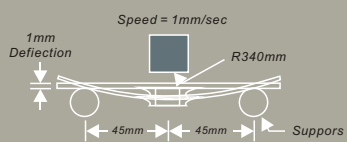


## IEC/EIA Test Criteria

Test item	Test conditions	Specifications															
Operating Temperature		NPO : -55°C~+125°C X7R : -55°C~+125°C X5R : -55°C~+85°C Y5V : -30°C~+85°C Z5U : +10°C~+85°C															
Capacitance	NPO : $\leq 1000\text{pF}$ , $F=1\text{MHz}$ , $V=1.0 \pm 0.2V_{\text{rms}}$ >1000pF, $F=1\text{KHz}$ , $V=1.0 \pm 0.2V_{\text{rms}}$ X7R/X5R : $F=1\text{KHz}$ , $V=1.0 \pm 0.2V_{\text{rms}}$ Z5U : $F=1\text{KHz}$ , $V=1.0 \pm 0.2V_{\text{rms}}$ Y5V : $F=1\text{KHz}$ , $V=1.0 \pm 0.2V_{\text{rms}}$	Within specified tolerance															
Dissipation Factor	same condition as Capacitance	NPO : $\text{Cap.} \geq 30\text{pF}$ , $Q \geq 1000$ $\text{Cap.} \leq 30\text{pF}$ , $Q \geq 400+20C$ X7R/X5R : Rate Voltage $\geq 25V : \leq 2.5\%$ Rate Voltage 16V : $\leq 3.5\%$ Rate Voltage 10V : $\leq 5.0\%$ Rate Voltage 6.3V : $\leq 7.0\%$ Y5V/Z5U : Rate Voltage $\leq 10V : \leq 12.5\%$ Rate Voltage 16V : $\leq 9\%$ Rate Voltage 25V : $\leq 7\%$ Rate Voltage $\geq 50V : \leq 5\%$															
Withstanding Voltage	Applying 2.5times of the rated voltage and less then 5secs.The charge and discharge current is within 50mA.	No mechanical breakdown															
Insulation Resistance	Applying the rated voltage for 1 minute.	More then either 100G $\Omega$ or 500M $\Omega$ $\mu\text{F}$ .whichever value is smaller.															
Bending Strength	Bending 1mm at a rate of 1mm/s radius jig. 340mm. 	No visual damage NPO : $\Delta C/C : \pm 0.5\%$ or $\pm 0.5\text{pF}$ max whichever is larger X7R/X5R : $\Delta C/C : \pm 10\%$ Y5V/Z5U : $\Delta C/C : \pm 20\%$															
Resistance to soldering heat	260 $\pm$ 5°C for 10 $\pm$ 0.5S in a Statics solder bath.  Measurement to be made after keeping at room temp. for 24 $\pm$ 2hrs of class I part; for 48 $\pm$ 2hrs of class II part.	$\Delta C/C$ : NPO $\pm 2.5\%$ or 0.25pF max. X7R/X5R $\pm 7.5\%$ Y5V/Z5U : $\pm 20\%$  Q(D.F);I.R;Withstanding Voltage: To meet initial requirement. No remarkable damage															
Solderability	Soldering temperature :235 $\pm$ 5°C Immersion time : 2 $\pm$ 1sec.	At least 95% of the termination on each end of the ceramic chip should be covered with new solder.															
Temperature cycle	Perform the five cycles according to the four heat treatments listed in the following table. <table border="1" data-bbox="421 1681 801 1881"> <thead> <tr> <th>Step</th> <th>Temperature</th> <th>時間</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Min. operating temp <math>\pm 3^\circ\text{C}</math></td> <td>30<math>\pm</math> 3min</td> </tr> <tr> <td>2</td> <td>25<math>\pm 2^\circ\text{C}</math></td> <td>2~3min</td> </tr> <tr> <td>3</td> <td>Min. operating temp <math>\pm 3^\circ\text{C}</math></td> <td>30<math>\pm</math> 3min</td> </tr> <tr> <td>4</td> <td>25<math>\pm 2^\circ\text{C}</math></td> <td>2~3min</td> </tr> </tbody> </table> Measurement to be made after keeping at room temp. for 24 $\pm$ 2hrs of class I part; for 48 $\pm$ 2hrs of class II part.	Step	Temperature	時間	1	Min. operating temp $\pm 3^\circ\text{C}$	30 $\pm$ 3min	2	25 $\pm 2^\circ\text{C}$	2~3min	3	Min. operating temp $\pm 3^\circ\text{C}$	30 $\pm$ 3min	4	25 $\pm 2^\circ\text{C}$	2~3min	$\Delta C/C$ : NPO : $\pm 2.5\%$ or 0.25pF max. X7R/X5R : $\pm 7.5\%$ Y5V/Z5U : $\pm 20\%$  Q(D.F);I.R;Withstanding Voltage: To meet initial requirement. No remarkable damage
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