



EDEN TECHNOLOGY CORPORATION

APPROVAL SHEET

for
Multilayer Ceramic Capacitor

For Customer: _____

Approval No.: _____

Issue Date: _____

Products for Approval: _____

Prepared by: _____

Authorized by: _____

Customer Comment/Approval:



EDEN TECHNOLOGY CORPORATION

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MLCC PART NUMBER CODES

How to Order - NEW

CC	05	N	102	J	5	H	N	T
Type	Size	Dielectric	Capacitance	Tolerance	Voltage	Thickness	Termination	Packing
CC= Chip Capacitor	02=0402 03=0603 05=0805	N=NPO (COG)	Two significant digits followed by no. of zeros. And	T=±0.03pF A=±0.05pF B=±0.10pF	1 = 6.3V 2 = 10V 3 = 16V	S=0.50±0.05mm (0402)	N=Ag/Ni/SnPb T= Lead-free	B=Bulk Tape on Reel :
HC= High Voltage Capacitor (Vr ≥ 500V)	06=1206 08=1808 0A=1210 0C=1812	B=X7R D=X5R Y=Y5V	R is in place of decimal point. e.g. : 4R7=4.7pF 104=10 × 10 ⁴ pF	C=±0.25pF D=±0.50pF F=±1.0% G=±2.0% J=±5.0% K=±10%	4 = 25V 5 = 50V 7 = 100V 8 = 200V 9 = 250V A = 500V	S=0.55±0.05mm (others) A=0.60±0.10mm M=0.70±0.10mm P=0.80±0.12mm H=0.85±0.15mm C=0.95±0.10mm		1= 1K pcs 2= 2K pcs 3= 3K pcs T= 4K pcs 8= 8K pcs U= 10K pcs R= 15K pcs W= 20K pcs
RF= Microwave Capacitor			=100000pF =100nF =0.1μF	M=±20% Z=-20~+80%	C = 1KV D = 2KV E = 3KV F = 4KV	X=1.25±0.20mm F=1.50±0.20mm L=1.60±0.25mm Z=2.00±0.20mm		

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SPECIFICATION AND TEST METHOD

No.	Item	Test Condition	Requirements																																																
1.	Visual & Mechanical		*No remarkable defect. *Dimensions to conform to individual specification sheet.																																																
2.	Capacitance	Class I : (NP0)	*Shall not exceed the limits given in the detailed spec.																																																
3.	Q/ D.F. (Dissipation Factor)	$\leq 1000\text{pF}$ 1.0 \pm 0.2Vrms , 1MHz \pm 10% $> 1000\text{pF}$ 1.0 \pm 0.2Vrms , 1KHz \pm 10% For Microwave NPO, 1 \pm 100m \pm 20Vrms, 1 \pm 0.1GHz Class II : (X7R,X5R,Y5V) $C \leq 10\mu\text{F}$, 1.0 \pm 0.2Vrms , 1KHz \pm 10% $C > 10\mu\text{F}$, 0.5 \pm 0.2Vrms , 120Hz \pm 20%	NP0 : More than 30pF: $Q \geq 1000$; Less than 30pF: $Q \geq 400+20C$ For Microwave NPO, refer to page 15 for Q specification. X7R, X5R : <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Rated volt</th> <th>D.F. \leq</th> <th colspan="2">Exception of D.F. \leq</th> </tr> </thead> <tbody> <tr> <td>$\geq 50\text{V}$</td> <td>2.5%</td> <td>3%</td> <td>0603 $\geq 0.047\mu\text{F}$, 0805 $\geq 0.18\mu\text{F}$, 1206 $\geq 0.47\mu\text{F}$</td> </tr> <tr> <td>25V</td> <td>3.5%</td> <td>5%</td> <td>0805 $\geq 1\mu\text{F}$</td> </tr> <tr> <td>16V</td> <td>3.5%</td> <td>5%</td> <td>0402 $\geq 0.033\mu\text{F}$, 0603 $\geq 0.15\mu\text{F}$, 0805 $\geq 0.68\mu\text{F}$, 1206 $\geq 2.2\mu\text{F}$</td> </tr> <tr> <td>10V</td> <td>5.0%</td> <td>---</td> <td>---</td> </tr> <tr> <td>6.3V</td> <td>7.5%</td> <td>---</td> <td>---</td> </tr> </tbody> </table> Y5V : <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Rated volt</th> <th>D.F. \leq</th> <th colspan="2">Exception of D.F. \leq</th> </tr> </thead> <tbody> <tr> <td>$\geq 50\text{V}$</td> <td>5.0%</td> <td>---</td> <td>---</td> </tr> <tr> <td>25V</td> <td>5.0%</td> <td>7%</td> <td>0603 $\geq 0.1\mu\text{F}$; 0805 $\geq 0.33\mu\text{F}$; 1206 $\geq 1\mu\text{F}$</td> </tr> <tr> <td>16V(C$<$1.0μF)</td> <td>7.0%</td> <td>9%</td> <td>0402 $\geq 0.068\mu\text{F}$</td> </tr> <tr> <td>16V(C\geq1.0μF)</td> <td>9.0%</td> <td>---</td> <td>---</td> </tr> <tr> <td>$\leq 10\text{V}$</td> <td>12.5%</td> <td>---</td> <td>---</td> </tr> </tbody> </table>	Rated volt	D.F. \leq	Exception of D.F. \leq		$\geq 50\text{V}$	2.5%	3%	0603 $\geq 0.047\mu\text{F}$, 0805 $\geq 0.18\mu\text{F}$, 1206 $\geq 0.47\mu\text{F}$	25V	3.5%	5%	0805 $\geq 1\mu\text{F}$	16V	3.5%	5%	0402 $\geq 0.033\mu\text{F}$, 0603 $\geq 0.15\mu\text{F}$, 0805 $\geq 0.68\mu\text{F}$, 1206 $\geq 2.2\mu\text{F}$	10V	5.0%	---	---	6.3V	7.5%	---	---	Rated volt	D.F. \leq	Exception of D.F. \leq		$\geq 50\text{V}$	5.0%	---	---	25V	5.0%	7%	0603 $\geq 0.1\mu\text{F}$; 0805 $\geq 0.33\mu\text{F}$; 1206 $\geq 1\mu\text{F}$	16V(C $<$ 1.0 μF)	7.0%	9%	0402 $\geq 0.068\mu\text{F}$	16V(C \geq 1.0 μF)	9.0%	---	---	$\leq 10\text{V}$	12.5%	---	---
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4.	Dielectric Strength	*To apply voltage($\leq 50\text{V}$) 250%. *Duration : 1 to 5 sec. *Charge & discharge current less than 50mA. *To apply voltage : 100V \geq 3 times V DC 200V ~ 300V \geq 2 times V DC 500V ~ 999V \geq 1.5 times V DC 1000V ~ 4000V \geq 1.2 times V DC *Cut-off, set at 10mA *TEST= 15 sec.	*No evidence of damage or flash over during test.																																																
5.	Insulation Resistance	To apply rated voltage for max. 120sec. Rated Voltage: 100V ~ 500V To apply rated voltage Rated Voltage: > 500V To apply 500V*60sec	10G Ω MIN. or 500 Ω -F MIN. , whichever is smaller. >10G Ω >10G Ω																																																
6.	Temperature Coefficient	With no electrical load. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>T.C.</th> <th>Operating Temp</th> </tr> </thead> <tbody> <tr> <td>NP0</td> <td>-55 ~ 125$^{\circ}\text{C}$ at 25$^{\circ}\text{C}$</td> </tr> <tr> <td>X7R</td> <td>-55 ~ 125$^{\circ}\text{C}$ at 25$^{\circ}\text{C}$</td> </tr> <tr> <td>X5R</td> <td>-55 ~ 85$^{\circ}\text{C}$ at 25$^{\circ}\text{C}$</td> </tr> <tr> <td>Y5V</td> <td>-25 ~ 85$^{\circ}\text{C}$ at 20$^{\circ}\text{C}$</td> </tr> </tbody> </table>	T.C.	Operating Temp	NP0	-55 ~ 125 $^{\circ}\text{C}$ at 25 $^{\circ}\text{C}$	X7R	-55 ~ 125 $^{\circ}\text{C}$ at 25 $^{\circ}\text{C}$	X5R	-55 ~ 85 $^{\circ}\text{C}$ at 25 $^{\circ}\text{C}$	Y5V	-25 ~ 85 $^{\circ}\text{C}$ at 20 $^{\circ}\text{C}$	<table border="1" style="margin-left: 20px;"> <thead> <tr> <th>T.C.</th> <th>Capacitance Change</th> </tr> </thead> <tbody> <tr> <td>NP0</td> <td>Within $\pm 30\text{ppm}/^{\circ}\text{C}$</td> </tr> <tr> <td>X7R</td> <td>Within $\pm 15\%$</td> </tr> <tr> <td>X5R</td> <td>Within $\pm 15\%$</td> </tr> <tr> <td>Y5V</td> <td>Within +30% / -80%</td> </tr> </tbody> </table>	T.C.	Capacitance Change	NP0	Within $\pm 30\text{ppm}/^{\circ}\text{C}$	X7R	Within $\pm 15\%$	X5R	Within $\pm 15\%$	Y5V	Within +30% / -80%																												
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7.	Adhesive Strength of Termination	*Pressurizing force : 5N(≤ 0603) and 10N(> 0603) *Test time : 10 \pm 1 sec (Appendix 2)	*No remarkable damage or removal of the terminations.																																																
8.	Vibration Resistance	*Vibration frequency : 10~55 Hz/min. *Total amplitude : 1.5mm *Test time : 6 hrs.(Two hrs each in three mutually perpendicular directions.)	*No remarkable damage. *Cap change & Q/D.F. : To meet initial spec.																																																
9.	Solderability	*Solder temperature : 235 \pm 5 $^{\circ}\text{C}$ *Dipping time : 2 \pm 0.5 sec	95%MIN. coverage of all metalized area.																																																

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10.	Bending Test	<p>*The middle part of substrate shall be pressurized by means of the pressurizing rod at a rate of about 1 mm per second until the deflection becomes 1 mm and then the pressure shall be maintained for 5±1 sec. (Appendix 1) *Measurement to be made after keeping at room temp. for 24±2 hrs</p>	<p>*No remarkable damage. *Cap change : NP0 : ±5.0%MAX. or ±0.5pF MAX. , whichever is larger. X7R, X5R : ≤±12.5% Y5V : ≤±30% (This capacitance change means the change of capacitance under specified flexure of substrate from the capacitance measured before the test.)</p>																																				
11.	Resistance to Soldering Heat	<p>*Solder temperature : 270±5°C *Dipping time : 10±1 sec *Preheating : 120 to 150°C for 1 minute before immerse the capacitor in a eutectic solder. *Before initial measurement (Class II only) : Perform 150+0/-10°C for 1 hr and then set for 48±4 hrs at room temp. *Measurement to be made after keeping at room temp. for 24±2 hrs.(Class I) or 48±4 hrs.(Class II).</p>	<p>*No remarkable damage. *Cap change : NP0 : ±2.5%MAX. or ±0.25pF MAX. , whichever is larger. X7R, X5R : < ±7.5% Y5V : < ±20% *Q/D.F. & I.R. & Dielectric strength : To meet initial requirements. *25%MAX. leaching on each edge.</p>																																				
12.	Temperature Cycle	<p>* Conduct the five cycles according to the temperatures and time.</p> <table border="1"> <thead> <tr> <th>Step</th> <th>Temp. (°C)</th> <th>Time (min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Min. Operating Temp. +0/-3</td> <td>30±3</td> </tr> <tr> <td>2</td> <td>Room Temp.</td> <td>2~3</td> </tr> <tr> <td>3</td> <td>Max. Operating Temp. +3/-0</td> <td>30±2</td> </tr> <tr> <td>4</td> <td>Room Temp.</td> <td>2~3</td> </tr> </tbody> </table> <p>*Before initial measurement (Class II only) : Perform 150+0/-10°C for 1 hr and then set for 48±4 hrs at room temp. *Measurement to be made after keeping at room temp. for 24±2 hrs.(Class I) or 48±4 hrs.(Class II).</p>	Step	Temp. (°C)	Time (min.)	1	Min. Operating Temp. +0/-3	30±3	2	Room Temp.	2~3	3	Max. Operating Temp. +3/-0	30±2	4	Room Temp.	2~3	<p>*No remarkable damage. *Cap change : NP0 : ±2.5%MAX. or ±0.25pF MAX. , whichever is larger. X7R, X5R : < ±7.5% Y5V : < ±20% *Q/D.F. & I.R. & Dielectric strength : To meet initial requirements.</p>																					
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3	Max. Operating Temp. +3/-0	30±2																																					
4	Room Temp.	2~3																																					
13.	Humidity (Damp Heat) Steady State	<p>*Test temp. : 40±2°C *Humidity : 90~95%RH *Test time : 500+24/-0hrs. *Measurement to be made after keeping at room temp. for 24±2 hrs.(Class I) or 48±4 hrs.(Class II).</p>	<p>*No remarkable damage. *Cap change : NP0 : ±5.0%MAX. or ±0.5pF MAX. , whichever is larger. X7R, X5R : < ±12.5% Y5V : < ±30% *Q/D.F. value: NP0 : More than 30pF Q≥350 10pF ≤C<30pF Q≥275+2.5C Less than 10pF Q≥200+10C X7R, X5R : <table border="1"> <thead> <tr> <th>Rated volt.</th> <th>D.F. ≤</th> <th>Exception of D.F. ≤</th> </tr> </thead> <tbody> <tr> <td>≥50V</td> <td>3.0%</td> <td>6%</td> </tr> <tr> <td>25V</td> <td>5.0%</td> <td>10%</td> </tr> <tr> <td>16V</td> <td>5.0%</td> <td>10%</td> </tr> <tr> <td>10V</td> <td>7.5%</td> <td>15%</td> </tr> <tr> <td>6.3V</td> <td>15.0%</td> <td>---</td> </tr> </tbody> </table> Y5V : <table border="1"> <thead> <tr> <th>Rated volt.</th> <th>D.F. ≤</th> <th>Exception of D.F. ≤</th> </tr> </thead> <tbody> <tr> <td>≥50V</td> <td>7.5%</td> <td>---</td> </tr> <tr> <td>25V</td> <td>7.5%</td> <td>10%</td> </tr> <tr> <td>16V(C<1.0μF)</td> <td>10%</td> <td>12.5%</td> </tr> <tr> <td>16V(C≥1.0μF)</td> <td>12.5%</td> <td>---</td> </tr> <tr> <td>≤10V</td> <td>15%</td> <td>---</td> </tr> </tbody> </table> </p>	Rated volt.	D.F. ≤	Exception of D.F. ≤	≥50V	3.0%	6%	25V	5.0%	10%	16V	5.0%	10%	10V	7.5%	15%	6.3V	15.0%	---	Rated volt.	D.F. ≤	Exception of D.F. ≤	≥50V	7.5%	---	25V	7.5%	10%	16V(C<1.0μF)	10%	12.5%	16V(C≥1.0μF)	12.5%	---	≤10V	15%	---
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14.	Humidity (Damp Heat) Load	*Test temp. : $40 \pm 2^{\circ}\text{C}$ *Humidity : 90~95%RH *Test time : 500+24/-0 hrs. *To apply voltage : rated voltage (Max. 500V) *Measurement to be made after keeping at room temp. for 24±2 hrs.(Class I) or 48±4 hrs.(Class II).	*No remarkable damage. *Cap change : NP0 : $\pm 7.5\%$ MAX. or $\pm 0.75\text{pF}$ MAX. , whichever is larger. X7R, X5R : $< \pm 12.5\%$ Y5V : $< \pm 30\%$ *Q/D.F. value: NP0 : $C \geq 30\text{pF}$ $Q \geq 200$; $C < 30\text{pF}$ $Q \geq 100+10/3C$ X7R, X5R : <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Rated volt.</th> <th colspan="2">D.F. \leq</th> <th colspan="2">Exception of D.F. \leq</th> </tr> </thead> <tbody> <tr> <td>$\geq 50\text{V}$</td> <td>3.0%</td> <td>6%</td> <td>0603 $\geq 0.047\mu\text{F}$, 0805 $\geq 0.18\mu\text{F}$, 1206 $\geq 0.47\mu\text{F}$</td> <td></td> </tr> <tr> <td>25V</td> <td>5.0%</td> <td>10%</td> <td>0805 $\geq 1\mu\text{F}$</td> <td></td> </tr> <tr> <td>16V</td> <td>5.0%</td> <td>10%</td> <td>0402 $\geq 0.033\mu\text{F}$, 0603 $\geq 0.15\mu\text{F}$, 0805 $\geq 0.68\mu\text{F}$, 1206 $\geq 2.2\mu\text{F}$</td> <td></td> </tr> <tr> <td>10V</td> <td>7.5%</td> <td>15%</td> <td>0402 $\geq 0.056\mu\text{F}$, 0603 $\geq 0.33\mu\text{F}$, 0805 $\geq 2.2\mu\text{F}$, 1206 $\geq 2.2\mu\text{F}$</td> <td></td> </tr> <tr> <td>6.3V</td> <td>15%</td> <td>---</td> <td>---</td> <td></td> </tr> </tbody> </table> Y5V : <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Rated volt.</th> <th colspan="2">D.F. \leq</th> <th colspan="2">Exception of D.F. \leq</th> </tr> </thead> <tbody> <tr> <td>$\geq 50\text{V}$</td> <td>7.5%</td> <td>---</td> <td>---</td> <td></td> </tr> <tr> <td>25V</td> <td>7.5%</td> <td>10%</td> <td>0603 $\geq 0.1\mu\text{F}$; 0805 $\geq 0.33\mu\text{F}$; 1206 $\geq 1\mu\text{F}$</td> <td></td> </tr> <tr> <td>16V(C < 1.0μF)</td> <td>10%</td> <td>12.5%</td> <td>0402 $\geq 0.068\mu\text{F}$</td> <td></td> </tr> <tr> <td>16V(C $\geq 1.0\mu\text{F}$)</td> <td>12.5%</td> <td>---</td> <td>---</td> <td></td> </tr> <tr> <td>$\leq 10\text{V}$</td> <td>15%</td> <td>---</td> <td>---</td> <td></td> </tr> </tbody> </table> *I.R. : 500MΩ MIN. or 25Ω-F MIN. , whichever is smaller.	Rated volt.	D.F. \leq		Exception of D.F. \leq		$\geq 50\text{V}$	3.0%	6%	0603 $\geq 0.047\mu\text{F}$, 0805 $\geq 0.18\mu\text{F}$, 1206 $\geq 0.47\mu\text{F}$		25V	5.0%	10%	0805 $\geq 1\mu\text{F}$		16V	5.0%	10%	0402 $\geq 0.033\mu\text{F}$, 0603 $\geq 0.15\mu\text{F}$, 0805 $\geq 0.68\mu\text{F}$, 1206 $\geq 2.2\mu\text{F}$		10V	7.5%	15%	0402 $\geq 0.056\mu\text{F}$, 0603 $\geq 0.33\mu\text{F}$, 0805 $\geq 2.2\mu\text{F}$, 1206 $\geq 2.2\mu\text{F}$		6.3V	15%	---	---		Rated volt.	D.F. \leq		Exception of D.F. \leq		$\geq 50\text{V}$	7.5%	---	---		25V	7.5%	10%	0603 $\geq 0.1\mu\text{F}$; 0805 $\geq 0.33\mu\text{F}$; 1206 $\geq 1\mu\text{F}$		16V(C < 1.0μF)	10%	12.5%	0402 $\geq 0.068\mu\text{F}$		16V(C $\geq 1.0\mu\text{F}$)	12.5%	---	---		$\leq 10\text{V}$	15%	---	---	
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10V	7.5%	15%	0402 $\geq 0.056\mu\text{F}$, 0603 $\geq 0.33\mu\text{F}$, 0805 $\geq 2.2\mu\text{F}$, 1206 $\geq 2.2\mu\text{F}$																																																												
6.3V	15%	---	---																																																												
Rated volt.	D.F. \leq		Exception of D.F. \leq																																																												
$\geq 50\text{V}$	7.5%	---	---																																																												
25V	7.5%	10%	0603 $\geq 0.1\mu\text{F}$; 0805 $\geq 0.33\mu\text{F}$; 1206 $\geq 1\mu\text{F}$																																																												
16V(C < 1.0μF)	10%	12.5%	0402 $\geq 0.068\mu\text{F}$																																																												
16V(C $\geq 1.0\mu\text{F}$)	12.5%	---	---																																																												
$\leq 10\text{V}$	15%	---	---																																																												
15.	High Temperature Load (Endurance)	*Test temp. : NP0, X7R : $125 \pm 3^{\circ}\text{C}$ X5R, Y5V : $85 \pm 3^{\circ}\text{C}$ *To apply voltage : (1) $V < 500\text{V}$: 200% of rated voltage. (2) $500\text{V} \leq V < 1000\text{V}$: 150% of rated voltage. (3) $V \geq 1000\text{V}$: 120% of rated voltage. (Max.4400V) *Test time : 1000+24/-0 hrs. *Measurement to be made after keeping at room temp. for 24±2 hrs.(Class I) or 48±4 hrs.(Class II).	*No remarkable damage. *Cap change : NP0 : $\pm 3.0\%$ MAX. or $\pm 0.3\text{pF}$ MAX. , whichever is larger. X7R, X5R : $< \pm 12.5\%$ Y5V : $< \pm 30\%$ *Q/D.F. value: NP0 : More than 30pF $Q \geq 350$ $10\text{pF} \leq C < 30\text{pF}$ $Q \geq 275+2.5C$ Less than 10pF $Q \geq 200+10C$ X7R, X5R : <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Rated vol.</th> <th colspan="2">D.F. \leq</th> <th colspan="2">Exception of D.F. \leq</th> </tr> </thead> <tbody> <tr> <td>$\geq 50\text{V}$</td> <td>3.0%</td> <td>6%</td> <td>0603 $\geq 0.047\mu\text{F}$, 0805 $\geq 0.18\mu\text{F}$, 1206 $\geq 0.47\mu\text{F}$</td> <td></td> </tr> <tr> <td>25V</td> <td>5.0%</td> <td>10%</td> <td>0805 $\geq 1\mu\text{F}$</td> <td></td> </tr> <tr> <td>16V</td> <td>5.0%</td> <td>10%</td> <td>0402 $\geq 0.033\mu\text{F}$, 0603 $\geq 0.15\mu\text{F}$, 0805 $\geq 0.68\mu\text{F}$, 1206 $\geq 2.2\mu\text{F}$</td> <td></td> </tr> <tr> <td>10V</td> <td>7.5%</td> <td>15%</td> <td>0402 $\geq 0.056\mu\text{F}$, 0603 $\geq 0.33\mu\text{F}$, 0805 $\geq 2.2\mu\text{F}$, 1206 $\geq 2.2\mu\text{F}$</td> <td></td> </tr> <tr> <td>6.3V</td> <td>15%</td> <td>---</td> <td>---</td> <td></td> </tr> </tbody> </table> Y5V : <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Rated vol.</th> <th colspan="2">D.F. \leq</th> <th colspan="2">Exception of D.F. \leq</th> </tr> </thead> <tbody> <tr> <td>$\geq 50\text{V}$</td> <td>7.5%</td> <td>---</td> <td>---</td> <td></td> </tr> <tr> <td>25V</td> <td>7.5%</td> <td>10%</td> <td>0603 $\geq 0.1\mu\text{F}$; 0805 $\geq 0.33\mu\text{F}$; 1206 $\geq 1\mu\text{F}$</td> <td></td> </tr> <tr> <td>16V(C < 1.0μF)</td> <td>10%</td> <td>12.5%</td> <td>0402 $\geq 0.068\mu\text{F}$</td> <td></td> </tr> <tr> <td>16V(C $\geq 1.0\mu\text{F}$)</td> <td>12.5%</td> <td>---</td> <td>---</td> <td></td> </tr> <tr> <td>$\leq 10\text{V}$</td> <td>15%</td> <td>---</td> <td>---</td> <td></td> </tr> </tbody> </table> *I.R. : 1GΩ MIN. or 50Ω-F MIN. , whichever is smaller.	Rated vol.	D.F. \leq		Exception of D.F. \leq		$\geq 50\text{V}$	3.0%	6%	0603 $\geq 0.047\mu\text{F}$, 0805 $\geq 0.18\mu\text{F}$, 1206 $\geq 0.47\mu\text{F}$		25V	5.0%	10%	0805 $\geq 1\mu\text{F}$		16V	5.0%	10%	0402 $\geq 0.033\mu\text{F}$, 0603 $\geq 0.15\mu\text{F}$, 0805 $\geq 0.68\mu\text{F}$, 1206 $\geq 2.2\mu\text{F}$		10V	7.5%	15%	0402 $\geq 0.056\mu\text{F}$, 0603 $\geq 0.33\mu\text{F}$, 0805 $\geq 2.2\mu\text{F}$, 1206 $\geq 2.2\mu\text{F}$		6.3V	15%	---	---		Rated vol.	D.F. \leq		Exception of D.F. \leq		$\geq 50\text{V}$	7.5%	---	---		25V	7.5%	10%	0603 $\geq 0.1\mu\text{F}$; 0805 $\geq 0.33\mu\text{F}$; 1206 $\geq 1\mu\text{F}$		16V(C < 1.0μF)	10%	12.5%	0402 $\geq 0.068\mu\text{F}$		16V(C $\geq 1.0\mu\text{F}$)	12.5%	---	---		$\leq 10\text{V}$	15%	---	---	
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■ Specification of particular production and up-to-date version and is in accordance with relevant datasheet.



EDEN TECHNOLOGY CORPORATION

Microwave NP0 Characteristics

Frequency Characteristic for 0402 series

Fig.1 Q vs. Frequency

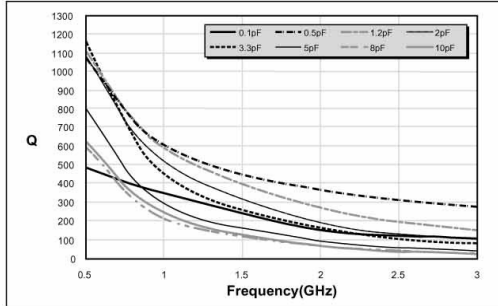


Fig.2-1 Rs(ESR) vs. Frequency

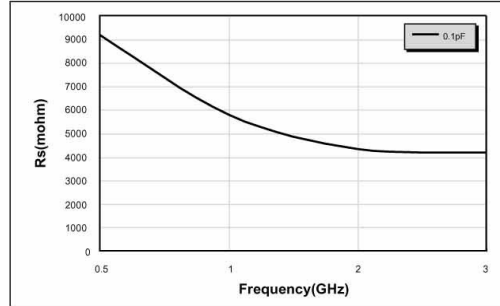


Fig.2-2 Rs(ESR) vs. Frequency

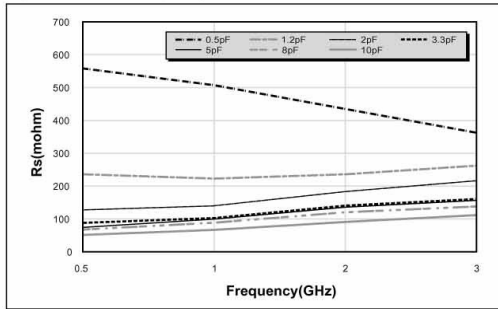


Fig.3 Capacitance vs. Frequency

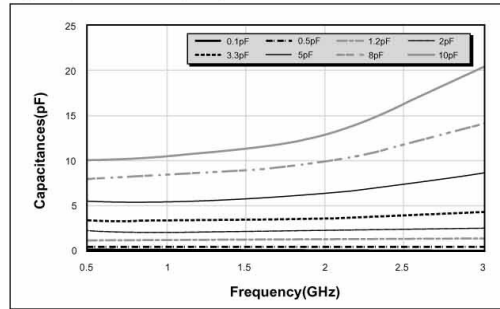


Fig.4-1 Impedance vs. Frequency

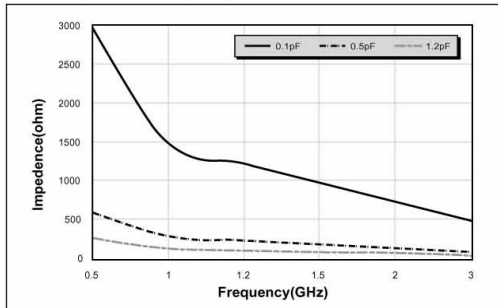


Fig.4-2 Impedance vs. Frequency

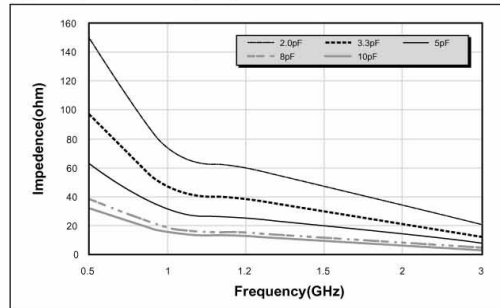


Fig.5 Bias to capacitance variation

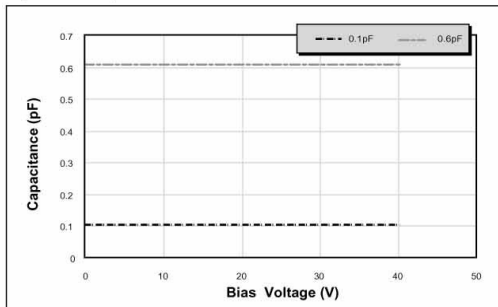
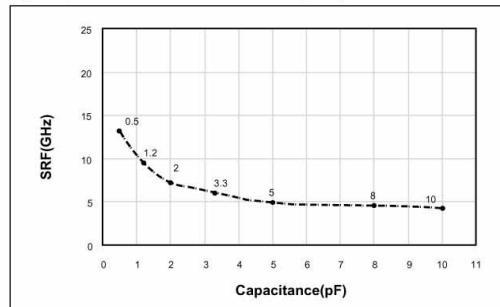


Fig.6 Capacitor's SRF(Series resonance frequency)



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EDEN TECHNOLOGY CORPORATION

■ Microwave NP0 Characteristics

Fig.7 Z on Smith Chart—S11

Fig.7-1 RF02NR02—0.2pF

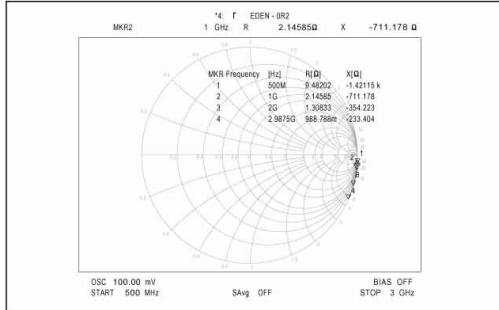


Fig.7-2 RF02N1R0—1.0pF

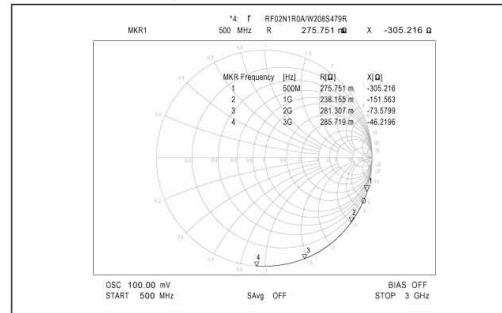


Fig.7 Z on Smith Chart—S11

Fig.7-3 RF02N7R5—7.5pF

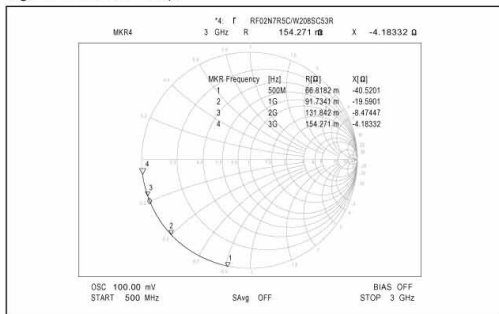
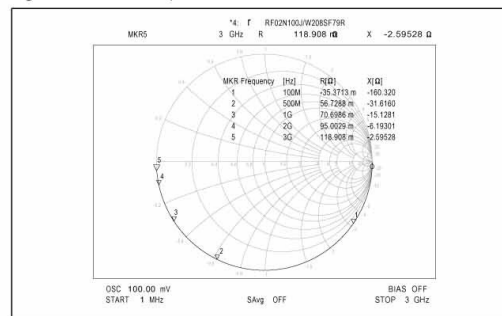


Fig.7-4 RF02N100—10pF



Measuring OSC level : 100 mV rms

Measured by Agilent E4991A &16197A

All devices operation temperature range : -55°C ~ +125°C

Temperature coefficient : ±125 ppm Max.

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Microwave NP0 Characteristics

Frequency Characteristic for 0603 series

Fig.1 Q vs. Frequency

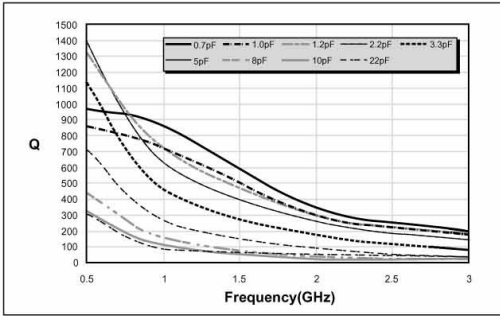


Fig.2 Rs(ESR) vs. Frequency

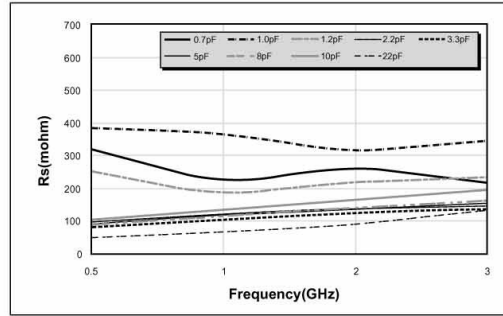


Fig.3 Capacitance vs. Frequency

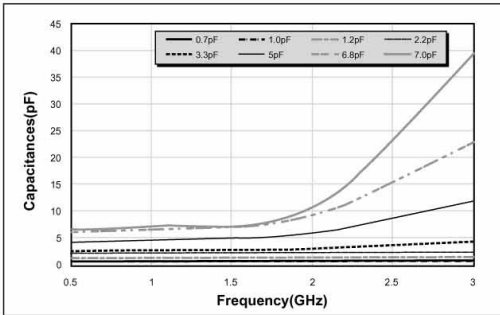


Fig.4 Impedance vs. Frequency

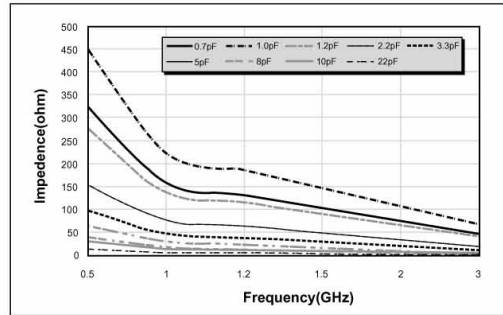


Fig.5 Capacitor's SRF(Series resonance frequency)

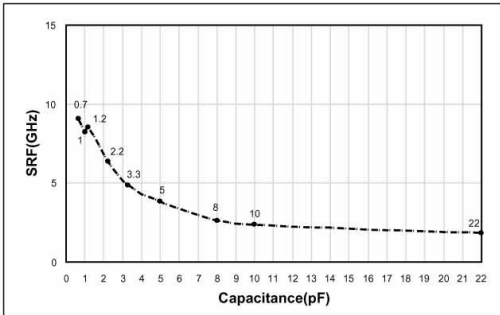


Fig.6 Z on Smith Chart—S11

Fig.6-1 RF02N1R0—1.0pF

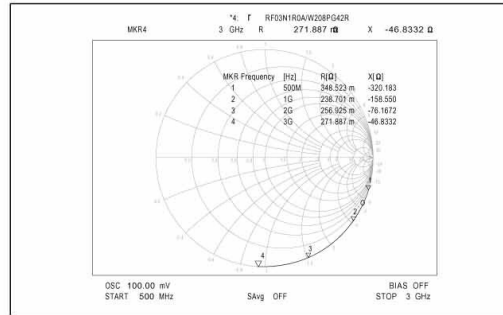
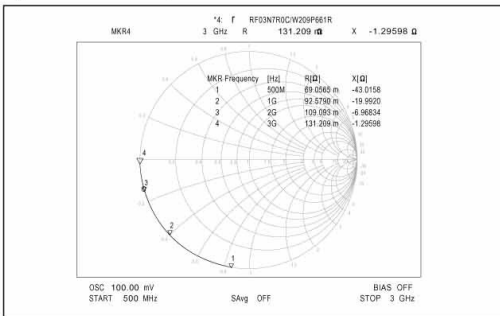
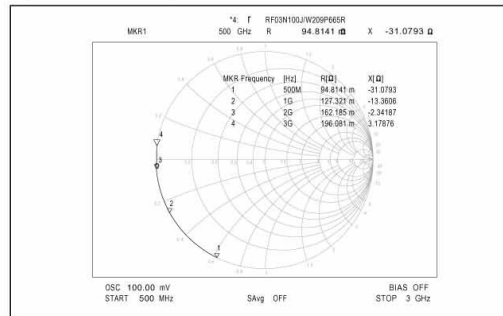


Fig.6-2 RF02N7R0—7.0pF



Measuring OSC level: 100 mV rms
Measured by Agilent E4991A &16197A

Fig.6-3 RF02N100—10pF



All devices operation temperature range : -55°C ~ +125°C
Temperature coefficient : ±125 ppm Max.

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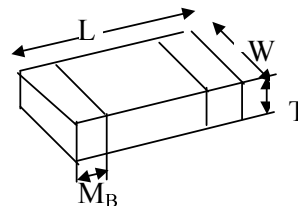


EDEN TECHNOLOGY CORPORATION

DIMENSION SPECIFICATION

Unit: mm

Size	Length	Width	Thickness / Symbol		M _B
0402	1.00±0.05	0.50±0.05	0.50±0.05	S	0.25±0.10
0603	1.60±0.15	0.80+0.15/-0.12	0.80+0.15/-0.12	P	0.25~0.60
0805	2.00±0.20	1.25±0.20	0.60±0.10	A	0.50±0.20
			0.70±0.10	M	
			0.85±0.15	H	
			1.25±0.20	X	
1206	3.20±0.20	1.60±0.20	0.70±0.10	M	0.55±0.25
			0.85±0.15	H	
			0.95±0.10	C	
			1.25±0.20	X	
			3.20+0.3/-0.10	1.60+0.3/-0.10	
1210	3.20±0.30	2.50±0.20	0.95±0.10	C	0.75±0.25
			1.25±0.20	X	
	3.20±0.40	2.50±0.30	1.60±0.25	L	
			2.00±0.20	Z	
1808	4.50±0.30	2.00±0.20	1.25±0.20	X	0.70±0.30
			1.50±0.20	F	
			2.00±0.20	Z	
1812	4.50±0.30	3.20±0.30	1.25±0.20	X	0.70±0.30
			1.50±0.20	F	
			2.00±0.20	Z	



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GENERAL NPO

DIELECTRIC			NPO																							
SIZE	ETA CAP		0402				0603				0805				1206				1210				1812			
VDCW	CODE		10V	18V	25V	50V	10V	18V	25V	50V	10V	18V	25V	50V	10V	18V	25V	50V	10V	18V	25V	50V	10V	18V	25V	50V
0.2pF	0R2		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
0.5	0R5		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
1	1R0		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
1.2	1R2		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
1.5	1R5		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
1.8	1R8		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
2.2	2R2		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
2.7	2R7		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
3.3	3R3		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
3.9	3R9		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
4.7	4R7		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
5.6	5R6		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
6.8	6R8		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
8.2	8R2		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
10pF	100		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
12	120		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
15	150		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
18	180		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M								
22	220		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
27	270		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
33	330		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
39	390		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
47	470		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
56	560		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
68	680		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
82	820		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
100pF	101		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
120	121		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
150	151		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
180	181		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
220	221		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
270	271		S	S	S	S	P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
330	331		S	S			P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
390	391		S	S			P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
470	471		S	S			P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
560	561						P	P	P	P	M	M	M	M	M	M	M	M	C	C	C	C				
680	681						P	P	P	P	H	H	H	H	M	M	M	M	C	C	C	C				
820	821						P	P	P	P	H	H	H	H	M	M	M	M	C	C	C	C				
1000pF	102						P	P	P	P	H	H	H	H	M	M	M	M	C	C	C	C	X	X	X	X
1200	122						P	P	P	P	H	H	H	H	M	M	M	M	C	C	C	C	X	X	X	X
1500	152						P	P	P	P	H	H	H	H	M	M	M	M	C	C	C	C	X	X	X	X
1800	182						P	P			H	H	H	H	M	M	M	M	C	C	C	C	X	X	X	X
2200	222						P	P			H	H	H	H	M	M	M	M	C	C	C	C	X	X	X	X
2700	272						P	P			H	H	H	H	M	M	M	M	C	C	C	C	X	X	X	X
3300	332						P	P			X	X	X	X	M	M	M	M	C	C	C	C	X	X	X	X
3900	392										X	X	X	X	H	H	H	H	C	C	C	C	X	X	X	X
4700	472										X	X	X	X	H	H	H	H	C	C	C	C	X	X	X	X
5600	562										X	X			H	H	H	H	C	C	C	C	X	X	X	X
6800	682										X	X			H	H	H	H	C	C	C	C	X	X	X	X
8200	822										X	X			X	X	X	X	C	C	C	C	X	X	X	X
0.01uF	103										X	X			X	X	X	X	C	C	C	C	X	X	X	X
.012	123										X	X			X	X			C	C	X	X	X	X	X	X
.015	153														X	X			C	C	X	X	X	X	X	X
.018	183														X	X			C	C			X	X	X	X
.022	223														X	X			C	C			X	X	X	X
.027	273														X	X			C	C			X	X	X	X
.033	333														X	X			C	C			X	X	X	X
.039	393														L	L			C	C			X	X	X	X
.047	473																		C	X			X	X	X	X
.056	563																		X	X			X	X	X	X
.068	683																						X	X	X	X
.082	823																						X	X	X	X
0.1	104																						X	X	X	X

* Other size , thickness , capacitance , and voltage are available upon customer's request.

■ [Table of Tape and Reel] : Gray area means reflow soldering only.

size unit : inch(mm)	0402(1005)	0603(1608)	0805(2012)	1206(3216)	1210(3225)	1808(4520)	1812(4532)
S=0.50±0.05	PAPER 10Kp/REEL	—	—	—	—	—	—
A=0.60±0.1	—	—	PAPER 4Kp/REEL	—	—	—	—
P=0.80±0.12	—	PAPER 4Kp/REEL	—	—	—	—	—
M=0.70±0.10	—	—	PAPER 4Kp/REEL	PAPER 4Kp/REEL	—	—	—
H=0.85±0.15	—	—	PAPER 4Kp/REEL	PAPER 4Kp/REEL	PAPER 4Kp/REEL	—	—
C=0.95±0.10	—	—	—	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	—	—
X=1.25±0.20	—	—	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	PLASTIC 2Kp/REEL	PLASTIC 1Kp/REEL
F=1.50±0.20	—	—	—	—	—	—	PLASTIC 1Kp/REEL
L=1.60±0.20	—	—	—	PLASTIC 2Kp/REEL	PLASTIC 2Kp/REEL	—	—
Z=2.00±0.20	—	—	—	—	PLASTIC 2Kp/REEL	PLASTIC 2Kp/REEL	PLASTIC 1Kp/REEL

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EDEN TECHNOLOGY CORPORATION

MICROWAVE NPO

0402				0603			
Capacitance (pF)	Part Number code	Capacitance Tolerance	Q Value (min.) @ 1GHz	Capacitance (pF)	Part Number code	Capacitance Tolerance	Q Value (min.) @ 1GHz
0.1	RF02NR10□5SNU	±0.03/±0.05 pF	300	0.4	RF03NR40□5PNT	±0.03/±0.05 pF	300
0.15	RF02NR15□5SNU	±0.03/±0.05 pF	300	0.5	RF03NR50□5PNT	±0.03/±0.05 pF	300
0.2	RF02NR20□5SNU	±0.03/±0.05 pF	300	0.6	RF03NR60□5PNT	±0.05/±0.10 pF	300
0.25	RF02NR25□5SNU	±0.03/±0.05 pF	300	0.7	RF03NR70□5PNT	±0.05/±0.10 pF	300
0.3	RF02NR30□5SNU	±0.03/±0.05 pF	300	0.75	RF03NR75□5PNT	±0.05/±0.10 pF	300
0.35	RF02NR35□5SNU	±0.03/±0.05 pF	300	0.8	RF03NR80□5PNT	±0.05/±0.10 pF	300
0.4	RF02NR40□5SNU	±0.03/±0.05 pF	300	0.9	RF03NR90□5PNT	±0.05/±0.10 pF	300
0.45	RF02NR45□5SNU	±0.03/±0.05 pF	300	1	RF03N1R0□5PNT	±0.05/±0.10 pF	300
0.5	RF02NR50□5SNU	±0.05/±0.10 pF	300	1.2	RF03N1R2□5PNT	±0.05/±0.10 pF	250
0.55	RF02NR55□5SNU	±0.05/±0.10 pF	300	1.5	RF03N1R5□5PNT	±0.05/±0.10 pF	250
0.6	RF02NR60□5SNU	±0.05/±0.10 pF	300	1.8	RF03N1R8□5PNT	±0.05/±0.10 pF	200
0.65	RF02NR65□5SNU	±0.05/±0.10 pF	300	2	RF03N2R0□5PNT	±0.05/±0.10 pF	100
0.7	RF02NR70□5SNU	±0.05/±0.10 pF	300	2.2	RF03N2R2□5PNT	±0.10/±0.25 pF	100
0.75	RF02NR75□5SNU	±0.05/±0.10 pF	300	2.4	RF03N2R4□5PNT	±0.10/±0.25 pF	100
0.8	RF02NR80□5SNU	±0.05/±0.10 pF	300	2.7	RF03N2R7□5PNT	±0.10/±0.25 pF	100
0.9	RF02NR90□5SNU	±0.05/±0.10 pF	300	3	RF03N3R0□5PNT	±0.10/±0.25 pF	100
1	RF02N1R0□5SNU	±0.05/±0.10 pF	300	3.3	RF03N3R3□5PNT	±0.10/±0.25 pF	100
1.2	RF02N1R2□5SNU	±0.05/±0.10 pF	250	3.6	RF03N3R6□5PNT	±0.10/±0.25 pF	100
1.5	RF02N1R5□5SNU	±0.05/±0.10 pF	250	3.9	RF03N3R9□5PNT	±0.10/±0.25 pF	100
1.8	RF02N1R8□5SNU	±0.05/±0.10 pF	200	4	RF03N4R0□5PNT	±0.10/±0.25 pF	100
2	RF02N2R0□5SNU	±0.05/±0.10 pF	200	4.3	RF03N4R3□5PNT	±0.10/±0.25 pF	100
2.2	RF02N2R2□5SNU	±0.10/±0.25pF	100	4.7	RF03N4R7□5PNT	±0.10/±0.25 pF	100
2.4	RF02N2R4□5SNU	±0.10/±0.25pF	100	5	RF03N5R0□5PNT	±0.10/±0.25 pF	80
2.7	RF02N2R7□5SNU	±0.10/±0.25pF	100	5.1	RF03N5R1□5PNT	±0.10/±0.25/±0.50pF	80
3	RF02N3R0□5SNU	±0.10/±0.25pF	100	5.6	RF03N5R6□5PNT	±0.10/±0.25/±0.50pF	80
3.3	RF02N3R3□5SNU	±0.10/±0.25pF	100	6	RF03N6R0□5PNT	±0.10/±0.25/±0.50pF	80
3.6	RF02N3R6□5SNU	±0.10/±0.25pF	100	6.2	RF03N6R2□5PNT	±0.10/±0.25/±0.50pF	80
3.9	RF02N3R9□5SNU	±0.10/±0.25pF	100	6.8	RF03N6R8□5PNT	±0.10/±0.25/±0.50pF	80
4	RF02N4R0□5SNU	±0.10/±0.25pF	100	7	RF03N7R0□5PNT	±0.10/±0.25/±0.50pF	80
4.3	RF02N4R3□5SNU	±0.10/±0.25pF	100	7.5	RF03N7R5□5PNT	±0.10/±0.25/±0.50pF	80
4.7	RF02N4R7□5SNU	±0.10/±0.25pF	100	8	RF03N8R0□5PNT	±0.10/±0.25/±0.50pF	80
5	RF02N5R0□5SNU	±0.10/±0.25pF	100	8.2	RF03N8R2□5PNT	±0.10/±0.25/±0.50pF	80
5.1	RF02N5R1□5SNU	±0.10/±0.25pF	80	9	RF03N9R0□5PNT	±0.10/±0.25/±0.50pF	80
5.6	RF02N5R6□5SNU	±0.10/±0.25pF	80	10	RF03N100□5PNT	±0.10/±0.25/±0.50pF	80
6	RF02N6R0□5SNU	±0.10/±0.25pF	80	12	RF03N120□5PNT	±0.10/±0.25/±0.50pF	70
6.2	RF02N6R2□5SNU	±0.10/±0.25pF	80	15	RF03N150□5PNT	±0.10/±0.25/±0.50pF	60
6.8	RF02N6R8□5SNU	±0.10/±0.25pF	80	18	RF03N180□5PNT	±0.10/±0.25/±0.50pF	50
7	RF02N7R0□5SNU	±0.10/±0.25pF	80	20	RF03N200□5PNT	±0.10/±0.25/±0.50pF	30
7.5	RF02N7R5□5SNU	±0.10/±0.25pF	80	22	RF03N220□5PNT	±0.10/±0.25/±0.50pF	30
8	RF02N8R0□5SNU	±0.10/±0.25pF	80				
8.2	RF02N8R2□5SNU	±0.10/±0.25pF	80				
9	RF02N9R0□5SNU	±0.10/±0.25pF	80				
9.1	RF02N9R1□5SNU	±0.10/±0.25pF	80				
10	RF02N100□5SNU	±0.10/±0.25/±	80				

■ [Table of Tape and Reel] : Gray area means reflow soldering only.

size unit : inch(mm)	0402(1005)	0603(1608)	0805(2012)	1206(3216)	1210(3225)	1808(4520)	1812(4532)
S=0.50±0.05	PAPER 10Kp/REEL	—	—	—	—	—	—
A=0.60±0.1	—	—	PAPER 4Kp/REEL	—	—	—	—
P=0.80±0.12	—	PAPER 4Kp/REEL	—	—	—	—	—
M=0.70±0.10	—	—	PAPER 4Kp/REEL	PAPER 4Kp/REEL	—	—	—
H=0.85±0.15	—	—	PAPER 4Kp/REEL	PAPER 4Kp/REEL	PAPER 4Kp/REEL	—	—
C=0.95±0.10	—	—	—	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	—	—
X=1.25±0.20	—	—	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	PLASTIC 2Kp/REEL	PLASTIC 1Kp/REEL
F=1.50±0.20	—	—	—	—	—	—	PLASTIC 1Kp/REEL
L=1.60±0.20	—	—	—	PLASTIC 2Kp/REEL	PLASTIC 2Kp/REEL	—	—
Z=2.00±0.20	—	—	—	—	PLASTIC 2Kp/REEL	PLASTIC 2Kp/REEL	PLASTIC 1Kp/REEL

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EDEN TECHNOLOGY CORPORATION

GENERAL X7R

DIELECTRIC		X7R																							
SIZE	EIA CAP	0402				0603				0805				1206				1210				1812			
VDCW	CODE	10V	16V	25V	50V	10V	16V	25V	50V	10V	16V	25V	50V	10V	16V	25V	50V	10V	16V	25V	50V	10V	16V	25V	50V
100pF	101	S	S	S	S	p	p	p	p	H	H	H	H												
120	121	S	S	S	S	p	p	p	p	H	H	H	H												
150	151	S	S	S	S	p	p	p	p	H	H	H	H	H ^A	H ^A	H ^A	H ^A								
180	181	S	S	S	S	p	p	p	p	H	H	H	H	H ^A	H ^A	H ^A	H ^A								
220	221	S	S	S	S	p	p	p	p	H	H	H	H	H ^A	H ^A	H ^A	H ^A								
270	271	S	S	S	S	p	p	p	p	H	H	H	H	H ^A	H ^A	H ^A	H ^A								
330	331	S	S	S	S	p	p	p	p	H	H	H	H	H ^A	H ^A	H ^A	H ^A								
390	391	S	S	S	S	p	p	p	p	H	H	H	H	H ^A	H ^A	H ^A	H ^A								
470	471	S	S	S	S	p	p	p	p	H	H	H	H	H ^A	H ^A	H ^A	H ^A								
560	561	S	S	S	S	p	p	p	p	H	H	H	H	H ^A	H ^A	H ^A	H ^A								
680	681	S	S	S	S	p	p	p	p	H	H	H	H	H ^A	H ^A	H ^A	H ^A								
820	821	S	S	S	S	p	p	p	p	H	H	H	H	H	H	H	H								
1000pF	102	S	S	S	S	p	p	p	p	H	H	H	H	H	H	H	H	C ^A	C ^A	C ^A	C ^A	X ^A	X ^A	X ^A	X ^A
1200	122	S	S	S	S	p	p	p	p	H	H	H	H	H	H	H	H	C ^A	C ^A	C ^A	C ^A	X ^A	X ^A	X ^A	X ^A
1500	152	S	S	S	S	p	p	p	p	H	H	H	H	H	H	H	H	C ^A	C ^A	C ^A	C ^A	X ^A	X ^A	X ^A	X ^A
1800	182	S	S	S	S	p	p	p	p	H	H	H	H	H	H	H	H	C ^A	C ^A	C ^A	C ^A	X ^A	X ^A	X ^A	X ^A
2200	222	S	S	S	S	p	p	p	p	H	H	H	H	H	H	H	H	C ^A	C ^A	C ^A	C ^A	X ^A	X ^A	X ^A	X ^A
2700	272	S	S	S	S	p	p	p	p	H	H	H	H	H	H	H	H	C ^A	C ^A	C ^A	C ^A	X ^A	X ^A	X ^A	X ^A
3300	332	S	S	S	S	p	p	p	p	H	H	H	H	H	H	H	H	C ^A	C ^A	C ^A	C ^A	X ^A	X ^A	X ^A	X ^A
3900	392	S	S	S	S	p	p	p	p	H	H	H	H	H	H	H	H	C ^A	C ^A	C ^A	C ^A	X ^A	X ^A	X ^A	X ^A
4700	472	S	S	S	S	p	p	p	p	H	H	H	H	H	H	H	H	C ^A	C ^A	C ^A	C ^A	X ^A	X ^A	X ^A	X ^A
5600	562	S	S	S	S	p	p	p	p	H	H	H	H	H	H	H	H	C ^A	C ^A	C ^A	C ^A	X ^A	X ^A	X ^A	X ^A
6800	682	S	S	S	S	p	p	p	p	H	H	H	H	H	H	H	H	C ^A	C ^A	C ^A	C ^A	X ^A	X ^A	X ^A	X ^A
8200	822	S	S	S	S	p	p	p	p	H	H	H	H	H	H	H	H	C	C	C	C	X ^A	X ^A	X ^A	X ^A
0.01μF	103	S	S	S		p	p	p	p	H	H	H	H	H	H	H	H	C	C	C	C	X ^A	X ^A	X ^A	X ^A
0.012	123	S	S			p	p	p	p	H	H	H	H	H	H	H	H	C	C	C	C	X ^A	X ^A	X ^A	X ^A
0.015	153	S	S			p	p	p	p	H	H	H	H	H	H	H	H	C	C	C	C	X ^A	X ^A	X ^A	X ^A
0.018	183	S	S			p	p	p	p	H	H	H	H	H	H	H	H	C	C	C	C	X ^A	X ^A	X ^A	X ^A
0.022	223	S	S			p	p	p	p	H	H	H	H	H	H	H	H	C	C	C	C	X ^A	X ^A	X ^A	X ^A
0.027	273	S				p	p	p	p	H	H	H	H	H	H	H	H	C	C	C	C	X ^A	X ^A	X ^A	X ^A
0.033	333	S				p	p	p	p	H	H	H	H	H	H	H	H	C	C	C	C	X ^A	X ^A	X ^A	X ^A
0.039	393	S				p	p	p	p	H	H	H	H	H	H	H	H	C	C	C	C	X ^A	X ^A	X ^A	X ^A
0.047	473	S				p	p	p	p	H	H	H	H	H	H	H	H	C	C	C	C	X ^A	X ^A	X ^A	X ^A
0.056	563					p	p	p	p	H	H	H	H	H	H	H	H	C	C	C	C	X ^A	X ^A	X ^A	X ^A
0.068	683					p	p	p	p	H	H	H	H	H	H	H	H	C	C	C	C	X ^A	X ^A	X ^A	X ^A
0.082	823					p	p	p	p	H	H	H	X	H	H	H	H	C	C	C	C	X	X	X	X
0.1μF	104					p	p	p	p	H	H	H	X	H	H	H	H	C	C	C	C	X	X	X	X
0.12	124					p				H	H	H	X	H	H	H	H	C	C	C	C	X	X	X	X
0.15	154					p				X	X	X	X	C	C	C	C	C	C	C	C	X	X	X	X
0.18	184					p				X	X	X	X	C	C	C	C	C	C	C	C	X	X	X	X
0.22	224					p				X	X	X	X	C	C	C	C	C	C	C	C	X	X	X	X
0.27	274									X	X	X	X	C	C	C	X	C	C	C	C	X	X	X	X
0.33	334									X	X	X	X	C	C	C	X	C	C	C	X	X	X	X	X
0.39	394									X	X	X	X	C	C	X		C	C	C	X	X	X	X	X
0.47	474									X	X	X	X	C	X	X		C	C	C	X	X	X	X	X
0.56	564									X	X	X	X	C	X	X						X	X	X	X
0.68	684									X	X	X	X	C	X	X						X	X	X	Z
0.82	824									X	X	X	X	C	X	X						X	X	X	Z
1μF	105									X	X	X	X	C	X	X						X	X	X	Z

- Other size , thickness , capacitance , and voltage are available upon customer's request.
- [A] : The said items are made by NME(Noble Metal Electrode) and the other is BME(Base Metal Electrode).
- : The said items highlighted in grey color means new production or under developing, please contact any of our offices to check future specification.

■ [Table of Tape and Reel] : Gray area means reflow soldering only.

size unit : inch(mm)	0402(1005)	0603(1608)	0805(2012)	1206(3216)	1210(3225)	1808(4520)	1812(4532)
S=0.50±0.05	PAPER 10Kp/REEL	—	—	—	—	—	—
A=0.60±0.1	—	—	PAPER 4Kp/REEL	—	—	—	—
P=0.80±0.12	—	PAPER 4Kp/REEL	—	—	—	—	—
M=0.70±0.10	—	—	PAPER 4Kp/REEL	PAPER 4Kp/REEL	—	—	—
H=0.85±0.15	—	—	PAPER 4Kp/REEL	PAPER 4Kp/REEL	PAPER 4Kp/REEL	—	—
C=0.95±0.10	—	—	—	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	—	—
X=1.25±0.20	—	—	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	PLASTIC 2Kp/REEL	PLASTIC 1Kp/REEL
F=1.50±0.20	—	—	—	—	—	—	PLASTIC 1Kp/REEL
L=1.60±0.20	—	—	—	PLASTIC 2Kp/REEL	PLASTIC 2Kp/REEL	—	—
Z=2.00±0.20	—	—	—	—	PLASTIC 2Kp/REEL	PLASTIC 2Kp/REEL	PLASTIC 1Kp/REEL

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EDEN TECHNOLOGY CORPORATION

MIDDLE & HIGH VOLTAGE X7R

DIELECTRIC			X7R																											
SIZE	EIA CAP CODE	0603	0805				1206								1210					1808				1812						
VDCW	CODE	100	100	200	250	500	100	200	250	500	1000	1500	2000	100	200	250	500	1000	1000	1500	2000	3000	100	200	250	500	1000	2000	3000	
100pF	101	P	H	H*	H*	H*																								
120	121	P	H	H*	H*	H*																								
150	151	P	H	H*	H*	H*	H*	H*	H*	H*	H*	H*	H*							X*	X*	X*								
180	181	P	H	H*	H*	H*	H*	H*	H*	H*	H*	H*	H*							X*	X*	X*								
220	221	P	H	H*	H*	H*	H*	H*	H*	H*	H*	H*	H*							X*	X*	X*								
270	271	P	H	H*	H*	H*	H*	H*	H*	H*	H*	H*	H*							X*	X*	X*					X*	X*		
330	331	P	H	H*	H*	H*	H*	H*	H*	H*	H*	H*	H*							X*	X*	X*					X*	X*		
390	391	P	H	H*	H*	H*	H*	H*	H*	H*	H*	H*	H*	C*						X*	X*	X*					X*	X*		
470	471	P	H	H*	H*	H*	H*	H*	H*	H*	H*	H*	H*	C*						X*	X*	X*					X*	X*		
560	561	P	H	H*	H*	H*	H*	H*	H*	H*	H*	H*	H*	C*	C*					X*	X*	X*	Z*				X*	X*		
680	681	P	H	H*	H*	H*	H*	H*	H*	H*	H*	H*	H*	C*	C*					X*	X*	X*	Z*				X*	X*		
820	821	P	H	H*	H*	H*	H*	H*	H*	H*	H*	H*	H*	L*	L*					X*	X*	X*	Z*				X*	X*	Z*	
1000pF	102	P	H	H*	H*	H*	H	H*	H*	H*	H*	L*	L*	C*	C*	C*	C*	C*	X*	X*	Z*	Z*	X*	X*	X*	X*	X*	X*	Z*	
1200	122	P	H	H*	H*	H*	H	H*	H*	H*	H*	L*		C*	C*	C*	C*	C*	X*	X*	Z*		X*	X*	X*	X*	X*	X*		
1500	152	P	H	H*	H*	H*	H	H*	H*	H*	H*	C*	L*	C*	C*	C*	C*	C*	X*	X*	Z*		X*	X*	X*	X*	X*	X*		
1800	182	P	H	H*	H*	H*	H	H*	H*	H*	C*	L*		C*	C*	C*	C*	C*	X*	X*	Z*		X*	X*	X*	X*	X*	X*		
2200	222	P	H	H*	H*	H*	H	H*	H*	H*	X*	L*		C*	C*	C*	C*	C*	X*	X*	Z*		X*	X*	X*	X*	X*	X*		
2700	272	P	H	H*	H*	H*	H	H*	H*	H*	H*	L*		C*	C*	C*	C*	C*	X*	X*			X*	X*	X*	X*	X*	X*		
3300	332	P	H	H*	H*		H	H*	H*	H*	L*			C*	C*	C*	C*	X*	X*	Z*		X*	X*	X*	X*	X*	X*	Z*		
3900	392	P	H	H*	H*		H	H*	H*	H*	L*			C*	C*	C*	C*		X*				X*	X*	X*	X*	X*	Z*		
4700	472	P	H	H*	H*		H	H*	H*	H*				C*	C*	C*	C*		X*				X*	X*	X*	X*	X*	Z*		
5600	562	P	H	X*	X*		H	H*	H*	H*				C*	C*	C*	C*		Z*				X*	X*	X*	X*	X*			
6800	682	P	H	X*	X*		H	H*	H*	H*				C*	C*	C*	C*		Z*				X*	X*	X*	X*	X*			
8200	822	P	H	X*	X*		H	H*	H*	C*				C	C*	C*	C*		Z*				X*	X*	X*	X*	X*			
0.01 μF	103	P	H	X*	X*		H	H*	H*	C*				C	C*	C*	C*		Z*				X*	X*	X*	X*	X*			
0.012	123		H	X*	X*		H	H*	H*	X*				C	C*	C*	C*		X*				X*	X*	X*	X*	Z*			
0.015	153		H	X*	X*		H	C*	C*	X*				C	C*	C*	C*		X*				X*	X*	X*	X*	Z*			
0.018	183		H	X*	X*		H	C*	C*	X*				C	C*	C*	C*		X*				X*	X*	X*	X*				
0.022	223		H	X*	X*		H	C*	C*	L*				C	C*	C*	X*		X*				X*	X*	X*	X*				
0.027	273	X					H	C*	C*	L*				C	C*	C*	L*		X*				X*	X*	X*	X*				
0.033	333	X					H	L*	L*	L*				C	C*	C*	L*		X*				X*	X*	X*	X*				
0.039	393						H	L*	L*					C	C*	C*	L*		X*				X*	X*	X*	X*				
0.047	473						H	L*	L*					C	X*	X*	L*		X*				X*	X*	X*	X*				
0.056	563						H							C	X*	X*	L*		X*				X*	X*	X*	Z*				
0.068	683						H							C					X*				X*	X*	X*	Z*				
0.082	823						X							C					X				X	X*	X*	Z*				
0.1 μF	104						X							C					X				X	X*	X*	Z*				
0.12	124													C					X				X	X*	X*					
0.15	154													X					X				X	Z*	Z*					
0.18	184													X					X				X	Z*	Z*					
0.22	224													X					X				X	Z*	Z*					
0.27	274																		X				X							
0.33	334																		X				X							
0.39	394																		X				X							
0.47	474																		Z				Z							
0.56	564																		Z				Z							
0.68	684																		Z				Z							
0.82	824																		Z				Z							
1 μF	105																													

■ Other size thickness, capacitance, and voltage are available upon customer's request.
 ■ [*]: The said items are made by NME(Noble Metal Electrode), and the other is BME(Base Metal Electrode).

■ [Table of Tape and Reel] : Gray area means reflow soldering only.

size unit : inch(mm)	0402(1005)	0603(1608)	0805(2012)	1206(3216)	1210(3225)	1808(4520)	1812(4532)
S=0.50±0.05	PAPER 10Kp/REEL	—	—	—	—	—	—
A=0.60±0.1	—	—	PAPER 4Kp/REEL	—	—	—	—
P=0.80±0.12	—	PAPER 4Kp/REEL	—	—	—	—	—
M=0.70±0.10	—	—	PAPER 4Kp/REEL	PAPER 4Kp/REEL	—	—	—
H=0.85±0.15	—	—	PAPER 4Kp/REEL	PAPER 4Kp/REEL	PAPER 4Kp/REEL	—	—
C=0.95±0.10	—	—	—	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	—	—
X=1.25±0.20	—	—	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	PLASTIC 2Kp/REEL	PLASTIC 1Kp/REEL
F=1.50±0.20	—	—	—	—	—	—	PLASTIC 1Kp/REEL
L=1.60±0.20	—	—	—	PLASTIC 2Kp/REEL	PLASTIC 2Kp/REEL	—	—
Z=2.00±0.20	—	—	—	—	PLASTIC 2Kp/REEL	PLASTIC 2Kp/REEL	PLASTIC 1Kp/REEL



EDEN TECHNOLOGY CORPORATION

GENERAL X5R

DIELECTRIC		X5R							
SIZE	EIA CAP	0402			0603		0805	1206	
VDCW	CODE	6.3V	10V	16V	6.3V	10V	6.3V	6.3V	10V
0.01 μ F	103								
0.027	273			S					
0.033	333			S					
0.039	393			S					
0.047	473			S					
0.056	563		S						
0.068	683		S						
0.082	823		S						
0.1 μ F	104	S	S						
0.15	154								
0.22	224								
0.33	334								
0.47	474				P	P			
0.68	684								
1 μ F	105				P	P			
1.5	155								
2.2	225						X		L
3.3	335								
4.7	475						X	L	L
6.8	685								
10 μ F	106						X	L	L
22 μ F	226								
47 μ F	476								
100 μ F	107								

- Other size , thickness , capacitance , and voltage are available upon customer's request.
- [*] : The said items are made by NME(Noble Metal Electrode), and the other is BME(Base Metal Electrode).
- : The said items highlighted in grey color means new production or under developing, please contact any of our offices to check future specification.

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size unit : inch(mm)	0402(1005)	0603(1608)	0805(2012)	1206(3216)	1210(3225)	1808(4520)	1812(4532)
S=0.50±0.05	PAPER 10Kp/REEL	—	—	—	—	—	—
A=0.60±0.1	—	—	PAPER 4Kp/REEL	—	—	—	—
P=0.80±0.12	—	PAPER 4Kp/REEL	—	—	—	—	—
M=0.70±0.10	—	—	PAPER 4Kp/REEL	PAPER 4Kp/REEL	—	—	—
H=0.85±0.15	—	—	PAPER 4Kp/REEL	PAPER 4Kp/REEL	PAPER 4Kp/REEL	—	—
C=0.95±0.10	—	—	—	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	—	—
X=1.25±0.20	—	—	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	PLASTIC 2Kp/REEL	PLASTIC 1Kp/REEL
F=1.50±0.20	—	—	—	—	—	—	PLASTIC 1Kp/REEL
L=1.60±0.20	—	—	—	PLASTIC 2Kp/REEL	PLASTIC 2Kp/REEL	—	—
Z=2.00±0.20	—	—	—	—	PLASTIC 2Kp/REEL	PLASTIC 2Kp/REEL	PLASTIC 1Kp/REEL

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EDEN TECHNOLOGY CORPORATION

GENERAL Y5V

DIELECTRIC		Y5V																							
SIZE	EIA CAP	0402				0603				0805				1206				1210				1812			
VDCW	CODE	10V	16V	25V	50V	10V	16V	25V	50V	10V	16V	25V	50V	10V	16V	25V	50V	10V	16V	25V	50V	10V	16V	25V	50V
1000pF	102																								
1500	152																								
2200	222																								
3300	332																								
4700	472																								
6800	682																								
0.01 μ F	103	S	S	S	S	P	P	P	P	A	A	A	A	H	H	H	H								
0.015	153	S	S	S	S	P	P	P	P	A	A	A	A	H	H	H	H								
0.022	223	S	S	S	S	P	P	P	P	A	A	A	A	H	H	H	H								
0.033	333	S	S	S	S	P	P	P	P	A	A	A	A	H	H	H	H								
0.047	473	S	S	S		P	P	P	P	A	A	A	A	H	H	H	H								
0.068	683	S	S			P	P	P	P	A	A	A	A	H	H	H	H								
0.1 μ F	104	S	S			P	P	P	P	A	A	A	A	H	H	H	H	C	C	C	C	X	X	X	X
0.15	154	S				P	P	P	P	A	A	A	A	H	H	H	H	C	C	C	C	X	X	X	X
0.22	224	S				P	P	P		A	A	A	A	H	H	H	H	C	C	C	C	X	X	X	X
0.33	334					P	P	P		H	H	H	H	H	H	H	H	C	C	C	C	X	X	X	X
0.47	474					P	P			H	H	H		H	H	H	H	C	C	C	C	X	X	X	X
0.68	684					P	P			H	H	X		H	H	H	H	C	C	C	C	X	X	X	X
1 μ F	105					P	P			H	H	X		C	C	C	C	C	C	C	C	X	X	X	X
1.5	155					P				X	X			C	C	C		C	C	C		X	X	X	X
2.2	225					P				X	X			C	C	C		C	C	C		X	X	X	X
3.3	335									X				X	X	X		C	C	C		X	X	X	X
4.7	475									X	X			X	X	X		C	C	X		X	X	X	X
6.8	685													X				C	C			X	X	X	X
10 μ F	106									X				X	L			X	X	L		X	X	X	
22 μ F	226													L				Z							
47 μ F	476																								
100 μ F	107																								

- Other size , thickness , capacitance , and voltage are available upon customer's request.
- : The said items highlighted in grey color means new production or under developing, please contact any of our offices to check future specification.

■ [Table of Tape and Reel] : Gray area means reflow soldering only.

size unit : inch(mm)	0402(1005)	0603(1608)	0805(2012)	1206(3216)	1210(3225)	1808(4520)	1812(4532)
S=0.50±0.05	PAPER 10Kp/REEL	—	—	—	—	—	—
A=0.60±0.1	—	—	PAPER 4Kp/REEL	—	—	—	—
P=0.80±0.12	—	PAPER 4Kp/REEL	—	—	—	—	—
M=0.70±0.10	—	—	PAPER 4Kp/REEL	PAPER 4Kp/REEL	—	—	—
H=0.85±0.15	—	—	PAPER 4Kp/REEL	PAPER 4Kp/REEL	PAPER 4Kp/REEL	—	—
C=0.95±0.10	—	—	—	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	—	—
X=1.25±0.20	—	—	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	PLASTIC 2Kp/REEL	PLASTIC 1Kp/REEL
F=1.50±0.20	—	—	—	—	—	—	PLASTIC 1Kp/REEL
L=1.60±0.20	—	—	—	PLASTIC 2Kp/REEL	PLASTIC 2Kp/REEL	—	—
Z=2.00±0.20	—	—	—	—	PLASTIC 2Kp/REEL	PLASTIC 2Kp/REEL	PLASTIC 1Kp/REEL

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EDEN TECHNOLOGY CORPORATION

MIDDLE VOLTAGE Y5V

DIELECTRIC		Y5V											
SIZE	EIA CAP	0805			1206			1210			1812		
VDCW	CODE	100	200	250	100	200	250	100	200	250	100	200	250
0.01 μ F	103	H	H	H	H	H	H	C	C	C	X	X	X
0.015	153	H	H	H	H	H	H	C	C	C	X	X	X
0.022	223	H	H	H	H	H	H	C	C	C	X	X	X
0.033	333	H	H	H	H	H	H	C	C	C	X	X	X
0.047	473	H	H	H	H	H	H	C	C	C	X	X	X
0.068	683	H	H	H	H	H	H	C	C	C	X	X	X
0.1 μ F	104	H			H	H	H	C	C	C	X	X	X
0.15	154				C	C	C	C	C	C	X	X	X
0.22	224				C			C			X	X	X
0.33	334							C			X	X	X
0.47	474										X	X	X
0.68	684										X	X	X
1 μ F	105										X		

■ Other size , thickness , capacitance , and voltage are available upon customer's request.

■ [Table of Tape and Reel] : Gray area means reflow soldering only.

size unit : inch(mm)	0402(1005)	0603(1608)	0805(2012)	1206(3216)	1210(3225)	1808(4520)	1812(4532)
S=0.50±0.05	PAPER 10Kp/REEL	—	—	—	—	—	—
A=0.60±0.1	—	—	PAPER 4Kp/REEL	—	—	—	—
P=0.80±0.12	—	PAPER 4Kp/REEL	—	—	—	—	—
M=0.70±0.10	—	—	PAPER 4Kp/REEL	PAPER 4Kp/REEL	—	—	—
H=0.85±0.15	—	—	PAPER 4Kp/REEL	PAPER 4Kp/REEL	PAPER 4Kp/REEL	—	—
C=0.95±0.10	—	—	—	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	—	—
X=1.25±0.20	—	—	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	PLASTIC 3Kp/REEL	PLASTIC 2Kp/REEL	PLASTIC 1Kp/REEL
F=1.50±0.20	—	—	—	—	—	—	PLASTIC 1Kp/REEL
L=1.60±0.20	—	—	—	PLASTIC 2Kp/REEL	PLASTIC 2Kp/REEL	—	—
Z=2.00±0.20	—	—	—	—	PLASTIC 2Kp/REEL	PLASTIC 2Kp/REEL	PLASTIC 1Kp/REEL

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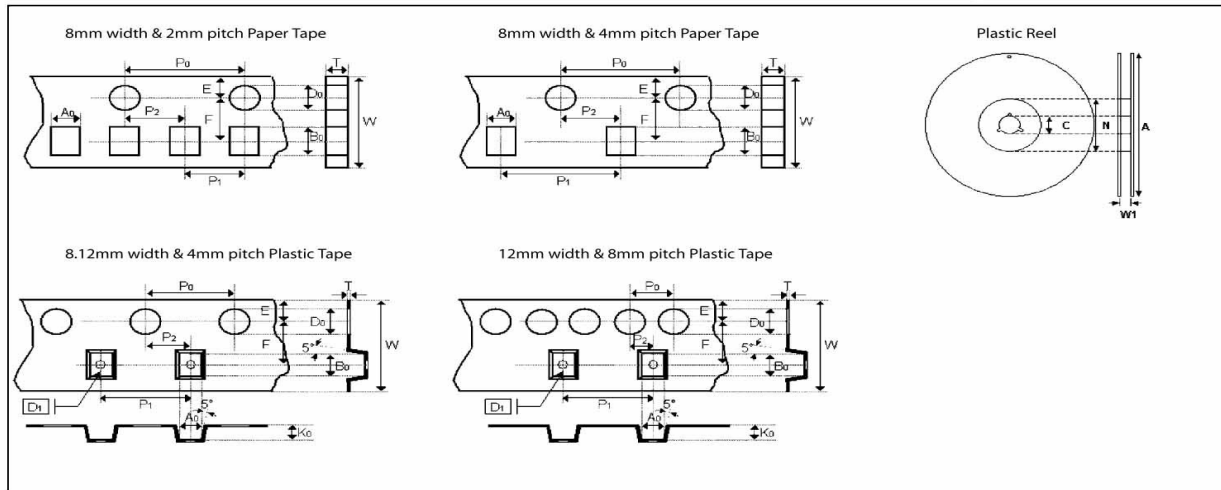
EDEN TECHNOLOGY CORPORATION

Chip Capacitor on Tape and Reel

Chip Capacitor on Tape and Reel

Chip Dimensions		0402		0603		0805			1206			1210			1808		1812		Reel Dimension (unit : mm)			
Taping Methods		S	P	A	H,M	C	X	H,M	C,X	L	C,X	L	Z	F,X	Z	F,X,Z	C	W1	A	H		
Paper Tape	T (7"x8mm)	10 kp	4 kp	-	4 kp	4 kp	-	-	4 kp	-	-	-	-	-	-	-	13.0 +0.5/-0.2	8.4 +1.5/-0	179.0 +/-1.0	60.5 +/-1.0		
	R (7"x8mm)	-	-	10 kp	-	-	-	-	-	-	-	-	-	-	-	-	13.0 +0.5/-0.2	8.4 +1.5/-0	179.0 +/-1.0	60.5 +/-1.0		
	Q (10"x8mm)	-	10 kp	-	10 kp	10 kp	-	-	10 kp	-	-	-	-	-	-	-	13.0 +0.5/-0.2	8.4 +1.5/-0	250.0 +/-1.0	100.0 +/-1.0		
	G (13"x8mm)	50 kp	15 kp	-	15 kp	15 kp	-	-	15 kp	-	-	-	-	-	-	-	13.0 +0.5/-0.2	8.4 +1.5/-0	330.0 +/-1.0	100.0 +/-1.0		
Plastic Tape	P (7"x8mm)	-	-	-	-	-	3 kp	3 kp	-	3 kp	2 kp	3 kp	2 kp	1 kp	-	-	13.0 +0.5/-0.2	8.4 +1.5/-0	179.0 +/-1.0	60.5 +/-1.0		
	P (7"x12mm)	-	-	-	-	-	-	-	-	-	-	-	-	2 kp	1 kp	1 kp	13.0 +0.5/-0.2	12.4 +2.0/-0	179.0 +/-1.0	80.0 +/-1.0		
	K (10"x8mm)	-	-	-	-	-	5 kp	5 kp	-	5 kp	-	5 kp	-	-	-	-	13.0 +0.5/-0.2	8.4 +1.5/-0	250.0 +/-1.0	100.0 +/-1.0		
	L (13"x8mm)	-	-	-	-	-	10 kp	10 kp	-	10 kp	-	10 kp	-	-	-	-	13.0 +0.5/-0.2	8.4 +1.5/-0	330.0 +/-1.0	100.0 +/-1.0		
Bulk Cassette	C (Cassette)	50 kp	15 kp	10 kp	-	-	5 kp	-	-	-	-	-	-	-	-	-	-	-	-	-		

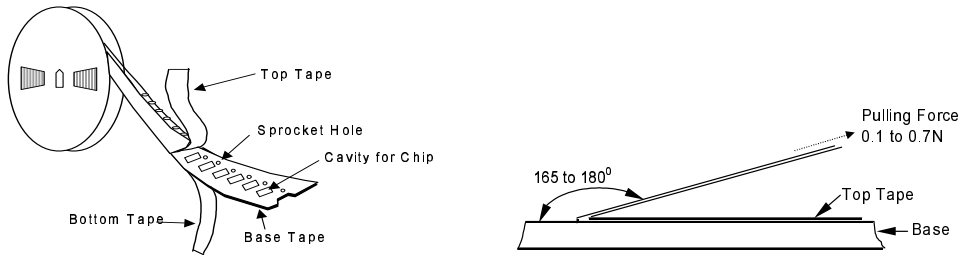
Tape Dimension (unit: mm)	A0	3.62 +0.05	1.02 +0.05	1.02 +0.05	1.50 +0.10	1.50 +0.10	< 1.57	< 1.57	2.00 +0.10	< 1.65	< 1.95	< 2.97	< 2.97	< 2.97	< 2.35	< 2.35	< 3.81						
	B0	1.12 +0.05	1.82 +0.05	1.82 +0.05	2.30 +0.10	2.30 +0.10	< 2.40	< 2.40	3.50 +0.10	< 3.46	< 3.67	< 3.73	< 3.73	< 3.73	< 4.96	< 5.00	< 5.30						
	T	3.60 +0.05	0.95 +0.05	0.95 +0.05	0.75 +0.05	0.95 +0.05	0.25 +0.05	0.25 +0.05	0.95 +0.05	0.25 +0.05	0.25 +0.05	0.25 +0.05	0.25 +0.05	0.25 +0.05	0.25 +0.05	0.25 +0.05	0.25 +0.05	0.25 +0.05					
	K0	-	-	-	-	-	< 2.50	< 2.50	-	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50	< 2.50						
	W	3.00 +0.10	8.00 +0.10	8.00 +0.10	8.00 +0.10	8.00 +0.10	8.00 +0.20	8.00 +0.20	8.00 +0.10	8.00 +0.20	8.00 +0.20	8.00 +0.20	8.00 +0.20	8.00 +0.20	12.00 +0.20	12.00 +0.20	12.00 +0.20						
	P0	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10						
	10xP0	40.00 +0.10	40.00 +0.20	40.00 +0.20	40.00 +0.20	40.00 +0.20	40.00 +0.20	40.00 +0.20	40.00 +0.20	40.00 +0.20	40.00 +0.20	40.00 +0.20	40.00 +0.20	40.00 +0.20	40.00 +0.20	40.00 +0.20	40.00 +0.20						
	P1	2.00 +0.05	4.00 +0.10	2.00 +0.05	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	4.00 +0.10	8.00 +0.10					
	P2	2.00 +0.05	2.00 +0.05	2.00 +0.05	2.00 +0.05	2.00 +0.05	2.00 +0.05	2.00 +0.05	2.00 +0.05	2.00 +0.05	2.00 +0.05	2.00 +0.05	2.00 +0.05	2.00 +0.05	2.00 +0.05	2.00 +0.05	2.00 +0.05	2.00 +0.05					
	D0	1.55 +0.05	1.55 +0.05	1.55 +0.05	1.55 +0.05	1.55 +0.05	1.50 +0.10/0	1.50 +0.10/0	1.55 +0.05	1.50 +0.10/0	1.50 +0.10/0	1.50 +0.10/0	1.50 +0.10/0	1.50 +0.10/0	1.50 +0.10/0	1.50 +0.10/0	1.50 +0.10/0	1.50 +0.10/0					
	D1	-	-	-	-	-	1.00 +0.10	1.00 +0.10	-	1.00 +0.10	1.00 +0.10	1.00 +0.10	1.00 +0.10	1.00 +0.10	1.00 +0.10	1.00 +0.10	1.50 +0.10	1.50 +0.10	1.50 +0.10				
	E	1.75 +0.05	1.75 +0.05	1.75 +0.05	1.75 +0.05	1.75 +0.05	1.75 +0.10	1.75 +0.10	1.75 +0.05	1.75 +0.10	1.75 +0.10	1.75 +0.10	1.75 +0.10	1.75 +0.10	1.75 +0.10	1.75 +0.10	1.75 +0.10	1.75 +0.10					
	F	3.50 +0.05	3.50 +0.05	3.50 +0.05	3.50 +0.05	3.50 +0.05	3.50 +0.05	3.50 +0.05	3.50 +0.05	3.50 +0.05	3.50 +0.05	3.50 +0.05	3.50 +0.05	3.50 +0.05	5.50 +0.05	5.50 +0.05	5.50 +0.05	5.50 +0.05					



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■ Appearance of Taping



- The component does not protrude beyond either surface of the base tape.
- No bottom tape adhesion force, chip capacitor is free condition without sticking on bottom and top side tape.
- In case of turning the base tape over without shock or vibration, the chip capacitor is easily dropped by capacitor's weight itself.
- [Peeling off force] 0.1 to 0.7N in the direction shown as above sketch.

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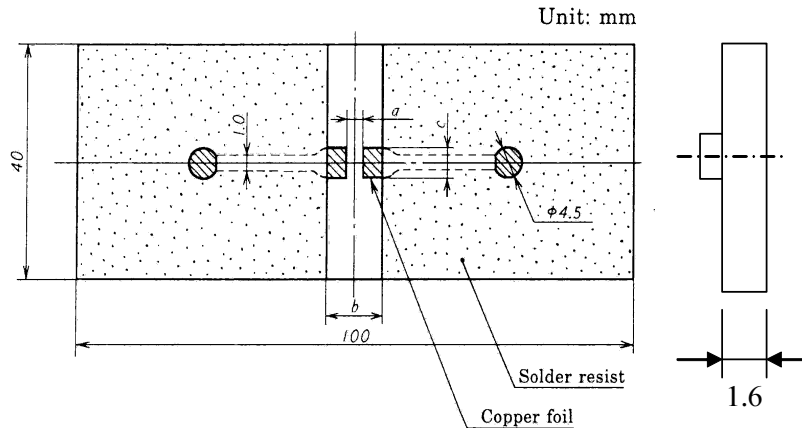
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APPENDIX 1 BENDING TEST

1. Testing Substrate:

The testing substrate shall be the testing substrate A given in Fig.1, the substrate shall be that of class GE4 specified in JIS C6484 or at least the equivalent, the thickness shall be 1.6mm and thickness of copper foil be 0.035mm.

Fig. 1. Testing printed wiring board A
(for use in test for resistance of board to bending)

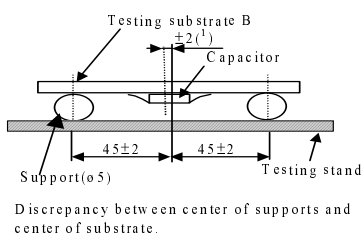


External Size of Capacitor		Dimensions of Pattern (Unit : mm)		
Symbol	W*L	a	b	c
0402	0.5*1.0	0.4	1.5	0.5
0603	0.8*1.6	1.0	3.0	1.2
0805	1.25*2.0	1.2	4.0	1.65
1206	1.6*3.2	2.2	5.0	2.0
1210	2.5*3.2	2.2	5.0	2.9
1812	3.2*4.5	3.5	7.0	3.7

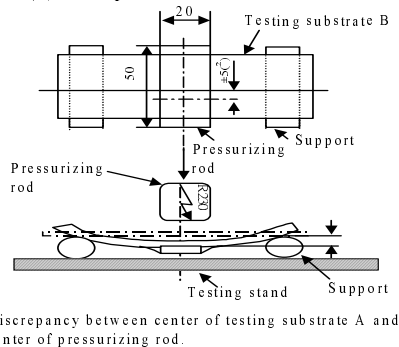
2. Testing Method:

- 2.1 The capacitor shall be soldered to testing substrate A.
- 2.2 The substrate shall be so placed with it's surface on which capacitor is mounted downwards that the center of capacitor coincides with the center of supports as illustrated in Fig2.(Flexural test of substrate).

(a) Supporting Condition of Substrate (Unit : mm)



(b) Testing Condition (Unit: mm)



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APPENDIX 2 ADHESIVE STRENGTH OF TERMINATION

1. Testing Substrate:

The testing substrate shall be the testing substrate A illustrated in Fig.1.

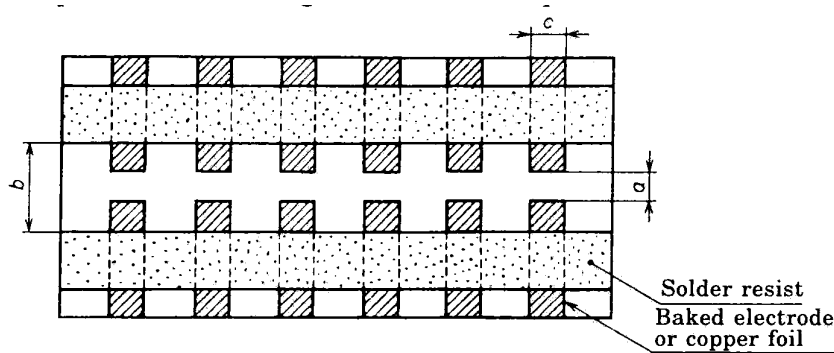


Fig.1 Testing substrate A

External Size of Capacitor		Dimensions of Pattern (Unit : mm)		
Symbol	W*L	a	b	c
0402	0.5*1.0	0.4	1.5	0.5
0603	0.8*1.6	1.0	3.0	1.2
0805	1.25*2.0	1.2	4.0	1.65
1206	1.6*3.2	2.2	5.0	2.0
1210	2.5*3.2	2.2	5.0	2.9
1812	3.2*4.5	3.5	7.0	3.7

Remark : Material of substrate shall be alumina or glass fabric base epoxy resin.

Alumina : purity 95% or more, thickness 0.6mm or more.

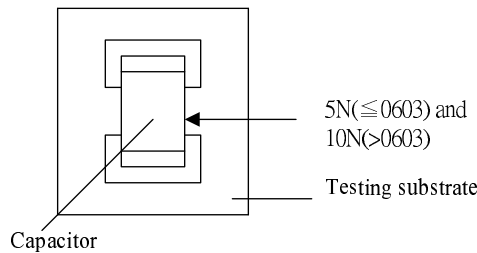
Glass fabric base epoxy resin : Class GE4 specified in JIS C6484 or the equivalent.

Thickness 1.6mm and copper foil thickness 0.035mm.

2. Testing Method:

The pressurizing force shall be gradually applied to the center side surface of capacitor in the capacitor in the direction horizontal and parallel to the testing substrate as shown in Fig.2.

Fig.2 Direction of Pressurizing





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APPENDIX 3 NOTICE

1. Storage and Handling Conditions:

- (1) Products are recommended to be used up within one year. Check solderability in case shelf life extension is needed.
- (2) Storage Condition:
 - Temperature : 5 to 40°C
 - Humidity : 20 to 70% relative humidity
- (3) Caution:
 - a. Don't store products in a corrosive environment such as sulfur, Chlorine gas, or acid. It may cause oxidization of electrode, which easily results in poor soldering.
 - b. To store products on the shelf and avoid exposure to moisture.
 - c. Don't expose products to excessive shock, vibration, direct sunlight and so on.

2. Recommendation of Soldering Profile

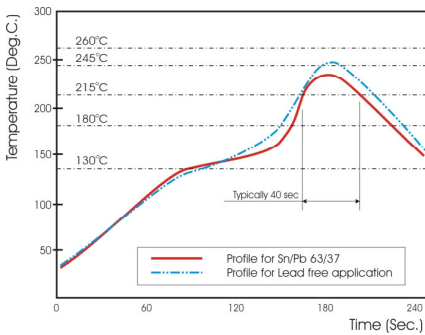


Figure. Reflow soldering

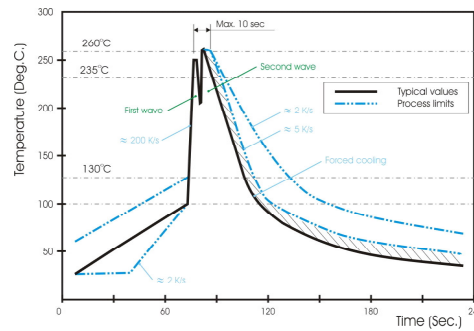


Figure. Wave soldering

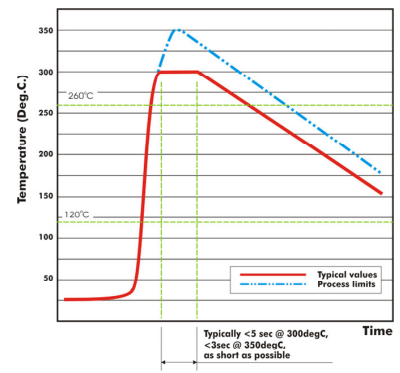
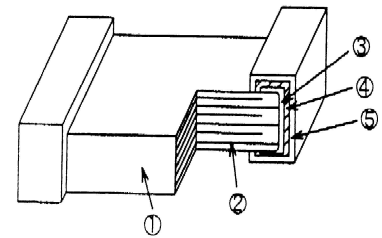


Figure. Manual soldering
(soldering gun)

Construction of MLCC

No.	Name	Class I	Class II		
1	Ceramic material	Titanium oxide	Barium titanate group		
2	Inner electrode	NME	NME	BME	
		Pd, PdAg	Pd, PdAg	Ni	
3	Termination	Inner layer	NME	NME	BME
			Ag	Ag	Cu
		Middle layer	Ni		
5	Outer layer	Sn			



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