




# SPECIFICATION

## CE Series(Y2-Series)

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## 1. Applications

Can be used for power supply noise suppression circuit in cross connection and bypass. It is a primary and secondary coupling X/Y capacitor used as AC line filter and switching power supply and AC converter.

## 2. Part Number Code

### Part Number Code

G	08	F	1	E	222	M	N0	B	0	S	0	N	0
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**Rated Voltage**  
G:Y2

**Pitch**  
E:7.5mm  
D:10.0mm

**Tolerance**  
K:±10%  
M:±20%

**Package**  
B: Bulk  
T: Tape

**Inner Management**

**Core Diameter**  
07:mm  
08:8mm  
09:9mm  
10:10mm

**Foot Type**  
1:Long straight  
2:Outside Crimped  
3:Short Straight  
8:Vertical Crimped

**Environmental Standard**  
0:RoHS  
2:RoHS+Halogen-Free

**Temperature Characteristic**  
B:Y5P  
E:Y5U  
F:Y5V

**Nominal capacitance**  
101:100pF  
151:150pF  
221:220pF  
471:470pF  
681:680pF  
102:1000pF  
152:1500pF  
222:2200pF  
332:3300pF  
472:4700pF

**Lead Length**  
S0~S9:1.0~1.9mm  
X0~X9:2.0~2.9mm  
A0~A9:3.0~3.9mm  
B0~B9:4.0~4.9mm  
C0~C9:5.0~5.9mm  
D0~D9:6.0~6.9mm  
E0~E9:7.0~7.9mm

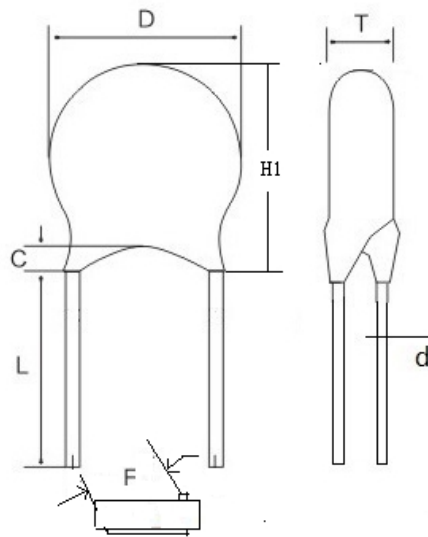
**Lead Length**  
F0~F9:8.0~8.9mm  
G0~G9:9.0~9.9mm  
H0~H9:10.0~10.9mm  
J0~J9:11.0~11.9mm  
K0~K9:12.0~12.9mm  
L0~L9:13.0~13.9mm  
M0~M9:14.0~14.9mm

**Lead Length**  
M0~M9:14.0~14.9mm  
N0:16~27.0mm(Bulk)  
**Crimped Lead Taped**  
N0:H0=16.5mm  
P0:H0=17.0mm  
Q0:H0=19.0mm  
**Straight Lead**  
Q0:20.0mm

### 3. Electrical Characteristics

Capacitance and Dissipation factor testing condition	25°C, 1KHz, 1Vrms
Dissipation Factor(tanδ)	≤2.5%
Rated Voltage	250VAC
Withstand Voltage	2500VAC
Insulation Resistance (I.R.)	≥10000MΩ
Temperature Characteristic	Y5P, Y5U, Y5V

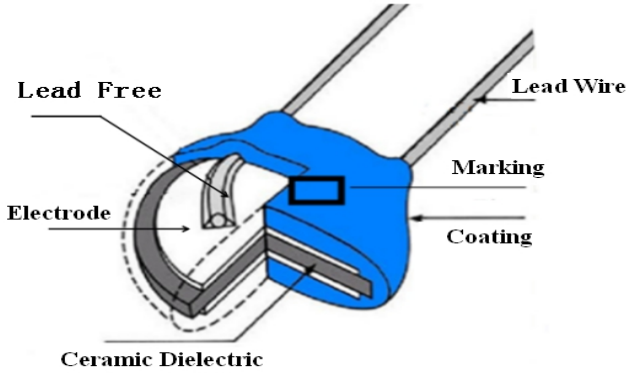
### 4. Dimensions



PN of STE	Dimension (mm)							Marking	Packing
	D Max	T Max	L Min	F±0.8	Φd±0.05	H1 Max	C Max		
G07B1E101KN0B0 S0N0	7.0	4.0	16.0	10.0	0.6	9.5	2.5	<b>Example 2</b>	Bulk
G07B1E151KN0B0 S0N0	7.0	4.0	16.0	10.0	0.6	9.5	2.5	<b>Example 2</b>	Bulk
G07B1E221KN0B0 S0N0	7.0	4.0	16.0	10.0	0.6	9.5	2.5	<b>Example 2</b>	Bulk
G07B1E471KN0B0 S0N0	7.0	4.0	16.0	10.0	0.6	9.5	2.5	<b>Example 2</b>	Bulk










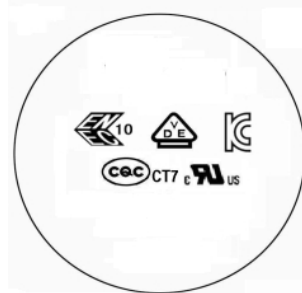
<b>G08B1E681KN0B0 S0N0</b>	8.5	4.0	16.0	10.0	0.6	11.0	2.5	<b>Example 2</b>	Bulk
<b>G07E1E102MN0B0 S0N0</b>	7.0	4.0	16.0	10.0	0.6	9.5	2.5	<b>Example 2</b>	Bulk
<b>G09E1E152MN0B0 S0N0</b>	9.0	4.0	16.0	10.0	0.6	11.5	2.5	<b>Example 1</b>	Bulk
<b>G10E1E222MN0B0 S0N0</b>	10.0	4.0	16.0	10.0	0.6	12.5	2.5	<b>Example 1</b>	Bulk
<b>G07F1E152MN0B0 S0N0</b>	7.0	4.0	16.0	10.0	0.6	9.5	2.5	<b>Example 2</b>	Bulk
<b>G08F1E222MN0B0 S0N0</b>	8.0	4.0	16.0	10.0	0.6	10.5	2.5	<b>Example 2</b>	Bulk
<b>G09F1E332MN0B0 S0N0</b>	9.0	4.0	16.0	10.0	0.6	11.5	2.5	<b>Example 1</b>	Bulk
<b>G10F1E472MN0B0 S0N0</b>	10.0	4.0	16.0	10.0	0.6	12.5	2.5	<b>Example 1</b>	Bulk
<b>G07B1E101KQ0T0 S0N0</b>	7.0	4.0	/	10.0	0.6	9.5	2.5	<b>Example 2</b>	Taping
<b>G07B1E471KQ0T0 S0N0</b>	7.0	4.0	/	10.0	0.6	9.5	2.5	<b>Example 2</b>	Taping
<b>G08B1E681KQ0T0 S0N0</b>	8.5	4.0	/	10.0	0.6	11.0	2.5	<b>Example 2</b>	Taping
<b>G09E1E152MQ0T0 S0N0</b>	9.0	4.0	/	10.0	0.6	11.5	2.5	<b>Example 1</b>	Taping
<b>G09F1E332MQ0T0 S0N0</b>	9.0	4.0	/	10.0	0.6	11.5	2.5	<b>Example 1</b>	Taping

## 5. Internal Structure

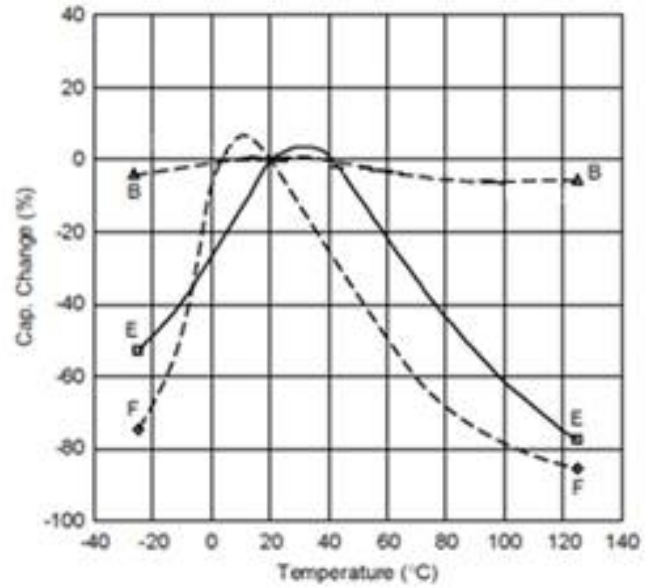
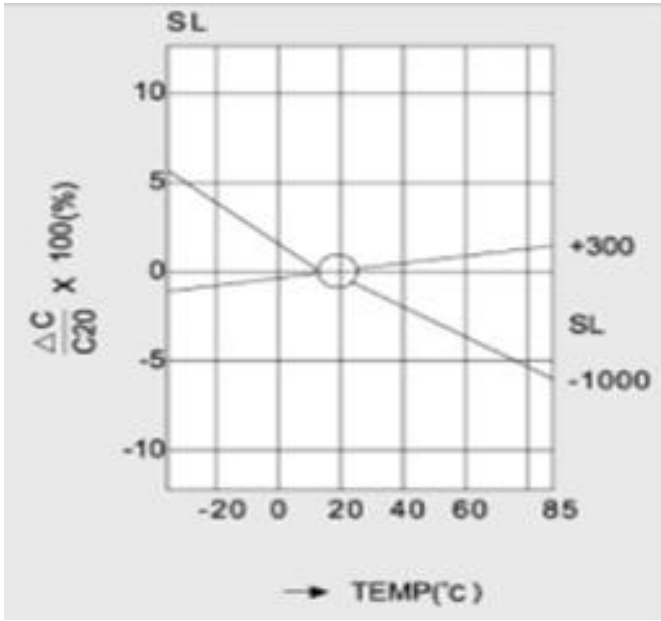


No.	Name	Material	Note
1	Electrode	Metal Layer	
2	Ceramic Dielectric	Ceramic	
3	Lead Free	Tin Bar	
4	Lead Wire	CP wire	
5	Coating	Epoxy Resin	Color:Blue
6	Marking	Laser marking	

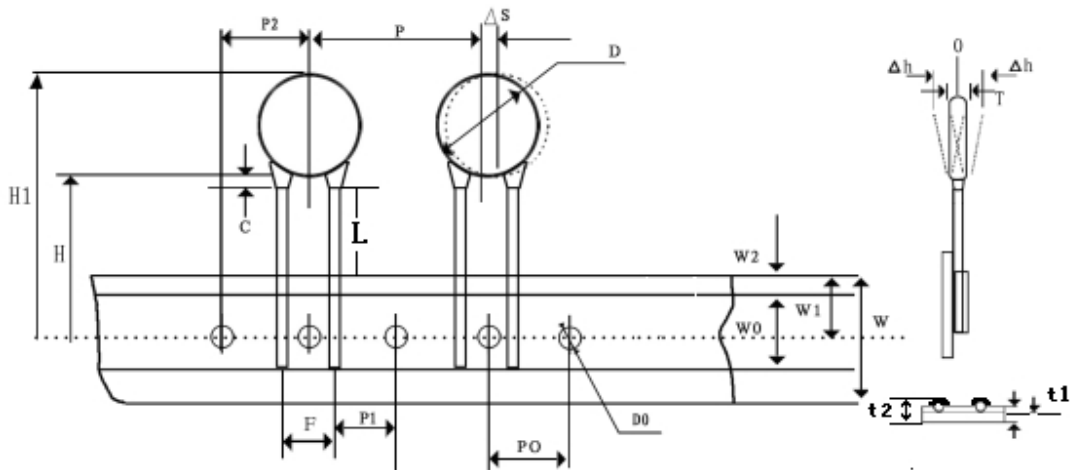
## 6. Marking

	①Registered Trademark			
	②CE	Type (CE:Y2)		
	③Nominal Capacitance	□□□		
	④Capacitance Tolerance	M (±20%)		
	⑤Safety Certification Sign	ENEC(EU)		
		VDE		
		KTL		
CQC				
UL				
⑥Rated Voltage	250V~(250VAC)			
⑦Sub-Class of Safety Performance	X1 Y2			
<b>Example 1:Y2 Single Sided Printing</b>		<b>Example 2: Y2 Double Sided Printing</b>		
		 		

## 7. Temperature Characteristic Curves



## 8. Taping And Dimensions

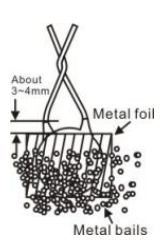


Code	Po	P	P1	P2	F	ΔS	Δh	W	Wo
Size(mm)	12.7	25.4	8.95	12.7	7.5	0	0	17.0	10.5
Tolerance	±0.3	±1.0	±0.7	±1.3	±0.8	±2.0	±2.0	+1.5/-1.0	Max
Code	W1	W2	H1	Do	H	L	t1	t2	c
Size(mm)	9.0	3.0	45.0	4.0	20.0	11.0	0.5	1.7	2.5
Tolerance	+0.75/-0.5	Max	Max	±0.2	+1.5/-1	Max	±0.2	Max	/

## 9. Safety Certificate

Country	Certification Body	Report Reference	Certificate No.	Capacitance Range	Rated Voltage
USA Canada	UL CUL	UL60384-14	E208107	100~10000pF	X1Y2: 250VAC
Korea	KTL	K60384-14 (2015)	SU03031-7001B	100~10000pF	
China	CQC	GB/T 6346.14-2015	CQC19001213202	100~10000pF	
Germany	VDE	En 60384-14: 2017-04	40025748	100~10000pF	
EU	ENEC	En 60384-14: 2017-04	40025748	100~10000pF	

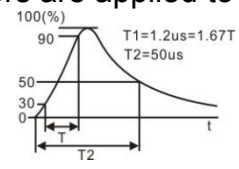
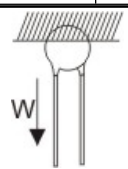
## 10. Performance Test Methods And Requirements

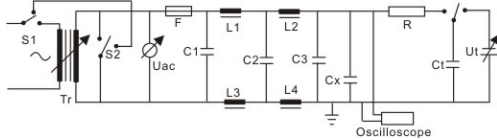
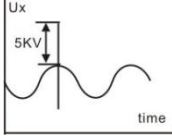
No.	Item	Standard	Test Method	
1	Temperature Range	-25℃~125℃	/	
2	Appearance/Size	No opparent defect,size within the normal range	Capacitors must be visually inspect to check if there's opparent defect and measure size with vernier caliper	
3	Marking	Clear and easy to recognize	Visual inspection	
4	Capacitance	Within the specified tolerance	25 ℃ ,1 ± 0.1 KHz, 1.0 V.	
5	D.F.	D.F.≤2.5%		
6	I.R.	>10000MΩ	500VDC, 60s±5s .	
7	Dielectric Strength	Between Leads	No breakdown and flashover	Between terminals: AC2500V (r.m.s.) 60s, ≤50mA
		Between Leads and Body	No breakdown and flashover	As shown in figure at right,a metal foil should be closely wrapped around the body of the capacitor to the distance of about 3 to 4mm from each terminal.hen,the capacitor should be inserted into a container filled with metal balls of about 1mm diameter.voltage appliedA C2500V(r.m.s.),60s 



## 11. Reliability Test Methods And Requirements

No.	Item	Standard	Test Method											
1	Temperature Characteristics	Char.	The capacitance measurement should be made at each step specified in Table 3 < Table 3>											
		Capacitance change												
		B(Y5P)		±10%										
		E(Y5U)		+22/-56%										
		F(Y5V)		+30/-80%										
Temperature range: -25 ~ +85°C		<table border="1"> <thead> <tr> <th>Step</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> </tr> </thead> <tbody> <tr> <td>Temperature (°C)</td> <td>20 ±2</td> <td>-25 ±2</td> <td>20 ±2</td> <td>85 ±2</td> <td>20 ±2</td> </tr> </tbody> </table>	Step	1	2	3	4	5	Temperature (°C)	20 ±2	-25 ±2	20 ±2	85 ±2	20 ±2
Step	1	2	3	4	5									
Temperature (°C)	20 ±2	-25 ±2	20 ±2	85 ±2	20 ±2									
2	Solderability	Lead wire should be soldered with uniform coating on the axial direction over 95% of the circumferential direction.	245±3°C, 3±0.3s. Solder composition: Sn96.5Ag3.0Cu0.5											
3	Solder Resistance Heat Up	Appearance	No marked defect											
		Capacitance change	Within ±10%											
		I.R.	≥1000MΩ											
		Dielectric Strength	Per 10.1[Basic characteristics] item7											
		260 ± 5°C, 10.0 ± 0.5 s.												
4	Vibration	Appearance	No visible damage											
		Capacity	Within the tolerance											
		D.F.	≤2.5%											
		10~55Hz, 0.75mm, 10Hz→55Hz→10Hz. 1min Apply for a total of 6 hours, 2 hrs each in 3 mutually perpendicular directions.												
5	Humidity (Under Steady State)	Appearance	No visible damage											
		Capacity Rate of Change	≤±15%											
		I.R.	>5000MΩ											
		Withstand Voltage	Per 10.1[Basic characteristics] item7											
		40±2°C, 90-95%RH, 500±12 hours.												

No.	Item	Standard	Test Method																												
6	Humidity Loading	Appearance	No visible damage																												
		Capacitance Change	$\leq \pm 15\%$																												
		I.R.	$> 5000M\Omega$																												
		Dielectric Strength	Per 10.1 [Basic characteristics] item 7																												
$40 \pm 2^\circ C$ , 90~ 95% RH, Apply with $U_R$ , $500 \pm 12$ hours.																															
7	Life Test	Appearance	No visible damage																												
		Capacitance change	Within $\pm 20\%$																												
		I.R.	$> 5000M\Omega$																												
		Dielectric Strength	Per 10.1 [Basic characteristics] item 7																												
Impulse Voltage: 5KVDC, three times. After the capacitors are applied to life test. <div style="text-align: center;">  </div> $125 + 2/-0^\circ C$ , relative humidity of 50% max, 1000 hours, $1.7 * U_R$ (r.m.s.), except that once each hour the voltage is increased to AC1000V (r.m.s.) for 0.1 sec.																															
8	Passive Flammability	The burning time shall not be exceeded the standard. The tissue paper shall ignite.	The Varistor under test shall be held in the flame in the position which best promotes burning. Each specimen shall be exposed once in the flame. Specifically as follows: level C requirements. <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Class</th> <th colspan="4">Capacitor volume (mm<sup>3</sup>) Apply flame time (S)</th> <th rowspan="2">Maximum burning time (S)</th> </tr> <tr> <th>volume &lt; 250</th> <th>250 &lt; volume ≤ 500</th> <th>500 &lt; volume ≤ 1750</th> <th>volume &gt; 1750</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>15</td> <td>30</td> <td>60</td> <td>120</td> <td>3</td> </tr> <tr> <td>B</td> <td>10</td> <td>20</td> <td>30</td> <td>60</td> <td>10</td> </tr> <tr> <td>C</td> <td>5</td> <td>10</td> <td>20</td> <td>30</td> <td>30</td> </tr> </tbody> </table>	Class	Capacitor volume (mm <sup>3</sup> ) Apply flame time (S)				Maximum burning time (S)	volume < 250	250 < volume ≤ 500	500 < volume ≤ 1750	volume > 1750	A	15	30	60	120	3	B	10	20	30	60	10	C	5	10	20	30	30
			Class		Capacitor volume (mm <sup>3</sup> ) Apply flame time (S)					Maximum burning time (S)																					
volume < 250	250 < volume ≤ 500	500 < volume ≤ 1750		volume > 1750																											
A	15	30	60	120	3																										
B	10	20	30	60	10																										
C	5	10	20	30	30																										
9	Robustness of Termination	Tensile Strength	Lead wire should not be cut off. Capacitor should not be broken. <div style="text-align: right;">  </div>																												
		Bending Strength		As shown in the figure at right, 10N, $10 \pm 1$ sec.  Each lead wire should be subjected to 5N weight and then a 90° bend, at the point of egress, in one direction, return to original position, and then apply a 90° bend in the opposite direction at the rate of one bend in 2 to 3 sec.																											

No.	Item	Standard	Test Method															
10	Rapid Temperature Changes	Appearance	No visible damage															
		Capacitance Rate of Change	B(Y5P)/E(Y5U): $\pm 20\%$ ; F(Y5V): $\pm 30\%$ 。															
		D.F.	B(Y5P)/E(Y5U): D.F. $\leq 5.0\%$ F(Y5V): D.F. $\leq 7.5\%$															
		I.R.	$> 5000M\Omega$															
		Withstand Voltage	Per 10.1[Basic characteristics] item7															
			<p>Capacitors should be tested in the order shown in the following table (for one cycle) for five consecutive cycles.</p> <p style="text-align: center;">Temperature cycling</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Order</th> <th>(°C)</th> <th>(min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-25 +0/-3</td> <td>30</td> </tr> <tr> <td>2</td> <td>+25 +0/-3</td> <td>3</td> </tr> <tr> <td>3</td> <td>125 +3/-0</td> <td>30</td> </tr> <tr> <td>4</td> <td>+25 +0/-3</td> <td>3</td> </tr> </tbody> </table> <p>[Pre-treatment]: Stored at <math>85 \pm 2^\circ C</math>, 1 hour and then <math>24 \pm 2</math> hours before making initial measurements. [Treatment After testing]: Capacitors must be stored at room temperature for <math>24 \pm 2</math> hours.</p>	Order	(°C)	(min)	1	-25 +0/-3	30	2	+25 +0/-3	3	3	125 +3/-0	30	4	+25 +0/-3	3
Order	(°C)	(min)																
1	-25 +0/-3	30																
2	+25 +0/-3	3																
3	125 +3/-0	30																
4	+25 +0/-3	3																
11	Active Flammability (Only for Y2)	The cheese-cloth should not be on fire.	<p>The capacitor should be individually wrapped in at least one but not more than two complete layers of cheese-cloth. The capacitor should be subjected to discharges for 20 times. The interval between successive discharges should be 5 sec. The UAC should be maintained for 2 min. after the last discharge.</p>  <p>           C1, 2:1UF<math>\pm 10\%</math>            C3:0.033UF<math>\pm 5\%</math>, 10KV            Ct:3UF<math>\pm 5\%</math> 10KV            Cx: Capacitor under test            F: Fuse, Rated 10A            R:100<math>\Omega \pm 5\%</math>            Ur: Rated Voltage            Ut: Voltage applied to Ct            L1 to 4: 1.5mH<math>\pm 20\%</math> 16A Rod core choke         </p> 															

## 12. Storage Conditions

12.1 Storage Temperature:  $\leq 35^\circ C$ .

12.2 Relative Humidity:  $\leq 70\%$  RH.

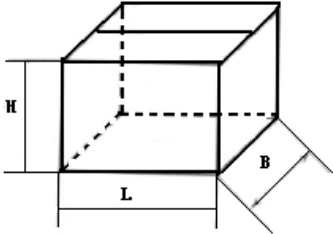
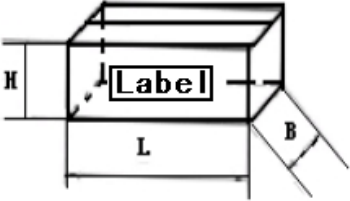
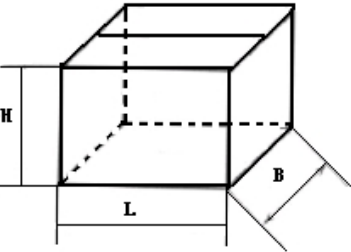
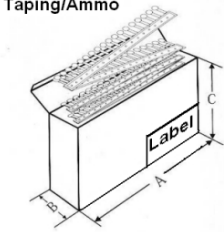
12.3 Keep away from corrosive atmosphere and sunlight.

12.4 Period : 1 year.

### 13. Environmental Compliance:

RoHS Compliance  
REACH Compliance

### 14. Packaging

External Packaging (Bulk)	Internal Packaging (Bulk)
	
External Packaging (Taping)	Internal Packaging (Taping)
	<p>Taping/Ammo</p> 

Dimension Description (cm)					
External Packaging (Bulk)			Internal Packaging (Bulk)		
L	B	H	L	B	H
41.0	29.0	16.0	18.6	27.3	12.6
External Packaging (Taping)			Internal Packaging (Taping)		
L	B	H	B	A	C
54.0	36.0	26.3	4.4	33.5	26.2

**SPQ Reference Table**

Type	Specification	SPQ Quantity	
Bulk	P=5 B	Long Lead/Short Lead $\Phi \leq 13$	1000
			500
	P=7.5 E	Long Lead/Short Lead $\Phi \leq 8$	1000
		Long Lead/Short Lead $\Phi > 8$	500
	P=10 D	Short lead	1000
		Long Lead	500
		Long Lead $14 \leq \Phi < 17$	250
		Short lead $14 \leq \Phi < 17$	500
		Long Lead/Short Lead $\Phi \geq 17$	250
	Type	Specification	SPQ Quantity
Taping	P=5, $\Phi < 8$	2000	
	P=5, $\Phi 8 \sim 9$ , Thickness $\leq 90$	1500	
	P=7.5	1000	
	P=10	1000	
	Y Ceramic Capacitor	1000	

Note: The above is for reference only, the actual packing number of braided tape shall prevail.