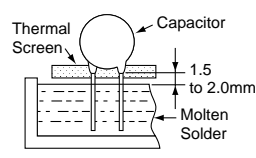
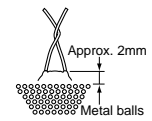


No.	Item	Specifications	Test Method												
1	Operating Temperature Range	-25 to +100°C	—												
2	Capacitance	Within the specified tolerance	The capacitance should be measured at 20°C with 1±0.2kHz and AC5V(r.m.s.) max.												
3	Dissipation Factor (D.F.)	<table border="1"> <tr> <td>ZM</td> <td>1.0% max.</td> </tr> <tr> <td>B</td> <td>2.5% max.</td> </tr> </table>	ZM	1.0% max.	B	2.5% max.	The dissipation factor should be measured at 20°C with 1±0.2kHz and AC5V(r.m.s.) max.								
ZM	1.0% max.														
B	2.5% max.														
4	Insulation Resistance (I.R.)	Between Lead Wires 10000MΩ min.	The insulation resistance should be measured with DC1000V within 60±5 sec. of charging.												
5	Dielectric Strength	Between Lead Wires	No failure The capacitor should not be damaged when DC voltage of 150% of the rated voltage is applied between the lead wires for 60±5 sec. in insulating liquid or gas. (Charge/Discharge current≤50mA)												
		Body Insulation	No failure The capacitor is placed in the container with metal balls of diameter 1mm so that each lead wire, short circuited, is kept approximately 2mm off the metal balls as shown in the figure at right, and DC voltage of 3kV is applied for 10 sec. between capacitor lead wires and metal balls. (Charge/Discharge current≤50mA)												
6	Temperature Characteristics	<table border="1"> <tr> <th>Temp. Char.</th> <th>Temp. Coefficient or Max. Cap. Change</th> </tr> <tr> <td>ZM</td> <td>-4700±1000ppm/°C (Temp. range : +20 to +85°C)</td> </tr> <tr> <td>B</td> <td>±10% (Temp. range : -25 to +85°C)</td> </tr> </table>	Temp. Char.	Temp. Coefficient or Max. Cap. Change	ZM	-4700±1000ppm/°C (Temp. range : +20 to +85°C)	B	±10% (Temp. range : -25 to +85°C)	The capacitance measurement should be made at each step specified in table. Capacitance change from the value of step 3 should not exceed the limit specified.						
		Temp. Char.	Temp. Coefficient or Max. Cap. Change												
ZM	-4700±1000ppm/°C (Temp. range : +20 to +85°C)														
B	±10% (Temp. range : -25 to +85°C)														
		<table border="1"> <tr> <th>Step</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> </tr> <tr> <td>Temp. (°C)</td> <td>20±2°C</td> <td>-25±3°C</td> <td>20±2°C</td> <td>85±2°C</td> <td>20±2°C</td> </tr> </table>	Step	1	2	3	4	5	Temp. (°C)	20±2°C	-25±3°C	20±2°C	85±2°C	20±2°C	
Step	1	2	3	4	5										
Temp. (°C)	20±2°C	-25±3°C	20±2°C	85±2°C	20±2°C										
7	Soldering Effect (Non-Preheat)	Appearance	No marked defect	The lead wires should be immersed into the melted solder of 350±10°C up to about 1.5 to 2.0mm from the main body for 3.5±0.5 sec. Post-treatment: Capacitor should be stored for 24±2 hrs. at room condition*.											
		Capacitance Change	Within ±10%												
		Dielectric Strength (Between Lead Wires)	No failure												
8	Soldering Effect (On-Preheat)	Appearance	No marked defect	First the capacitor should be stored at 120 ⁺⁰ / ₋₅ °C for 60 ⁺⁰ / ₋₅ sec. Then, as in figure, the lead wires should be immersed solder of 260 ⁺⁰ / ₋₅ °C up to 1.5 to 2.0mm from the root of terminal for 7.5 ⁺⁰ / ₋₁ sec. Post-treatment: Capacitor should be stored for 24±2 hrs. at room condition*.											
		Capacitance Change	Within ±10%												
		Dielectric Strength (Between Lead Wires)	No failure												
9	Humidity (Under Steady State)	Appearance	No marked defect	Set the capacitor for 240±8 hrs. at 40±2°C in 90 to 95% relative humidity. Post-treatment: Capacitor should be stored for 1 to 2 hrs. at room condition*.											
		Capacitance Change	Within ±10%												
		D.F.	<table border="1"> <tr> <td>ZM</td> <td>1.5% max.</td> </tr> <tr> <td>B</td> <td>4.0% max.</td> </tr> </table>		ZM	1.5% max.	B	4.0% max.							
		ZM	1.5% max.												
		B	4.0% max.												
I.R.	5000MΩ min.														
Dielectric Strength (Between Lead Wires)	No failure														

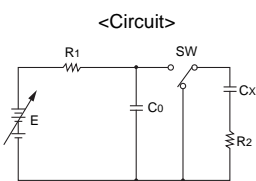
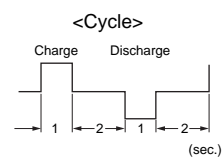
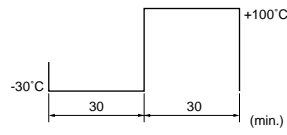



(Note) Tests for Dielectric Strength (Between Lead Wires), Charge Discharge Test, Humidity, Temperature Cycle and Life should be performed with specimens having molded resin (MR1023C: made by Murata) extending over 3mm on all the surface.

* "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

Continued on the following page.

Continued from the preceding page.

No.	Item	Specifications	Test Method	
10	Life	Appearance	No marked defect	
		Capacitance Change	Within $\pm 10\%$	
		D.F.	ZM	1.5% max.
			B	4.0% max.
		I.R.	5000M Ω min.	
Dielectric Strength (Between Lead Wires)	No failure			
Apply a DC voltage of 125% of the rated voltage for 1000 $^{+48}_0$ hrs. in silicon oil at 100 $\pm 2^\circ\text{C}$. Post-treatment: Capacitor should be stored for 24 ± 2 hrs. at room condition*. (Charge/Discharge current $\leq 50\text{mA}$)				
11	Charge Discharge Test	Appearance	No marked defect	
		Capacitance Change	Within $\pm 10\%$	
		D.F.	ZM	1.5% max.
			B	4.0% max.
		I.R.	5000M Ω min.	
Dielectric Strength (Between Lead Wires)	No failure			
Charge discharge test should be measured in the following test circuit and cycle. Applied voltage: Rated voltage Cycle time: 20000 cycle Post-treatment: Capacitor should be stored for 4 hrs. at room condition*.				
		 		
<p>Cx: specimen R1: circuit protective resistor (300kΩ) C0: supplied energy for Cx. C0$\cong 10\text{C}_x$ R2: current limiting resistor (E/10Ω) E: direct-current voltage source</p>				
12	Temperature Cycle	Appearance	No marked defect	
		Capacitance Change	Within $\pm 10\%$	
		D.F.	ZM	1.5% max.
			B	4.0% max.
		I.R.	5000M Ω min.	
Dielectric Strength (Between Lead Wires)	No failure			
Temperature cycle should be measured in the following test. Cycle time: 5 cycle Post-treatment: Capacitor should be stored for 4 hrs. at room condition*.				
				
13	Strength of Lead	Pull	Lead wire should not be cut off. Capacitor should not be broken.	
		Bending		
As shown in the figure at right, fix the body of the capacitor and apply a tensile weight gradually to each lead wire in the radial direction of the capacitor up to 10N and keep it for 10 ± 1 sec. 				
Each lead wire should be subjected to 5N of weight and bent 90° at the point of egress, in one direction, then returned to its original position and bent 90° in the opposite direction at the rate of one bend in 2 to 3 sec.				
14	Solderability of Leads	Lead wire should be soldered with uniform coating on the axial direction over $\frac{3}{4}$ of the circumferential direction.	The lead wire of a capacitor should be dipped into a 25% ethanol solution of rosin and then into molten solder for 2 ± 0.5 sec. In both cases the depth of dipping is up to about 1.5 to 2.0mm from the root of lead wires. Temp. of solder: Lead Free Solder (Sn-3Ag-0.5Cu) 245 $\pm 5^\circ\text{C}$ H63 Eutectic Solder 235 $\pm 5^\circ\text{C}$	

(Note) Tests for Dielectric Strength (Between Lead Wires), Charge Discharge Test, Humidity, Temperature Cycle and Life should be performed with specimens having molded resin (MR1023C: made by Murata) extending over 3mm on all the surface.

* "room condition" Temperature: 15 to 35 $^\circ\text{C}$, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa