ for 2±0.5s. In both cases the depth of dipping is up to about 1.5~2mm from the terminal body.</td></tr>
<tr><td>Resistance to Soldering Heat</td><td colspan="2"><table><tr><td>Item</td><td>△C/C≤</td></tr><tr><td>Class I</td><td>± 2.5% or ± 0.25pF</td></tr><tr><td>B</td><td>±10%</td></tr><tr><td>E / Y(F)</td><td>±20%</td></tr></table>No significant abnormality in appearance.</td><td>●Solder temperature: 260 ±5℃ Duration: 10 ±1s
●Immersed conditions: Inserted into the PC board (with t=1.6mm, hole=1.0mm diameter)
●Recovery: For class I, 4 to 24 hours of recovery under the standard condition after test.
●Preconditioning (Class II) : 1 hour of preconditioning at 150(–10,+0) ℃, followed by 48 ±4 hours of recovery under the standard condition.
●Recovery (Class II) : 48 ±4 hours of recovery under the standard condition after test.</td></tr>
<tr><td></td><td colspan="2">No significant abnormality in appearance.</td><td>Temperature</td></tr>
<tr><td>High Temperature Loading Test</td><td colspan="2">Capacitance Change:
Class I:≤ ±3% or ±0.3pF
Whichever is larger.
Class II:B:≤ ±12.5%
E / F(Y): ≤ ±30%

Dissipation Factor:
Class I: Not more than twice of initial value.
Class II: B: ≤ 5.0%
E / F(Y):≤12.5% (C_R ≤ 0.1uF)
≤15.0%(1uF > C_R > 0.1uF)
≤17.5% (C_R ≥1uF)

Insulation Resistance:
≥ 500MΩ or 25 Ω.F
Whichever is smaller.</td><td><table><tr><td>CG(N)/</td><td>X7R</td><td>Y5V</td><td>Z5U</td></tr><tr><td colspan="2">125(–0,+3)℃</td><td colspan="2">85(–0,+3) ℃</td></tr></table>Applied voltage: 1.5 times rated voltage
The charge/ discharge current is less than 50mA.
Duration: 1000 (–0, +48) hours
Recovery Time:
Class I Dielectric : 24 ±2 hours
Class II Dielectric: 48 ±4 hours</td></tr>
<tr><td>Solvent Resistance</td><td colspan="2">No defects or abnormalities in appearance and legible marking.</td><td>Solvent temperature:
put the sample into solvent 1 Min, and then take it out and brush sample's notation area 10 times with pledget , repeat 3 times.</td></tr>
</table>

* Note on standard condition: " standard condition " referred to herein should be defined as follows:
5 to 35℃ of temperature, 45 to 75% of relative humidity, and 86 to 106kPa of atmospheric pressure.
* When there are questions concerning measurement results:
In order to provide correlation data, the test should be conducted under a condition of 25 degrees plus/minus 1 centigrade of temperature, 48% through 52% of relative humidity and 86 through 106 kPa of atmospheric pressure.

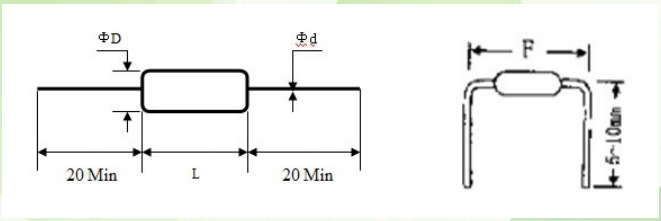
SIZE CODE AND VOLTAGE VS CAPACITANCE

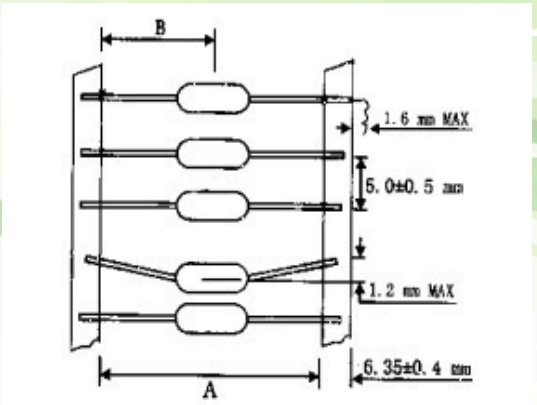
Size Code	Dimensions (Unit: mm)						Voltage	Available Capacitance Range		
	LMax	Dmax	F (±0.6)			d (±0.05)		C0G (NP0)	X7R	Z5U/Y5V
			F2	F3	F4					
17	4.3	2.5	5.08	7.5	10.0	0.45	25V	0R5~103	101~475	102~475
							50/63V	0R5~103	101~105	102~105
							100V	0R5~102	101~104	102–104
							200/250V	0R5~821	101~333	102~333
							500/630V	0R5~561	101~273	102~273

OTHERS ARE AVAILABLE, CONTACT J&P.

External Dimensions

Bulk Products



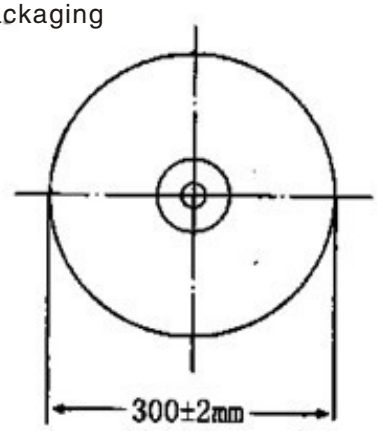


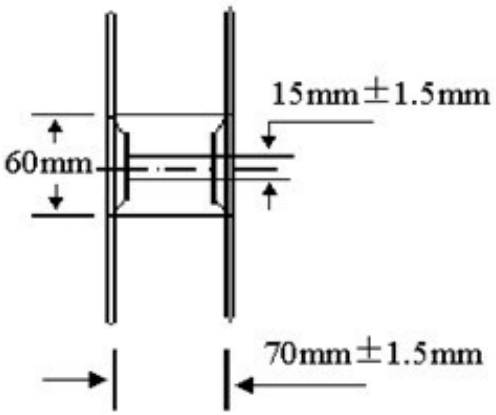
Taping Dimensions

Tape Style	A	B
Tape Width: 26	26 ± 1.5	13 ± 0.76
Tape Width: 52.4	52.4 ± 1.5	26.2 ± 0.76

Packaging

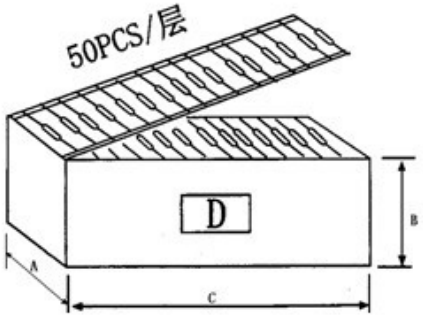
Tape and Reel Packaging





Ammo Packaging

Tape Style	A ± 5mm	B ± 5mm	C ± 5mm	D
52.4 mm	81	72	258	Lable
26 mm	50	110	258	



Packaging Quantity

Size Code	Tape and Reel	Ammo	Bulk
15	5000	5000	1000
16	5000	5000	1000
17	5000	5000	1000
19	2500	2500	500
20	2500	2500	500
25	2500	2500	500