Data Sheet

Customer:	
Product:	**Multilayer Ceramic Chip Capacitor – MC Series**
Part No.:	**MC06MTX250476**
Issued Date:	**19-Apr-24**
Edition:	**REV.A**

Pb RoHS Compliant

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19-Apr-24	19-Apr-24	19-Apr-24	19-Apr-24	
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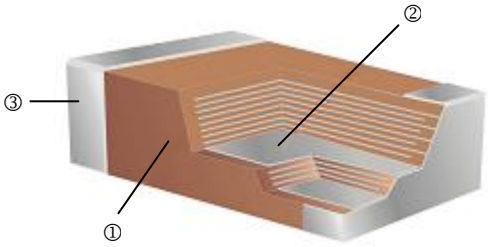
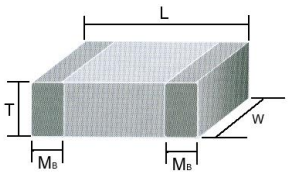
Multilayer Ceramic Chip Capacitor

■Construction



①	Ceramic Material	③	Termination:
②	Inner Electrodes		



■Dimensions

Unit: mm

Type	Size (Inch)	L	W	T	M_B	Packaging (7" Reel)	
						Paper tape	Plastic tape
06	1206	3.20±0.30	1.60±0.30	1.60±0.30	1.5 min	-	2K

■Part Numbering

MC	06	M	T	X	250	476
Product Type	Dimensions (L×W)	Capacitance Tolerance	Packaging	Dielectric	Voltage (VDCW)	Capacitance
MC : General; Ultra-small Middle and High Voltage	06: 1206	M: ±20%	T: Taping Reel	X: X5R	250: 25V	476: 47μF

■Environmental Characteristics

Size	1206
Dielectric	**X5R**
Capacitance*	47uF
Capacitance tolerance	M (±20%)
Rated voltage (VDCW)	25V
Operating temperature	-55 to +85°C
Capacitance change	±15%
Termination	Ni/Sn (lead-free termination)

■Environmental Characteristics

<table>
<tr><th>Item</th><th>Requirement</th><th>Test Method</th></tr>
<tr><td>Rated Voltage</td><td>Shown in Rated value.</td><td>The rated voltage is defined as the maximum voltage which may be applied continuously to the capacitor.
When AC voltage is superimposed on DC voltage, V(peak to peak) or V(zero to peak),
whichever is larger, should be maintained within the rated voltage range.</td></tr>
<tr><td>Appearance</td><td>No defects or abnormalities.</td><td>Visual inspection</td></tr>
<tr><td>Dimension</td><td>Shown in Dimension.</td><td>Using Measuring instrument of dimension</td></tr>
<tr><td>Voltage proof</td><td>No defects or abnormalities.</td><td>Measurement Point Between the terminations
Test Voltage 250% of the rated voltage
Applied Time 1s to 5s
Charge/discharge current 50mA max.</td></tr>
<tr><td>Insulation Resistance(I.R.)
(Room Temperature)</td><td>More than 50Ω・F</td><td>Measurement Temperature Room Temperature
Measurement Point Between the terminations
Measurement Voltage Rated Voltage
Charging Time 1min
Charge/discharge current 50mA max.</td></tr>
<tr><td>Capacitance</td><td>Shown in Rated value.</td><td>Measurement Temperature Room Temperature
Measurement Frequency 120+/-24Hz
Measurement Voltage 0.5+/-0.1Vrms
Pre-treatment Heat treatment:Perform a heat treatment at 150+0/-10°C for 1hour and then let sit for 24+/-2hours
at room temperature, then measure.</td></tr>
<tr><td>Q or Dissipation Factor (D.F.)</td><td>DF≦0.1</td><td>Measurement Temperature Room Temperature
Measurement Frequency 120+/-24Hz
Measurement Voltage 0.5+/-0.1Vrms</td></tr>
<tr><td>Temperature Characteristics of Capacitance</td><td>No bias Shown in Rated value.</td><td>The capacitance change should be measured after 5 min at each specified temp. stage.
Capacitance value as a reference is the value in "*" marked step.
Measurement Voltage Less than 1.0Vrms (Refer to the individual data sheet)
Pre-treatment Heat treatment:Perform a heat treatment at 150+0/-10°C for 1hour and then let sit for 24+/-2hours
at room temperature, then measure.
Temperature Step

No bias
<table>
<tr><th>Step</th><th>Temperature(℃)</th></tr>
<tr><td>1</td><td>Reference Temp. +/-2</td></tr>
<tr><td>2</td><td>Min. Operating Temp. +/-3</td></tr>
<tr><td>3*</td><td>Reference Temp. +/-2</td></tr>
<tr><td>4</td><td>Max. Operating Temp. +/-3</td></tr>
<tr><td>5</td><td>Reference Temp. +/-2</td></tr>
</table></td></tr>
<tr><td>Adhesive Strength of Termination</td><td>No removal of the terminations or other defect should occur.</td><td>Mounting method Solder the capacitor on the test substrate
Applied Force 10N
Holding Time 10+/-1s
Applied Direction In parallel with the test substrate and vertical with the capacitor side</td></tr>
<tr><td>Vibration</td><td>Appearance No defects or abnormalities.
Capacitance Within the specified initial value.
Q or D.F. Within the specified initial value.</td><td>Mounting method Solder the capacitor on the test substrate
Kind of Vibration A simple harmonic motion 10Hz to 55Hz to 10Hz
Vibration Time 1min
Total amplitude 1.5mm
Vibration directions and time This motion should be applied for a period of 2hours in each 3 mutually perpendicular directions(total of 6hours).</td></tr>
<tr><td>Substrate Bending test</td><td>Appearance No defects or abnormalities.
Capacitance Change Within +/-10%</td><td>Mounting method Reflow solder the capacitor on the test substrate
Pressurization Method Shown in Fig.2
Flexure 1mm
Holding Time 5+/-1s</td></tr>
<tr><td>Solderability</td><td>95% of the terminations is to be soldered evenly and continuously.</td><td>Test Method Solder bath method
Flux Solution of rosin ethanol 25(mass)%
Preheat 80℃ to 120℃、10s to 30s
Kind of Solder Sn-3.0Ag-0.5Cu(Lead Free Solder)
Test Temperature 245+/-5℃
Test Time 2+/-0.5s</td></tr>
</table>

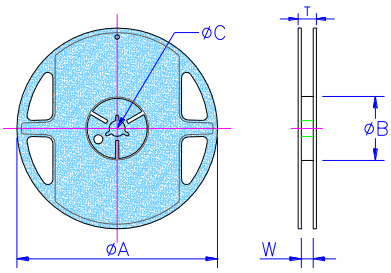
Item	Requirement	Test Method
Resistance to Soldering Heat	Appearance No defects or abnormalities. Capacitance Change Within +/-15% Q or D.F. Within the specified initial value. I.R. Within the specified initial value. Voltage proof No defects or abnormalities	Pre-treatment Heat treatment:Perform a heat treatment at 150+0/-10°C for 1hour and then let sit for 24+/-2hours at room temperature, then measure. Test Method Solder bath method Kind of Solder Sn-3.0Ag-0.5Cu(Lead Free Solder) Test Temperature 270+/-5℃ Test Time 10+/-0.5s Preheat Temperature 120℃ to 150℃ Preheat time 1 min Post-treatment Non treatment:Let sit for 24+/-2hours at room temperature, then measure.
Temperature Sudden Change	Appearance No defects or abnormalities. Capacitance Change Within +/-7.5% Q or D.F. Within the specified initial value. I.R. Within the specified initial value. Voltage proof No defects or abnormalities	Mounting method Solder the capacitor on the test substrate Pre-treatment Heat treatment:Perform a heat treatment at 150+0/-10°C for 1hour and then let sit for 24+/-2hours at room temperature, then measure. Cycles 5cycles Temperature Cycling Step / Temperature(℃) / Time(min) 1 / Min. Operating Temp. +0/-3 / 30+/-3 2 / Room Temp. / 2 to 3 3 / Max. Operating Temp. +0/-3 / 30+/-3 4 / Room Temp. / 2 to 3 Post-treatment Non treatment:Let sit for 24+/-2hours at room temperature, then measure.

■Packaging

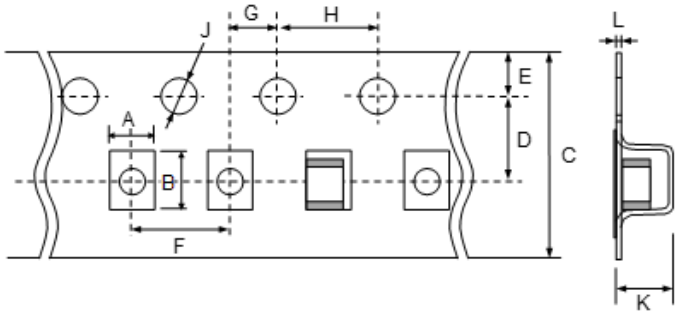
Packaging Quantity & Reel Specifications

Unit: mm

Type	ΦA	ΦB	ΦC	W	T	Packaging (7" Reel)
						Plastic tape
1206	180+0/-3	50 min	13±0.2	8.4+1.5	14.4 max	2K



Plastic Tape Size Specification



Unit: mm

Type	A	B	C	D	E	F	G	H	J	K	L
1206	2.10 ±0.20	3.60 ±0.20	8.00 ±0.30	3.50 ±0.05	1.75 ±0.10	4.00 ±0.10	2.00 ±0.10	4.00 ±0.10	1.50 +0.1/-0	2.5 max	0.25 ±0.10