CUSTOMER : _____

APPROVAL SHEET

APPROVAL NO : _____

ISSUE DATE : _____

PRODUCTION NAME: CHIP CAPACITOR

PRODUCTION CODE: NPO SERIES PRODUCTIONS
X7R/X5R SERIES PRODUCTIONS
Y5V SERIES PRODUCTIONS

CUSTOMER APPROVAL:

Walsin Technology Corp.

Authorized By: Janformy Wu

DONGGUAN WALSIN TECHNOLOGY ELECTRONICS CO., LTD.
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SUZHOU WALSIN TECHNOLOGY ELECTRONICS CO.,LTD.
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WALSIN TECHNOLOGY CORPORATION
YANG-MEI PLANT:
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TEL:+886-7-821-8171 FAX:+886-7-813-1661

Table of Contents

WALSIN TECHNOLOGY CORPORATION

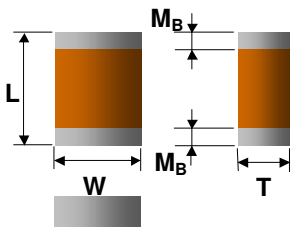
HOW TO ORDER

0603	B	102	K	500	C	T
Size	**Dielectric**	**Capacitance**	**Tolerance**	**Voltage**	**Termination**	**Packing**
For chip size code as LxW(in inches) e.g. : 0603(in inches) =.06"×.03" =1.6mm×0.8mm =1608(in metric)	N=NPO (CG) B=X7R X=X5R F=Y5V	Two significant digits followed by no. of zeros. And R is in place of decimal point. e.g. : 4R7=4.7pF 104=10×10^4pF =100000pF =100nF =0.1uF	B=±0.1pF C=±0.25pF D=±0.5pF F=±1% G=±2% J=±5% K=±10% M=±20% Z=-20/+80% NPO : B,C,D,F,G,J,K (B,C for cap≤5pF) (D for 5pF<cap<10pF) X7R : J,K,M X5R : K,M Y5V : M,Z	Two significant digits followed by no. of zeros And R is in place of decimal point. e.g. : 6R3=6.3V 500=50×10^0V =50V 302=30×10^2V =3000V	L=Ag/Ni/Sn C=Cu/Ni/Sn	B=Bulk T=Tape on Reel

DIMENSION SPECIFICATION

Size in inch (metric)	Length(mm)	Width(mm)	Thickness(mm) / Symbol		M_B(mm)	7" SPQ(pcs/reel)
0402 (1005)	1.00±0.05	0.50±0.05	0.50±0.05	N	0.25+0.05/-0.10	*Paper 10K
0603 (1608)	1.60±0.10	0.80±0.10	0.80±0.07	S	0.40±0.15	Paper 4K
	1.60+0.15/-0.10	0.80+0.15/-0.10	0.80+0.15/-0.10	X		Paper 4K
0805 (2012)	2.00±0.15	1.25±0.10	0.60±0.10	A	0.50±0.20	Paper 4K
			0.80±0.10	B		Paper 4K
			1.25±0.10	D		*Plastic 3K
	2.00±0.20	1.25±0.20	1.25±0.20	I		*Plastic 3K
1206 (3216)	3.20±0.15	1.60±0.15	0.80±0.10	B	0.60±0.20	Paper 4K
			0.95±0.10	C		*Plastic 3K
			1.25±0.10	D		*Plastic 3K
	3.20±0.15	1.60±0.20	1.60±0.20	G		*Plastic 2K
	3.20±0.20	1.60±0.20	1.15±0.15	J		*Plastic 3K
	3.20+0.30/-0.10	1.60+0.30/-0.10	1.60+0.30/-0.10	P		*Plastic 2K
1210 (3225)	3.20±0.30	2.50±0.20	0.95±0.10	C	0.75±0.25	*Plastic 3K
			1.25±0.10	D		*Plastic 3K
	3.20±0.40	2.50±0.30	1.60±0.20	G		*Plastic 2K
			2.00±0.20	K		*Plastic 1K
			2.50±0.30	M		*Plastic 1K
1808 (4520)	4.50±0.40	2.03±0.25	1.25±0.10	D	0.75±0.25	*Plastic 2K
			2.00±0.20	K		*Plastic 1K
1812 (4532)	4.50±0.40	3.20±0.30	1.25±0.10	D	0.75±0.25	*Plastic 1K
			2.00±0.20	K		*Plastic 1K
	4.50±0.40	3.20±0.40	2.50±0.30	M		*Plastic 0.5K
			2.80±0.30	U		*Plastic 0.5K

▪ [*] : The remarked items are available for reflow only.



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SPECIFICATION AND TEST METHOD

<table>
<tr><th>No.</th><th>Item</th><th>Test Condition</th><th>Requirements</th></tr>
<tr><td>1.</td><td>Visual & Mechanical</td><td></td><td>*No remarkable defect.
*Dimensions to conform to individual specification sheet.</td></tr>
<tr><td>2.</td><td>Capacitance</td><td>Class I : (NP0)</td><td>*Shall not exceed the limits given in the detailed spec.</td></tr>
<tr><td>3.</td><td>Q/ D.F. (Dissipation Factor)</td><td>≦1000pF　1.0±0.2Vrms，1MHz±10%
＞1000pF　1.0±0.2Vrms，1KHz±10%
Class II : (X7R,X5R,Y5V)
C≦10uF，1.0±0.2Vrms，1KHz±10%
C＞10uF，0.5±0.2Vrms，120Hz±20%</td><td>NP0 : More than 30pF: Q≧1000 ; Less than 30pF: Q≧400+20C
X7R, X5R :
<table>
<tr><th>Rated vol.</th><th>D.F.≦</th><th colspan="2">Exception of D.F.≦</th></tr>
<tr><td>≧50V</td><td>2.5%</td><td>3.0%</td><td>0603≧0.047uF, 0805≧0.18uF , 1206≧0.47uF</td></tr>
<tr><td rowspan="2">25V</td><td rowspan="2">3.5%</td><td>5.0%</td><td>0805≧1uF, 1210≧10uF</td></tr>
<tr><td>7.0%</td><td>0603≧0.33uF</td></tr>
<tr><td>16V</td><td>3.5%</td><td>5.0%</td><td>0402≧0.033uF, 0603≧0.15uF, 0805≧0.68uF, 1206≧2.2uF</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>15.0%</td><td>0805≧22uF, 1210≧100uF,</td></tr>
</table>
Y5V :
<table>
<tr><th>Rated vol.</th><th>D.F.≦</th><th colspan="2">Exception of D.F.≦</th></tr>
<tr><td>≧50V</td><td>5.0%</td><td>---</td><td>---</td></tr>
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<tr><td rowspan="2">25V</td><td rowspan="2">5.0%</td><td>7.0%</td><td>0603≧0.1uF; 0805≧0.33uF; 1206≧1uF</td></tr>
<tr><td>9.0%</td><td>0402≧0.068uF</td></tr>
<tr><td>16V(C<1.0uF)</td><td>7.0%</td><td>9.0%</td><td>0402≧0.068uF</td></tr>
<tr><td>16V(C≧1.0uF)</td><td>9.0%</td><td>---</td><td>---</td></tr>
<tr><td>10V</td><td>12.5%</td><td>---</td><td>---</td></tr>
<tr><td>6.3V</td><td>20.0%</td><td>---</td><td>---</td></tr>
</table></td></tr>
<tr><td>4.</td><td>Dielectric Strength</td><td>*To apply voltage(≦50V) 250%.
*Duration : 1 to 5 sec.
*Charge & discharge current less than 50mA.
*To apply voltage :
100V　≧ 3 times V DC
200V ~ 300V　≧ 2 times V DC
500V ~ 999V　≧ 1.5 times V DC
1000V ~ 3000V　≧ 1.2 times V DC
*Cut-off, set at 10mA
*TEST= 15 sec.
*RAMP=0</td><td>*No evidence of damage or flash over during test.</td></tr>
<tr><td>5.</td><td>Insulation Resistance</td><td>To apply rated voltage for MAX. 120sec.
<table>
<tr><td>Rated Voltage:
100V ~ 500V</td><td>To apply rated voltage</td></tr>
<tr><td>Rated Voltage:
> 500V</td><td>To apply 500V*60sec</td></tr>
</table></td><td>10 GΩ MIN. or 500 Ω-F MIN. , whichever is smaller.
<table>
<tr><td>>10GΩ</td></tr>
<tr><td>>10GΩ</td></tr>
</table></td></tr>
<tr><td>6.</td><td>Temperature Coefficient</td><td>With no electrical load.
<table>
<tr><th>T.C.</th><th>Operating Temp</th></tr>
<tr><td>NP0</td><td>-55 ~ 125^{0}C at 25^{0}C</td></tr>
<tr><td>X7R</td><td>-55 ~ 125^{0}C at 25^{0}C</td></tr>
<tr><td>X5R</td><td>-55 ~ 85^{0}C at 25^{0}C</td></tr>
<tr><td>Y5V</td><td>-25 ~ 85^{0}C at 20^{0}C</td></tr>
</table></td><td>
<table>
<tr><th>T.C.</th><th>Capacitance Change</th></tr>
<tr><td>NP0</td><td>Within ±30ppm/^{0}C</td></tr>
<tr><td>X7R</td><td>Within ±15%</td></tr>
<tr><td>X5R</td><td>Within ±15%</td></tr>
<tr><td>Y5V</td><td>Within +30% / -80%</td></tr>
</table></td></tr>
<tr><td>7.</td><td>Adhesive Strength of Termination</td><td>*Pressurizing force：
5N(≦0603) and 10N(>0603)
*Test time：10 ±1 sec (Appendix 2)</td><td>*No remarkable damage or removal of the terminations.</td></tr>
<tr><td>8.</td><td>Vibration Resistance</td><td>*Vibration frequency：10~55 Hz/min.
*Total amplitude：1.5mm
*Test time：6 hrs.(Two hrs each in three mutually perpendicular directions.)</td><td>*No remarkable damage.
*Cap change & Q/D.F.：To meet initial spec.</td></tr>
</table>

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SPECIFICATION AND TEST METHOD

No.	Item	Test Condition	Requirements
9.	Solderability	*Solder temperature：235±5^{0}C *Dipping time：2±0.5 sec	95%MIN. coverage of all metalized area.
10.	Bending Test	*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.	*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.)
11.	Resistance to Soldering Heat	*Solder temperature：270±5^{0}C *Dipping time：10±1 sec *Preheating：120 to 150℃ for 1 minute before immerse the capacitor in a eutectic solder. *Before initial measurement (Class II only)：Perform 150+0/-10℃ 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).	*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.
12.	Temperature Cycle	* Conduct the five cycles according to the temperatures and time. Step / Temp. (^{0}C) / Time (min.) 1 / MIN. Operating Temp. +0/-3 / 30±3 2 / Room Temp. / 2~3 3 / MAX. Operating Temp. +3/-0 / 30±3 4 / Room Temp. / 2~3 *Before initial measurement (Class II only)：Perform 150+0/-10℃ 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).	*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.
13.	Humidity (Damp Heat) Steady State	*Test temp.：40±2^{0}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).	*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：

Rated vol.	D.F.≦	Exception of D.F.≦	
≧50V	3.0%	6.0%	0603≧0.047uF, 0805≧0.18uF , 1206≧0.47uF
25V	5.0%	10.0%	0805≧1uF, 1210≧10uF
		14.0%	0603≧0.33uF
16V	5.0%	10.0%	0402≧0.033uF, 0603≧0.15uF, 0805≧0.68uF, 1206≧2.2uF
10V	7.5%	15.0%	0402≧0.056uF, 0603≧0.33uF, 0805≧2.2uF, 1206≧2.2uF
6.3V	15.0%	30.0%	0805≧22uF, 1210≧100uF

Y5V：

Rated vol.	D.F.≦	Exception of D.F.≦	
≧50V	7.5%	---	---
35V	10.0%	---	---
25V	7.5%	10.0%	0603≧0.1uF;0805≧0.33uF;1206≧1uF
		12.5%	0402≧0.068uF
16V(C<1.0uF)	10.0%	12.5%	0402≧0.068uF
16V(C≧1.0uF)	12.5%	---	---
10V	15.0%	---	---
6.3V	30.0%	---	---

*I.R.：1GΩ MIN. or 50Ω-F MIN. , whichever is smaller.

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PECIFICATION AND TEST METHOD

<table>
<tr><th>No.</th><th>Item</th><th>Test Condition</th><th>Requirements</th></tr>
<tr><td>14.</td><td>Humidity
(Damp Heat)
Load</td><td>*Test temp.：40±2^{0}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).</td><td>*No remarkable damage.
*Cap change：NP0： ±7.5%MAX. or ±0.75pF MAX. , whichever is larger.
X7R, X5R : < ±12.5%
Y5V : < ±30%
*Q/D.F. value:
NP0 : C≧30pF Q≧200 ； C< 30pF Q≧100+10/3C
X7R, X5R :
<table>
<tr><th>Rated vol.</th><th>D.F.≦</th><th colspan="2">Exception of D.F.≦</th></tr>
<tr><td>≧50V</td><td>3.0%</td><td>6.0%</td><td>0603≧0.047uF, 0805≧0.18uF , 1206≧0.47uF</td></tr>
<tr><td rowspan="2">25V</td><td rowspan="2">5.0%</td><td>10.0%</td><td>0805≧1uF, 1210≧10uF</td></tr>
<tr><td>14.0%</td><td>0603≧0.33uF</td></tr>
<tr><td>16V</td><td>5.0%</td><td>10.0%</td><td>0402≧0.033uF, 0603≧0.15uF, 0805≧0.68uF, 1206≧2.2uF</td></tr>
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Y5V :
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<tr><td>12.5%</td><td>0402≧0.068uF</td></tr>
<tr><td>16V(C<1.0uF)</td><td>10.0%</td><td>12.5%</td><td>0402≧0.068uF</td></tr>
<tr><td>16V(C≧1.0uF)</td><td>12.5%</td><td>---</td><td>---</td></tr>
<tr><td>10V</td><td>15.0%</td><td>---</td><td>---</td></tr>
<tr><td>6.3V</td><td>30.0%</td><td>---</td><td>---</td></tr>
</table>
*I.R.：500MΩ MIN. or 25Ω-F MIN. , whichever is smaller.</td></tr>
<tr><td>15.</td><td>High
Temperature
Load
(Endurance)</td><td>*Test temp.：
NP0, X7R : 125±3^{0}C
X5R, Y5V : 85±3^{0}C
*To apply voltage：
(1) V<500V：200% of rated voltage.
(2) 500V≦V<1000V：150% of rated voltage.
(3) V≧1000V：120% of rated voltage.
(MAX.3600V)
*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).</td><td>*No remarkable damage.
*Cap change：NP0： ±3.0%MAX. or ±0.3pF 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>
<tr><th>Rated vol.</th><th>D.F.≦</th><th colspan="2">Exception of D.F.≦</th></tr>
<tr><td>≧50V</td><td>3.0%</td><td>6.0%</td><td>0603≧0.047uF, 0805≧0.18uF , 1206≧0.47uF</td></tr>
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<tr><th>Rated vol.</th><th>D.F.≦</th><th colspan="2">Exception of D.F.≦</th></tr>
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<tr><td>12.5%</td><td>0402≧0.068uF</td></tr>
<tr><td>16V(C<1.0uF)</td><td>10.0%</td><td>12.5%</td><td>0402≧0.068uF</td></tr>
<tr><td>16V(C≧1.0uF)</td><td>12.5%</td><td>---</td><td>---</td></tr>
<tr><td>10V</td><td>15.0%</td><td>---</td><td>---</td></tr>
<tr><td>6.3V</td><td>30.0%</td><td>---</td><td>---</td></tr>
</table>
*I.R.：1G ΩMIN. or 50Ω-F MIN. , whichever is smaller.</td></tr>
</table>

DONGGUAN WALSIN TECHNOLOGY ELECTRONICS CO., LTD.
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CAPACITANCE AND VOLTAGE (NP0)

DIELECTRIC		NP0																					
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
0.5pF	0R5	N	N	N	N	S	S	S	S	A	A	A	A												
1	1R0	N	N	N	N	S	S	S	S	A	A	A	A												
1.2	1R2	N	N	N	N	S	S	S	S	A	A	A	A												
1.5	1R5	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B								
1.8	1R8	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B								
2.2	2R2	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B								
2.7	2R7	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B								
3.3	3R3	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B								
3.9	3R9	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B								
4.7	4R7	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B								
5.6	5R6	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B								
6.8	6R8	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B								
8.2	8R2	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B								
10pF	100	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B								
12	120	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B								
15	150	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B								
18	180	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B								
22	220	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C				
27	270	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C				
33	330	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C				
39	390	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C				
47	470	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C				
56	560	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C				
68	680	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C				
82	820	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C				
100pF	101	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C				
120	121	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C				
150	151	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C				
180	181	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C				
220	221	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C				
270	271	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C				
330	331	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C				
390	391	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C				
470	471	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C				
560	561					S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C				
680	681					S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C				
820	821					S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C				
1000pF	102					S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C	D	D	D	D
1200	122					S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C	D	D	D	D
1500	152					S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C	D	D	D	D
1800	182					S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C	D	D	D	D
2200	222					S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C	D	D	D	D
2700	272					S	S			D	D	D	D	B	B	B	B	C	C	C	C	D	D	D	D
3300	332					S	S			D	D	D	D	B	B	B	B	C	C	C	C	D	D	D	D
3900	392									D	D	D	D	B	B	B	B	C	C	C	C	D	D	D	D
4700	472									D	D	D	I	B	B	B	B	C	C	C	C	D	D	D	D
5600	562									D	D			B	B	B	B	C	C	C	C	D	D	D	D
6800	682									D	D			C	C	C	C	C	C	C	C	D	D	D	D
8200	822									D	D			C	C	C	C	C	C	C	C	D	D	D	D
0.01 μF	103									D	D		I	D	D	D	D	C	C	C	C	D	D	D	D
.012	123									D	D			D	D	P	P	C	C	D	D	D	D	D	D
.015	153													D	D	P	P	C	C	D	D	D	D	D	D
.018	183													D	D			C	C			D	D	D	D
.022	223													D	D			C	C			D	D	D	D
.027	273													D	D			C	C			D	D	D	D
.033	333													D	D			C	C			D	D	D	D
.039	393													G	G			C	C			D	D		
.047	473																	D	D			D	D		
.056	563																	D	D			D	D		
.068	683																					D	D		
.082	823																					D	D		
0.1 μF	104																					D	D		

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

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WALSIN TECHNOLOGY CORPORATION

CAPACITANCE AND VOLTAGE (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	N	N	N	N	S	S	S	S	B	B	B	B												
120	121	N	N	N	N	S	S	S	S	B	B	B	B												
150	151	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B								
180	181	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B								
220	221	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B								
270	271	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B								
330	331	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B								
390	391	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B								
470	471	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B								
560	561	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B								
680	681	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B								
820	821	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B								
1000pF	102	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B	C^	C^	C^	C^	D^	D^	D^	D^
1200	122	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B	C^	C^	C^	C^	D^	D^	D^	D^
1500	152	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B	C^	C^	C^	C^	D^	D^	D^	D^
1800	182	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B	C^	C^	C^	C^	D^	D^	D^	D^
2200	222	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B	C^	C^	C^	C^	D^	D^	D^	D^
2700	272	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B	C^	C^	C^	C^	D^	D^	D^	D^
3300	332	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B	C^	C^	C^	C^	D^	D^	D^	D^
3900	392	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B	C^	C^	C^	C^	D^	D^	D^	D^
4700	472	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B	C^	C^	C^	C^	D^	D^	D^	D^
5600	562	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B	C^	C^	C^	C^	D^	D^	D^	D^
6800	682	N	N	N	N	S	S	S	S	B	B	B	B	B	B	B	B	C^	C^	C^	C^	D^	D^	D^	D^
8200	822	N	N	N		S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C	D^	D^	D^	D^
0.01 μF	103	N	N	N		S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C	D^	D^	D^	D^
0.012	123	N	N	N		S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C	D^	D^	D^	D^
0.015	153	N	N	N		S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C	D^	D^	D^	D^
0.018	183	N	N	N		S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C	D^	D^	D^	D^
0.022	223	N	N	N		S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C	D^	D^	D^	D^
0.027	273	N	N			S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C	D^	D^	D^	D^
0.033	333	N	N			S	S	S	X	B	B	B	B	B	B	B	B	C	C	C	C	D^	D^	D^	D^
0.039	393	N				S	S	S	X	B	B	B	B	B	B	B	B	C	C	C	C	D^	D^	D^	D^
0.047	473	N	N	N		S	S	S	X	B	B	B	B	B	B	B	B	C	C	C	C	D^	D^	D^	D^
0.056	563	N				S	S	S	X	B	B	B	B	B	B	B	B	C	C	C	C	D^	D^	D^	D^
0.068	683	N				S	S	S	X	B	B	B	B	B	B	B	B	C	C	C	C	D^	D^	D^	D^
0.082	823	N				S	S	S	X	B	B	B	B	B	B	B	B	C	C	C	C	D	D	D	D
0.1 μF	104	N	N			S	S	S	X	B	B	B	B	B	B	B	B	C	C	C	C	D	D	D	D
0.12	124					S	S			B	B	B	D	B	B	B	B	C	C	C	C	D	D	D	D
0.15	154					S	S	X		D	D	D	D	C	C	C	C	C	C	C	C	D	D	D	D
0.18	184					S	S			D	D	D		C	C	C	C	C	C	C	C	D	D	D	D
0.22	224					S	S	X		D	D	D	I	C	C	C	C	C	C	C	C	D	D	D	D
0.27	274					X				D	D	D		C	C	C	D	C	C	C	C	D	D	D	D
0.33	334					X	X			D	D	D	I	C	C	C	D	C	C	C	D	D	D	D	D
0.39	394					X				D	D	D		C	C	J	P	C	C	C	D	D	D	D	D
0.47	474					X	X			D	D	D		J	J	J	P	C	C	C	D	D	D	D	D
0.56	564									D	D	D		J	J	J	P	D	D	D	D	D	D	D	D
0.68	684					X	X			D	D	D		J	J	J	P	D	D	D	D	D	D	D	K
0.82	824									D	D	D		J	J	J	P	D	D	D	D	D	D	D	K
1 μF	105					X	X			D	D	D		J	J	J	P	D	D	D	D	D	D	D	K
2.2	225									I	I			J	J	P				G					
3.3	335														P	P				G					
4.7	475													P	P	P				K					
6.8	685																								
10 μF	106													P				K	K	M			M	M	
22 μF	226																								

- 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).

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WALSIN TECHNOLOGY CORPORATION

CAPACITANCE AND VOLTAGE (X5R)

DIELECTRIC		X5R																		
SIZE	EIA CAP	0402			0603				0805			1206			1210				1812		
VDCW	CODE	6.3V	10V	16V	6.3V	10V	16V	25V	6.3V	10V	16V	6.3V	10V	16V	6.3V	10V	16V	25V	6.3V	10V	16V
0.027 μF	273			N																	
0.033	333			N																	
0.039	393			N																	
0.047	473			N																	
0.056	563		N																		
0.068	683		N																		
0.082	823		N																		
0.1 μF	104		N	N																	
0.15	154																				
0.22	224	N						X													
0.33	334	N			X	X	X														
0.47	474	N			X	X	X														
0.68	684				X	X	X														
1 μF	105	N			X	X	X	X													
1.5	155																				
2.2	225				X				I	I	I		J	J							
3.3	335								I	I			P	P							
4.7	475				X				I	I		P	P	P							
6.8	685											P									
10 μF	106								I			P	P	P	K	K	K	M			
22 μF	226								I			P			M	M	M			M	M
47 μF	476														M				M		
100 μF	107														M				U		

CAPACITANCE AND VOLTAGE (Y5V)

DIELECTRIC		Y5V																															
SIZE	EIA CAP	0402					0603					0805					1206						1210						1812				
VDCW	CODE	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	35V	50V	6.3V	10V	16V	25V	35V	50V	6.3V	10V	16V	25V	50V
1000pF	102																															
1500	152																															
2200	222																															
3300	332																															
4700	472																															
6800	682																															
0.01 μF	103		N	N	N	N		S	S	S	S		A	A	A	A		B	B	B		B										
0.015	153		N	N	N	N		S	S	S	S		A	A	A	A		B	B	B		B										
0.022	223		N	N	N	N		S	S	S	S		A	A	A	A		B	B	B		B										
0.033	333		N	N	N	N		S	S	S	S		A	A	A	A		B	B	B		B										
0.047	473		N	N	N			S	S	S	S		A	A	A	A		B	B	B		B										
0.068	683		N	N	N			S	S	S	S		A	A	A	A		B	B	B		B										
0.1 μF	104		N	N	N			S	S	S	S		A	A	A	A		B	B	B		B		C	C	C		C		D	D	D	D
0.15	154		N					S	S	S	S		A	A	A	A		B	B	B		B		C	C	C		C		D	D	D	D
0.22	224		N				S	S	S	S	S		A	A	A	A		B	B	B		B		C	C	C		C		D	D	D	D
0.33	334	N	N					S	S	S			B	B	B	B		B	B	B		B		C	C	C		C		D	D	D	D
0.47	474	N	N					S	S	S			B	B	B			B	B	B		B		C	C	C		C		D	D	D	D
0.68	684	N						S	X				B	B	D			B	B	B		B		C	C	C		C		D	D	D	D
1 μF	105	N						S	X				B	B	D	I		C	C	C		C		C	C	C		C		D	D	D	D
1.5	155							S					D	D				C	C	C				C	C	C				D	D	D	D
2.2	225						S	S					D	D	I			C	C	C		J		C	C	C				D	D	D	D
3.3	335												D	D				J	J	J				C	C	C				D	D	D	D
4.7	475						S	X					D	D				J	J	J	J		C	C	C	D				D	D	D	D
6.8	685												I					J	J					C	C	G				D	D	D	D
10 μF	106											I	I				J	J	J	P				D	D	G	K			D	D	D	K
22 μF	226											I						P						K	K							K	
47 μF	476																							K							M		
100 μF	107																						M						M	M			

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

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CAPACITANCE AND VOLTAGE (HI-VOLTAGE NP0)

DIELECTRIC		NP0																												
SIZE	EIA CAP	0402	0603			0805				1206						1210						1808			1812					
VDCW	CODE	100	100	200	250	100	200	250	500	100	200	250	500	1000	2000	100	200	250	500	1000	2000	1000	2000	3000	100	200	250	500	1000	2000	3000
0.5pF	0R5		S			A	A	A	A																					
1	1R0		S			A	A	A	A																					
1.2	1R2		S			A	A	A	A																					
1.5	1R5		S			A	A	A	A	B	B	B	B	B	B															
1.8	1R8		S			A	A	A	A	B	B	B	B	B	B															
2.2	2R2		S			A	A	A	A	B	B	B	B	B	B															
2.7	2R7		S			A	A	A	A	B	B	B	B	B	B															
3.3	3R3		S			A	A	A	A	B	B	B	B	B	B															
3.9	3R9		S			A	A	A	A	B	B	B	B	B	B							D	D	D						
4.7	4R7		S			A	A	A	A	B	B	B	B	B	B							D	D	D						
5.6	5R6		S			A	A	A	A	B	B	B	B	B	B							D	D	D						
6.8	6R8		S			A	A	A	A	B	B	B	B	B	B							D	D	D						
8.2	8R2		S			A	A	A	A	B	B	B	B	B	B							D	D	D						
10pF	100	N	S			A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D
12	120	N	S			A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D
15	150	N	S			A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D
18	180	N	S			A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D
22	220	N	S	S	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D
27	270	N	S	S	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D
33	330	N	S	S	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D
39	390	N	S	S	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D
47	470	N	S	S	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D
56	560		S	S	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D
68	680		S	S	S	A	A	A	A	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D
82	820		S	S	S	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D
100pF	101		S	S	S	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D
120	121		S			A	A	A	D	B	B	B	B	B	D	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D
150	151		S			A	B	B	D	B	B	B	B	C	D	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D
180	181		S			A	B	B	D	B	B	B	B	C	G	C	C	C	C	C	D	D	D	K	D	D	D	D	D	D
220	221		S			A	D	D	D	B	B	B	B	D	G	C	C	C	C	C	D	D	D	K	D	D	D	D	D	D
270	271		S			A	D	D	D	B	B	B	C	D		C	C	C	C	C		D	D	K	D	D	D	D	D	K
330	331		S			A	D	D	D	B	B	B	C	G		C	C	C	C	D		D	D		D	D	D	D	D	K
390	391		S			B	D	D	D	B	B	B	C	G		C	C	C	C	D		D	K		D	D	D	D	D	K
470	471		S			B	D			B	C	C	C	G		C	C	C	C	D		D	K		D	D	D	D	D	K
560	561		S			B	D			B	C	C	C			C	C	C	C			K	K		D	D	D	D	D	
680	681					B	D			B	C	C	C			C	C	C	C			K	K		D	D	D	D	K	
820	821					B	D			B	C	D	D			C	C	C	C			K			D	D	D	D	K	
1000pF	102					B				B	C	G	G			C	C	C	C			K			D	D	D	D	K	K
1200	122					B				B	C					C	D	D	D						D	D	D	D	K	
1500	152					B				B	C					C	D	D	D						D	D	D	D	K	
1800	182					B				B	D					C	D	D	D						D	D	D	D		
2200	222					B				B	D					C	D	D							D	D	D	D		
2700	272					D				B						C	D	D							D	D	D	D		
3300	332					D				B						C	D								D	D	D	D		
3900	392					D				B						C	D								D	D				
4700	472									B						C									D	D				
5600	562									B						C									D	D				
6800	682									C						C									D	D				
8200	822									C						C									D					
0.01 μF	103															C									D					
0.012	123															D									D					
0.015	153															D									D					
0.018	183																								D					
0.022	223																								D					
0.027	273																								D					
0.033 μF	333																								D					

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WALSIN TECHNOLOGY CORPORATION

CAPACITANCE AND VOLTAGE (HI-VOLTAGE X7R)

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

CAPACITANCE AND VOLTAGE (HI-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 μF	103	B	B	B	B	B	B	C	C	C	D	D	D
0.015	153	B	B	B	B	B	B	C	C	C	D	D	D
0.022	223	B	B	B	B	B	B	C	C	C	D	D	D
0.033	333	B	B	B	B	B	B	C	C	C	D	D	D
0.047	473	B	B	B	B	B	B	C	C	C	D	D	D
0.068	683	B	B	B	B	B	B	C	C	C	D	D	D
0.1 μF	104	B			B	B	B	C	C	C	D	D	D
0.15	154				C	C	C	C	C	C	D	D	D
0.22	224				C			C			D	D	D
0.33	334							C			D	D	D
0.47	474										D	D	D
0.68	684										D	D	D
1 μF	105										D		

- 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).

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WALSIN TECHNOLOGY CORPORATION

PACKING SPECIFICATION

1. Customer Chip Capacitor on Tape and Reel:

■ Chip Capacitor on Tape and Reel

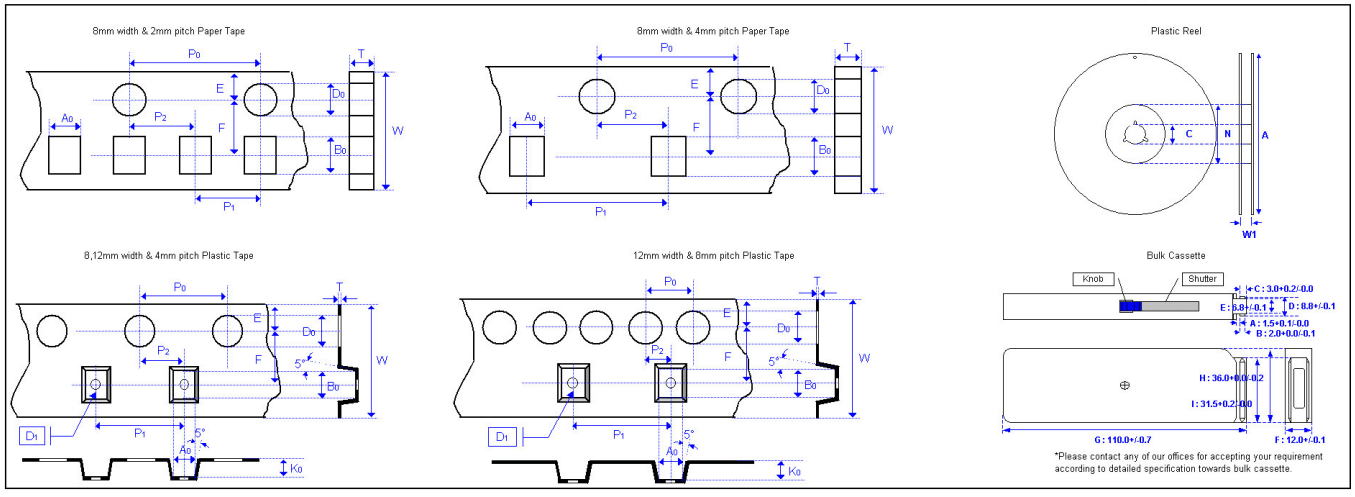
Taping Methods \ Chip Dimensions		0402	0603		0805						1206						1210					1808		1812
		N	S,X		A,H	B	T	C	D	I	B	T	C,D	J	G	P	T	C,D	G	K	M	C,D	K	D,K
Paper Tape	T (7"x8mm)	10 kp	4 kp	-	4 kp	4 kp	4 kp	-	-	-	4 kp	4 kp	-	-	-	-	-	-	-	-	-	-	-	-
	R (7"x8mm)	-	-	10 kp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Q (10"x8mm)	-	10 kp	-	10 kp	10 kp	10 kp	-	-	-	10 kp	10 kp	-	-	-	-	-	-	-	-	-	-	-	-
	G (13"x8mm)	50 kp	15 kp	-	15 kp	15 kp	15 kp	-	-	-	15 kp	15 kp	-	-	-	-	-	-	-	-	-	-	-	-
Plastic Tape	P (7"x8mm)	-	-	-	-	-	-	3 kp	3 kp	3kp	-	-	3 kp	3kp	2 kp	2 kp	3 kp	3 kp	2 kp	1kp	1kp	-	-	-
	Non-standard (Type 0)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5kp	-	-	-
	Non-standard (Type 2)	-	-	-	-	-	-	-	-	2kp	-	-	-	2kp	-	-	-	-	-	2kp	-	-	-	-
	Non-standard (Type 5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5 kp	-	-	-	-	-	-	-	-
	P (7"x12mm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2 kp	1 kp	1 kp
	K (10"x8mm)	-	-	-	-	-	-	5 kp	5 kp	5 kp	-	-	5 kp	5 kp	-	-	5 kp	5 kp	-	-	-	-	-	-
	L (13"x8mm)	-	-	-	-	-	-	10 kp	10 kp	10 kp	-	-	10 kp	10 kp	-	-	10 kp	10 kp	-	-	-	-	-	-
Bulk Cassette	C (Cassette)	50 kp	15 kp		10 kp	-	-	-	5 kp	5 kp	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Non-standard packing quantity is available upon customer's requirement.

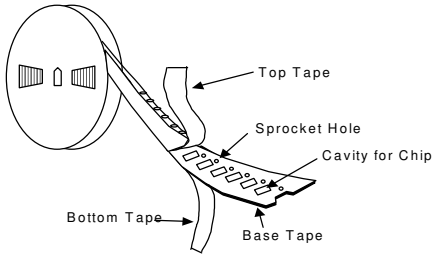
Reel Dimension (unit : mm)			
C	W1	A	N
13.0 +0.5/-0.2	8.4 +1.5/-0	178.0 +/-1.0	60.5 +/-1.0
13.0 +0.5/-0.2	8.4 +1.5/-0	178.0 +/-1.0	60.5 +/-1.0
13.0 +0.5/-0.2	8.4 +1.5/-0	260.0 +/-1.0	100.0 +/-1.0
13.0 +0.5/-0.2	8.4 +1.5/-0	330.0 +/-1.0	100.0 +/-1.0
13.0 +0.5/-0.2	8.4 +1.5/-0	178.0 +/-1.0	60.5 +/-1.0
13.0 +0.5/-0.2	12.4 +2.0/-0	178.0 +/-1.0	80.0 +/-1.0
13.0 +0.5/-0.2	8.4 +1.5/-0	250.0 +/-1.0	100.0 +/-1.0
13.0 +0.5/-0.2	8.4 +1.5/-0	330.0 +/-1.0	100.0 +/-1.0
-	-	-	-

Tape Dimension (unit : mm)																									
	A0	0.62 +/-0.05	1.02 +/-0.05	1.02 +/-0.05	1.50 +/-0.10	1.50 +/-0.10	1.50 +/-0.10	< 1.57	< 1.57	< 1.57	2.00 +/-0.10	2.00 +/-0.10	< 1.90	< 1.90	< 1.95	< 1.95	< 2.97	< 2.97	< 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	2.30 +/-0.10	< 2.40	< 2.40	< 2.40	3.50 +/-0.10	3.50 +/-0.10	< 3.50	< 3.50	< 3.67	< 3.67	< 3.73	< 3.73	< 3.73	< 3.73	< 3.73	< 4.98	< 5.00	< 5.30
	T	0.60 +/-0.05	0.95 +/-0.05	0.95 +/-0.05	0.75 +/-0.05	0.95 +/-0.05	0.95 +/-0.05	0.23 +/-0.05	0.23 +/-0.05	0.23 +/-0.05	0.95 +/-0.05	0.95 +/-0.05	0.23 +/-0.05	0.23 +/-0.05	0.23 +/-0.05	0.23 +/-0.05	0.23 +/-0.05	0.23 +/-0.05	0.23 +/-0.05	0.23 +/-0.05	0.23 +/-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	< 1.50	< 2.50	< 2.50	< 2.50	< 3.00	< 2.50	< 2.50	< 2.50
	W	8.00 +/-0.10	8.00 +/-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 +/-0.20	8.00 +/-0.10	8.00 +/-0.10	8.00 +/-0.20	8.00 +/-0.20	8.00 +/-0.20	8.00 +/-0.20	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	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	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	2.00 +/-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	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	1.55 +/-0.05	1.50 +0.10/-0	1.50 +0.10/-0	1.50 +0.10/-0	1.55 +/-0.05	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	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	1.00 +/-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 +/-0.05	1.75 +/-0.10	1.75 +/-0.10	1.75 +/-0.10	1.75 +/-0.05	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	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	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

* Chip Thickness : (Unit : mm)
N=0.50±0.05
H=0.55+ 0.05/-0.15
A=0.60±0.10
B=0.80±0.10
C=0.95±0.10
D=1.25±0.10
I=1.25±0.20
J=1.15±0.15
S=0.80 ±0.07
X=0.80+0.15/-0.1
P=1.60+0.3/-0.1
G=1.60± 0.21
K=2.00± 0.20
M=2.5± 0.30
T=0.85± 0.1



2. 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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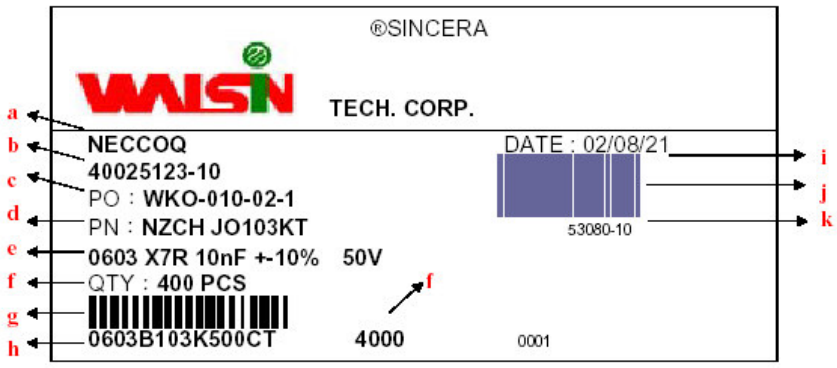
WALSIN TECHNOLOGY CORPORATION

DESCRIPTION OF THE STANDARD SHIPPING LABEL

1. Customer Label:



a. Customer name

b. WALSIN order serial number and item number

c. Customer P/O

d. Customer P/N

e. Description of specifications

f. Quantity

g. Quantity and WALSIN P/N or customer P/N in bar code

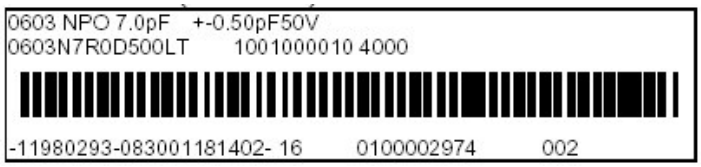
h. Material serial number of WALSIN

i. Shipping date

j. Order bar code including serial number and item numberSerial number of the label

Information of caution/precaution handling of chip : 1. No bumping & pressurizing when carry. 2. Keep out of water.

2. Walsin Standard Label:



□ 1st Column : 0603 NPO 7.0pF +-0.50pF50V <<Content: product description>>

(1). 0603: Size (2). NPO : Dielectric (3). 7.0pF : Capacitance (4) +/-0.50pF: Tolerance

□ 2nd Column : 0603N7R0D500LT 1001000010 4000

<<Content: Part number + batch number of taping +quantity per reel(pcs)>>

(1). 0603N7R0D500NT: Part number

(2). 1001000010: Batch number of taping (2.1) 000010: random number

(3). 4000: quantity per reel (unit: pieces)

□ 3rd Column: Bar code <<Content:The reading is same as 2nd column>>

0603N7R0D500NT 1001000010 4 (Quantity unit: Kpcs)

□ 4th Column: -11980293-083001181402- 16 0100002974 002

(1). - : Tap

(2). 11980293: Employee number

(3). 083001 : Mouth , Date, Year (The date of printing)

(4). 181402 : Hour, minute, second (Printing Time)

(5). 16 : Copies of label(with same batch number)

(6). 0100002974 : Batch number of bulk

(7). 002 : Series of copies

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) To store products with following 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 sulfide, chloride gas, or acid. It may cause oxidization of electrode, which easily be resulted 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:

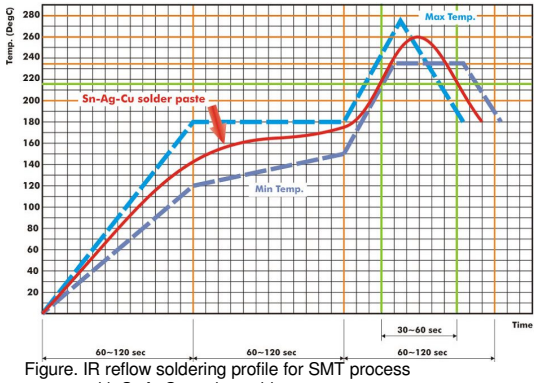


Figure. IR reflow soldering profile for SMT process with SnAgCu series solder paste.

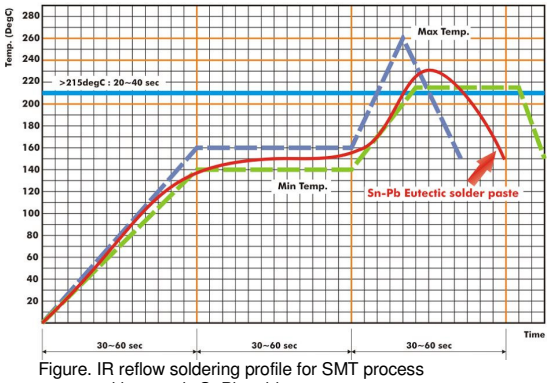


Figure. IR reflow soldering profile for SMT process with eutectic SnPb solder paste.

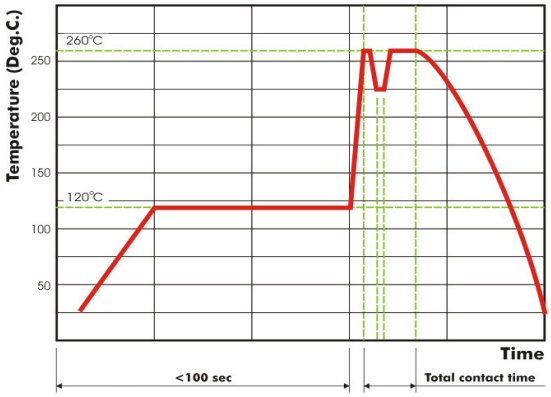


Figure. Wave soldering

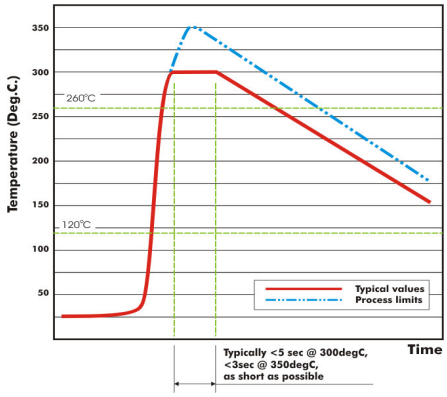
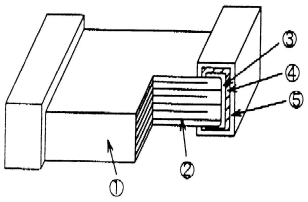


Figure. Manual soldering (soldering gun)

3. Construction:

No.	Name		Class I	Class II	
1	Ceramic material		Barium titanate base		
2	Inner electrode		Pd, PdAg	Pd, PdAg	Ni
3	Termination	Inner layer	Ag	Ag	Cu
4		Middle layer	Ni		
5		Outer layer	Sn		



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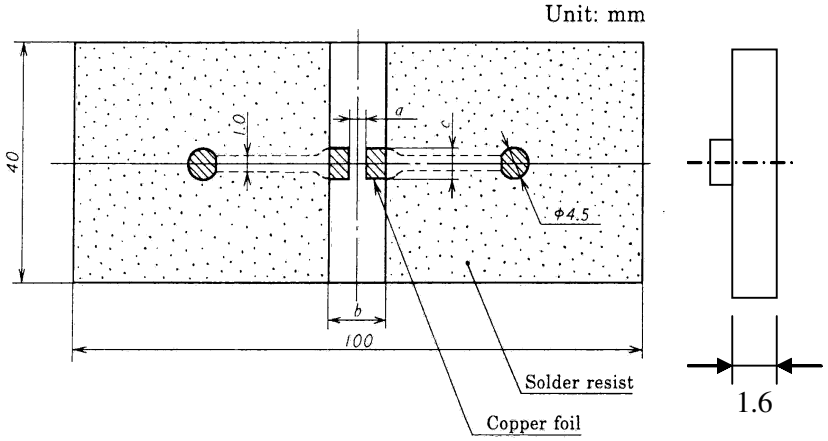
APPENDIX I

1. Testing Substrate:

The testing substrate shall 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)

Unit: mm



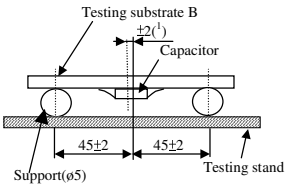
External Size of Capacitor		Dimensions of Pattern (Unit : mm)		
Symbol	W*L	a	b	c
0402	0.5*1.0	0.4	1.5	0.5
0603	0.8*1.6	1.0	3.0	1.2
0805	1.25*2.0	1.2	4.0	1.65
1206	1.6*3.2	2.2	5.0	2.0
1210	2.5*3.2	2.2	5.0	2.9
1812	3.2*4.5	3.5	7.0	3.7

2. Testing Method:

2.1 The capacitor shall be soldered to testing substrate A.

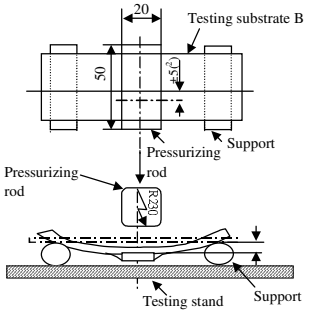
2.2 The substrate shall be so placed with it's surface on which capacitor is mounted downwards that the center of capacitor coincides with the center of supports as illustrated in Fig2.(Flexural test of substrate)

(a) Supporting Condition of Substrate (Unit :



Discrepancy between center of supports and center of substrate.

(b) Testing Condition (Unit: mm)



Discrepancy between center of testing substrate A and center of pressurizing rod.

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APPENDIX II

1. Testing Substrate:

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

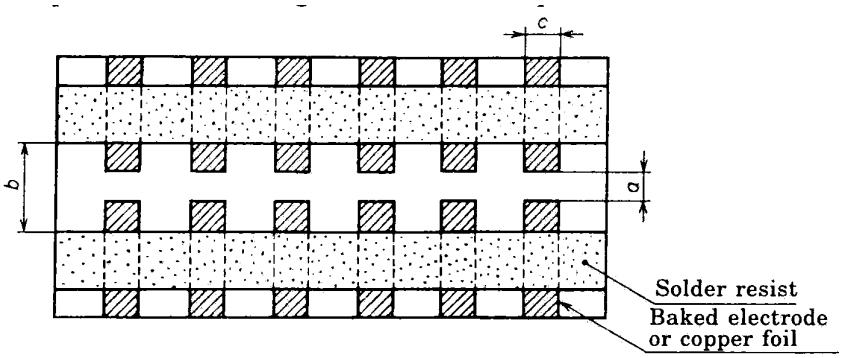

Fig.1 Testing substrate A

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