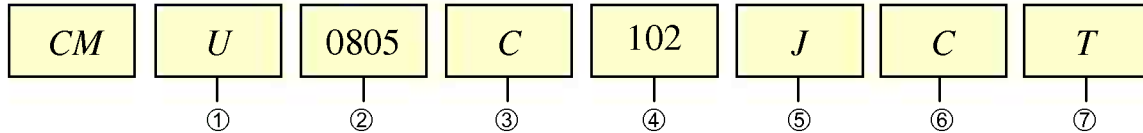


1. SCOPE

This specification is applicable to Jackcon multilayer ceramic capacitors.

2.CODE CONSTRUCTION



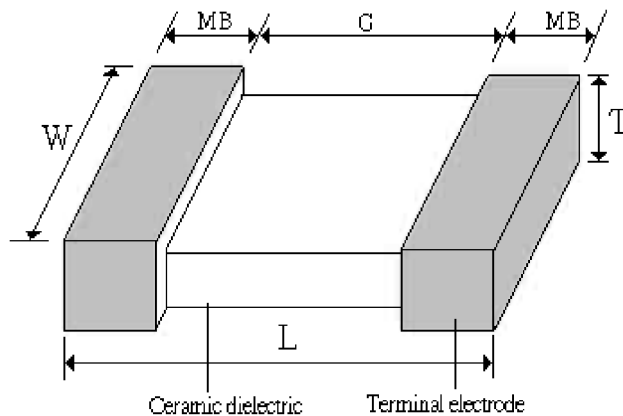
① Rated Voltage:

Code	Rated voltage	Code	Rated voltage	Code	Rated voltage	Code	Rated voltage	Code	Rated voltage
K	6.3V	T	25V	G	200V	D	630V	P	3000V
N	10V	U	50V	H	250V	M	1000V	Q	4000V
B	16V	A	100V	C	500V	O	2000V	R	5000V

② Part Dimension

Unit: mm

Size Code	Dimension					Voltage Ranges
	Length (L)	Width (W)	Thickness (T)	MB(Min)	G(Min)	
0402	1.0±0.05	0.5±0.05	0.5±0.05	0.10	0.30	6.3~ 50V
0603	1.6±0.1	0.8±0.07	0.8±0.07	0.20	0.40	6.3~ 250V
0805	2.0±0.2	1.25±0.1	1.40 max.	0.25	0.70	6.3~ 500V
1206	3.2±0.2	1.60±0.2	1.8 max.	0.25	1.40	6.3~ 2KV
1210	3.2±0.3	2.5±0.3	2.8 max.	0.25	1.40	6.3~ 1KV
1808	4.5±0.35	2.0±0.3	2.3 max.	0.25	2.15	630~ 3KV
1812	4.5±0.35	3.2±0.3	3.5 max.	0.25	2.15	6.3~ 3KV
2220	5.7±0.4	5.0±0.4	5.4 max.	0.25	3.30	100~ 3KV
2225	5.7±0.4	6.3±0.4	6.7 max.	0.25	3.30	100~ 3KV



③ Temperature Characteristics Code:

Code	Temp. Coefficient	Operation Temp.	Capacitance Change
C	NP0 (Class I)	-55 ℃ ~ +125 ℃	0 ± 30 ppm/℃
R	X7R (Class II)	-55 ℃ ~ +125 ℃	± 15%
X	X5R (Class II)	-55 ℃ ~ +85 ℃	± 15%
F	Y5V (Class II)	-30 ℃ ~ +85 ℃	+22% ~ -82%

④ Capacitance Code

Code	Capacitance(pF)	Code	Capacitance(pF)
1R0	1 *	102	1000 *
1R5	1.5	222	2200 *
100	10 *	472	4700 *
101	100 *	103	10000 *

⑤ Tolerance Code

Code	Tolerance	Code	Tolerance
B	± 0.1pF	J	±5%
C	±0.25pF	K	±10%
D	±0.50pF	M	±20%
F	± 1%	Z	+80% / -20%
G	± 2%		

- PS: 1. * -- Two significant digits followed by no. of zeros
 2. Temperature coefficient (T.C.) vs. Proper tolerance applied:
 NPO: For all tolerance
 X7R X5R: K M Tolerance
 Y5V : M Z Tolerance

⑥ Termination Code

Code	C
Termination Type	Nickel Barrier (pB free)

⑦ Packaging Code

Code	B	T
Packaging Type	Bulk	Tape & Reel

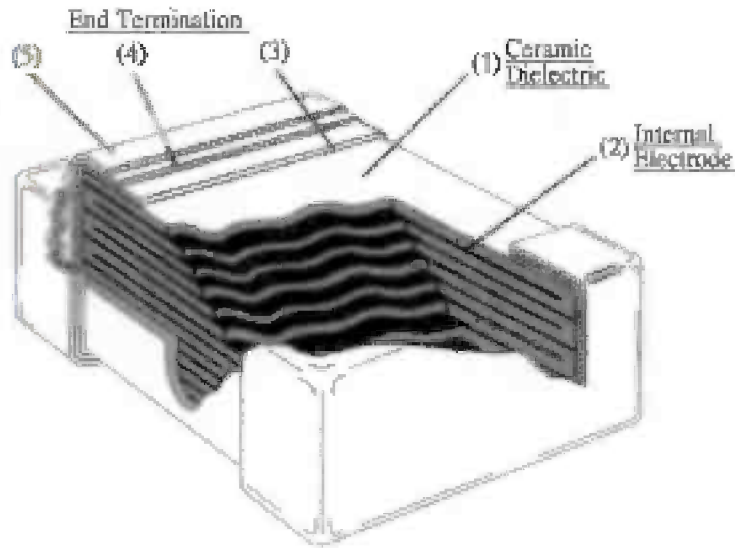
3. STANDARD TEST CONDITIONS

Tests shall, unless otherwise specified, be carried out at 15 to 35 ℃ and RH 45 to 75%.
 If any doubt and argument has been encounter in judgement, the final test shall be done at 25±2 ℃ ,RH45 to 55% and 860± 1060mbar. (Based on JIS standard)

4. DISPOSITION

If question to the measuring result in judgement, take the capacitor under a specified temperature for 30 minutes at least before measurement.

5. STRUCTURE:



Ag / Pd SERIES

NO	Specifications	Material	Termination
1	Ceramic dielectric	Ceramic	Plating thickness
2	Internal Electrode	Ag-Pd	
3	End Terminal	Ag layer	40µm min
4		Ni layer	1-4µm
5		Sn-Pb layer or Sn layer	4-12µm min

BME SERIES

NO	Specifications	Material	Termination
1	Ceramic dielectric	Ceramic	Plating thickness
2	Internal Electrode	Ni	
3	End Termination	Cu layer	40µm min
4		Ni layer	1-4µm
5		Sn-Pb layer or Sn layer	4-12µm min

6. STORING CONDITION AND TERM

Recommends the storing of products within 6 months at temperature 15~35℃ and humidity 70%RH max. If the product stored over 6 months, please reconfirm its solderability before use.

7. PERFORMANCE:

NO.	Item	Performance	Test or Inspection method																						
(1)	External Appearance	No defects which may affect performance.	Visual inspection & Dimension measurement																						
(2)	Voltage Proof	Withstand test voltage without Insulation breakdown or other damage.	DC Tested voltage shall be applied for 1 μ 5sec. Charge/discharge current shall not exceed 50 mA . (PS: Ra – Rated Voltage)																						
			Rated voltage	DC Tested voltage																					
			<100V	2.5Ra																					
			100V	3.0Ra																					
			200~300V	2.0Ra																					
			500~999V	1.5Ra																					
			1000~3000V	1.2Ra																					
4000V	1.1Ra																								
(3)	Insulation Resistance	NPO: 100,000M Ω Min. or X7RBX5RB Y5V: 10,000M Ω Min or RE C μ 1,000 Ω F (Whichever is smaller)	Apply DC tested voltage for 60 ϕ 5 minute. (PS: Ra – Rated Voltage)																						
			Rated voltage	DC Tested voltage																					
			500 V	1.0 Ra																					
			500V																						
(4)	Capacitance (Cap.)	Within the specified tolerance that refers on page 2	Measuring frequency & voltage: NPO ϕ 1000pFG 1KHz ϕ 10% 1.0 ϕ 0.2 Vrms ϕ 1000pFG 1MHz ϕ 10% 1.0 ϕ 0.2 Vrms X7RB Y5VG C ϕ 10uF 1.0 ϕ 0.2 Vrms 1KHz ϕ 10% C ϕ 10 uF 0.5 ϕ 0.2 Vrms 120Hz ϕ 20%																						
(5)	Dissipation Factor (D. F.)	<table border="1"> <tr> <td rowspan="2">NPO</td> <td>More than 30pF</td> <td>Qμ 1000</td> </tr> <tr> <td>Less than 30pF</td> <td>Qμ 400+20C</td> </tr> <tr> <td rowspan="5">X7R</td> <td rowspan="2">ϕ 2.5%</td> <td>μ 50V (Except 0603μ 0.047uF 0805μ 0.18 uFA 1206μ 0.47uFA DF ϕ 3.0%)</td> </tr> <tr> <td>ϕ 3.5%</td> <td>25V (Except 0805μ 1 uF , DF ϕ 5.0%) (Except 0402μ 0.033 uF A 0603μ 0.15uFA 0805μ 0.68 uFA 1206μ 2.2uF A DF ϕ 5.0%)</td> </tr> <tr> <td>ϕ 5.0%</td> <td>10V</td> </tr> <tr> <td>ϕ 7.5%</td> <td>6.3V</td> </tr> <tr> <td rowspan="4">Y5V</td> <td rowspan="2">ϕ 5%</td> <td>μ 50V 25V (Except 0603 μ 0.1uF; 0805 μ 0.33uF; 1206μ 1.0uF)</td> </tr> <tr> <td>ϕ 7%</td> <td>16V (Cap < 1uF) (Except 0402μ 0.068 uF , DFϕ 9%)</td> </tr> <tr> <td>ϕ 9%</td> <td>16V (Cap μ 1uF)</td> </tr> <tr> <td>ϕ 12.5%</td> <td>10V</td> </tr> </table>		NPO	More than 30pF	Q μ 1000	Less than 30pF	Q μ 400+20C	X7R	ϕ 2.5%	μ 50V (Except 0603 μ 0.047uF 0805 μ 0.18 uFA 1206 μ 0.47uFA DF ϕ 3.0%)	ϕ 3.5%	25V (Except 0805 μ 1 uF , DF ϕ 5.0%) (Except 0402 μ 0.033 uF A 0603 μ 0.15uFA 0805 μ 0.68 uFA 1206 μ 2.2uF A DF ϕ 5.0%)	ϕ 5.0%	10V	ϕ 7.5%	6.3V	Y5V	ϕ 5%	μ 50V 25V (Except 0603 μ 0.1uF; 0805 μ 0.33uF; 1206 μ 1.0uF)	ϕ 7%	16V (Cap < 1uF) (Except 0402 μ 0.068 uF , DF ϕ 9%)	ϕ 9%	16V (Cap μ 1uF)	ϕ 12.5%
NPO	More than 30pF	Q μ 1000																							
	Less than 30pF	Q μ 400+20C																							
X7R	ϕ 2.5%	μ 50V (Except 0603 μ 0.047uF 0805 μ 0.18 uFA 1206 μ 0.47uFA DF ϕ 3.0%)																							
		ϕ 3.5%	25V (Except 0805 μ 1 uF , DF ϕ 5.0%) (Except 0402 μ 0.033 uF A 0603 μ 0.15uFA 0805 μ 0.68 uFA 1206 μ 2.2uF A DF ϕ 5.0%)																						
	ϕ 5.0%	10V																							
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	Y5V	ϕ 5%	μ 50V 25V (Except 0603 μ 0.1uF; 0805 μ 0.33uF; 1206 μ 1.0uF)																						
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ϕ 9%		16V (Cap μ 1uF)																							
ϕ 12.5%		10V																							

NO.	Item	Performance	Test or Inspection method		
(6)	Temperature Characteristic of Capacitance	Temperatures Coefficient		The temperature coefficient is determined using the capacitance measured at base temperature as a reference. Test the specimen in a range of maximum and minimum operation temperature that shown as left table. * Base Temp.: 25°C	
		T.C.	Operating Temperature		Capacitance Change(℃/C)
		NPO	-55~+125℃		0±30(ppm/℃)
		X7R	-55~+125℃		± 15%
		X5R	-55~+85℃		± 15%
Y5V	-30~+85℃	± 22%~∓ 82%			
(7)	Soldering to Heat	External appearance	No mechanical damage.	Completely immerse both terminations in solder at 270±5℃ for 10±3 sec. Leave the capacitors in ambient condition for 24±2 hours before measurement. *Preconditioning (only for Class 2): Perform a heat treatment at 150 ±5℃ for one hour and then let sit for 24±2 hours at room temperature. Perform the initial measurement.	
		Cap. change (℃/C)	NPO X7R/X5R Y5V		±2.5% or ± 0.25 pF max. (Whichever is larger) ±7.5% ±20%
		D.F./Q & IR	To meet initial standard value		
(8)	Leaching	New solder to over 95% of termination	Completely soak both terminal electrodes in solder at 270±5℃ for 40±5 sec.		
(9)	Solderability	New solder to over 95% of termination	Completely soak both terminal electrodes in solder at specified temperature for 3±0.5 sec.: a. For Tin-Lead (Sn/Pb) Termination product: 235±5℃ Soldering bath: Sn63/Pb37 b. For Lead-free Termination product: 245±5℃ Soldering bath: Sn96.5/Ag3.0/Cu0.5		

NO.	Item		Performance	Test or Inspection method
(10)	Humidity (Steady state) & Humidity load	External appearance	No mechanical damage.	<p>A. Humidity load: (Not apply for the product with rated voltage $\bar{U} \leq 250V$): Apply the rated voltage at temperature $40 \pm 2^\circ C$ and humidity 90 to 95%RH for 1000h 48/0 hours. Leave the capacitors in ambient condition for the following time before measurement. Class 1G1~2 hours. Class 2G24Q hours.</p> <p>* Charge / discharge current shall. not exceed 50 mA.</p> <p>* PreconditioningG (only for Class 2): Apply the rated DC voltage for 1hour at $150 \pm 5^\circ C$. Remove and let sit for 24 ± 2 hours at room temperature. Perform initial measurement.</p> <p>B. Humidity (Steady state): The test procedure is same as that in Humidity load but only without rated voltage applied.</p>
		Cap. change (\bar{C} C/C)	NPO: $\pm 5\%$ or ± 0.5 pFmax. (Whichever is larger) X7R/X5R: $\bar{C} \leq 2.5M$ Y5V: $\bar{C} \leq 30\%$	
		D.F.	NPO: $C \bar{U} \leq 30pF$: D.F. $\bar{\phi} \leq \frac{1}{350}$ $10pF \bar{\phi} \leq C \bar{\phi} \leq 30pF$: D.F. $\bar{\phi} \leq \frac{1}{275+2.5 * C}$ $C \bar{\phi} \leq 10pF$: D.F. $\bar{\phi} \leq \frac{1}{200+10 * C}$ PS: C: Nominal Capacitance (pF) X7R/ X5R: Less than 2 times of initial value Y5V : Less than 1.5 times of initial value	
		I.R.	500M \bar{E} min. or 25 \bar{E} *F (Whichever is smaller)	
(11)	Vibration	External appearance	Without distinct damage	<p>(Not apply for 0402 product) Solder the capacitors to the test jig as shown in figure below with IR-Reflow method. The capacitor shall be subjected to a simple harmonic motion with the entire frequency range, from 10 to 55 Hz and return to 10 Hz ,shall be transverse in 1 min. Amplitude(total excursion):1.5mm Amplitude tolerance:$\bar{\phi} \leq 15\%$ This motion shall be applied for a period of 2 hours in each of 3 mutually perpendicular directions (a total of 6 hours)</p> <div data-bbox="1057 1606 1349 1749" style="text-align: center;"> </div>
		Cap. change (\bar{C} C/C)	NPO: $\pm 2.5\%$ or ± 0.25 pF max. (Whichever is larger) X7R/ X5R: $\bar{C} \leq 7.5M$ Y5V: $\pm \bar{C}$	
		D.F. or Q	To meet initial standard value	

NO.	Item	Performance	Test or Inspection method													
(12)	Temperature cycle	External appearance	No mechanical damage.													
		Cap. change (C/C)	NPO: $\pm 2.5\%$ or $\pm 0.25\text{pFmax.}$ (Whichever is larger) X7R/ X5R: $\phi 7.5\text{M}$ Y5V: $\phi 20\text{M}$													
		D.F.	To meet initial standard value													
		I.R.	10000M ϕ min. or 500 ϕ *F (Whichever is smaller)													
		(Not apply for 0402 product) The capacitor shall be subject 5 cycles according to four heat treatments listed in the following table. Then Leave the capacitors in ambient condition for the following time before measurement. Class II: 2 ~ 24 hours <table border="1" data-bbox="951 583 1459 806"> <thead> <tr> <th>Step</th> <th>Temperature (ϕ)</th> <th>Duration (min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Min. Operation Temp± 3</td> <td>30± 3</td> </tr> <tr> <td>2</td> <td>Room Temp. (25ϕ)</td> <td>2 ~ 5</td> </tr> <tr> <td>3</td> <td>Max. Operation Temp± 3</td> <td>30± 3</td> </tr> <tr> <td>4</td> <td>Room Temp. (25ϕ)</td> <td>2 ~ 5</td> </tr> </tbody> </table> *Preconditioning ϕ (only for Class 2): Perform a heat treatment at 150 ± 5 ϕ for one hour and then let sit for 24 ± 2 hours at room temperature Perform the initial measurement.		Step	Temperature (ϕ)	Duration (min.)	1	Min. Operation Temp ± 3	30 ± 3	2	Room Temp. (25 ϕ)	2 ~ 5	3	Max. Operation Temp ± 3	30 ± 3	4
Step	Temperature (ϕ)	Duration (min.)														
1	Min. Operation Temp ± 3	30 ± 3														
2	Room Temp. (25 ϕ)	2 ~ 5														
3	Max. Operation Temp ± 3	30 ± 3														
4	Room Temp. (25 ϕ)	2 ~ 5														
(13)	Deflection	External appearance	No cracking or marking defects shall occur													
		Bending strength	Flexure $\phi 1\text{mm}$													
		Cap. change (C/C)	NPO: ± 5 ± 5 (Whichever is larger) X7R/ X5R: ± 5 $\phi \pm 30\text{M}$													

NO.	Item	Performance	Test or Inspection method												
(14)	Load Life	External appearance	<table border="1" data-bbox="982 275 1430 405"> <thead> <tr> <th>Rated Voltage</th> <th>Tested Voltage</th> <th>Rated Voltage</th> <th>Tested Voltage</th> </tr> </thead> <tbody> <tr> <td><500V</td> <td>2.0Ra</td> <td>=630V</td> <td>1.2Ra</td> </tr> <tr> <td>=500V</td> <td>1.5Ra</td> <td>≥ 1KV</td> <td>1.0Ra</td> </tr> </tbody> </table> <p data-bbox="951 422 1466 499">at maximum operating temperature ± 2% for 1000 ± 8 hours.</p> <p data-bbox="951 506 1466 625">Leave the capacitors in ambient condition for the following time before measurement.</p> <p data-bbox="997 632 1235 663">Class I: 1~2 hours</p> <p data-bbox="997 674 1260 705">Class II: 24 ± 2 hours</p> <p data-bbox="951 758 1466 835">* Charge / discharge current shall. not exceed 50 mA.</p> <p data-bbox="951 842 1466 1129">* Preconditioning (only for Class 2): Apply 200% of the rated DC voltage for 1 hour at the maximum operating temperature ± 3%. Remove and let sit for 24 ± 2 hours at room temperature. Perform initial measurement.</p>	Rated Voltage	Tested Voltage	Rated Voltage	Tested Voltage	<500V	2.0Ra	=630V	1.2Ra	=500V	1.5Ra	≥ 1KV	1.0Ra
	Rated Voltage	Tested Voltage		Rated Voltage	Tested Voltage										
	<500V	2.0Ra		=630V	1.2Ra										
=500V	1.5Ra	≥ 1KV	1.0Ra												
Cap. change (C/C)	NPO: ±3% or ±0.3pFmax. (Whichever is larger) X7R/ X5R: ±12.5% Y5V: ±30%														
D.F.	NPO: C ≤ 30pF: D.F. $\leq \frac{1}{350}$ 30pF > C ≤ 10pF: D.F. $\leq \frac{1}{275 + 2.5 * C}$ C > 10pF: D.F. $\leq \frac{1}{200 + 10 * C}$ PS: C: Nominal Capacitance (pF) X7R/ X5R: Less than 2 times of initial value Y5V : Less than 1.5 times of initial value														
	I.R.	1000MΩ min. or 50%*F (Whichever is smaller)													

8. Capacitance Specification:

SIZE		Capacitance Specification Table (Class I)																Unit:pF									
T.C.		0402				0603				0805				1206				1210				1808					
Rated Voltage (V _{DC})		NPO		NPO		NPO		NPO		NPO		NPO		NPO		NPO		NPO		NPO		NPO					
Code	Code	50	200/250	100	50	500	200/250	100	50	1K	630	500	200/250	100	50	25	1K	630	500	200/500	100	3K	2K	1K	630		
0.5	0R5																										
0.75	0R75																										
1	10																										
1.5	1R5																										
2	020																										
3	030																										
3.9	3R9																										
4	040																										
5	050																										
6	060																										
7	070																										
8	080																										
9	090																										
10	100																										
11	110																										
12	120																										
13	130																										
15	150																										
16	160																										
18	180																										
20	200																										
22	220																										
24	240																										
27	270																										
30	300																										
33	330																										
36	360																										
39	390																										
43	430																										
47	470																										
51	510																										
56	560																										
62	620																										
68	680																										
75	750																										
82	820																										
91	910																										
100	101																										
110	111																										
120	121																										
130	131																										
150	151																										
160	161																										
180	181																										
200	201																										
220	221																										
240	241																										
270	271																										
300	301																										
330	331																										
360	361																										
390	391																										
430	431																										
470	471																										
510	511																										
560	561																										
620	621																										
680	681																										
750	751																										
820	821																										
910	911																										
1000	102																										
1100	112																										
1200	122																										
1300	132																										
1500	152																										
1600	162																										
1800	182																										
2000	202																										
2200	222																										
2400	242																										
2700	272																										
3000	302																										
3300	332																										
3600	362																										
3900	392																										
4300	432																										
4700	472																										
5100	512																										
5600	562																										
6200	622																										
6800	682																										
7500	752																										
8200	822																										
9100	912																										
10000	102																										

Capacitance Specification Table (Class I)																				Unit:pF								
SIZE		1812					2220					2225					3640											
T.C.		NPO																										
Rated Voltage (V _{0C})	Code	3K	2K	1K	630	500	200/250	100	3K	2K	1K	630	500	200/250	100	3K	2K	1K	630	500	200/250	100	5K	4K	3K	2K	1K	500
10	100	■																										
11	110	■																										
12	120	■																										
13	130	■																										
15	150	■																										
16	160	■																										
18	180	■																										
20	200	■																										
22	220	■																										
24	240	■																										
27	270	■																										
30	300	■																										
33	330	■																										
36	360	■																										
39	390	■	■	■																								
43	430	■	■	■																								
47	470	■	■	■																								
51	510	■	■	■																								
56	560	■	■	■																								
62	620	■	■	■																								
68	680	■	■	■																								
75	750	■	■	■																								
82	820	■	■	■																								
91	910	■	■	■																								
100	101	■	■	■																								
110	111	■	■	■																								
120	121	■	■	■																								
130	131	■	■	■																								
150	151	■	■	■																								
160	161	■	■	■																								
180	181	■	■	■																								
200	201	■	■	■																								
220	221	■	■	■																								
240	241	■	■	■																								
270	271	■	■	■																								
300	301	■	■	■																								
330	331	■	■	■																								
360	361	■	■	■																								
390	391	■	■	■																								
430	431	■	■	■																								
470	471	■	■	■																								
510	511	■	■	■																								
560	561	■	■	■																								
620	621	■	■	■																								
680	681	■	■	■																								
750	751	■	■	■																								
820	821	■	■	■																								
910	911	■	■	■																								
1000	102	■	■	■																								
1100	112	■	■	■																								
1200	122	■	■	■																								
1300	132	■	■	■																								
1500	152	■	■	■																								
1600	162	■	■	■																								
1800	182	■	■	■																								
2000	202	■	■	■																								
2200	222	■	■	■																								
2400	242	■	■	■																								
2700	272	■	■	■																								
3000	302	■	■	■																								
3300	332	■	■	■																								
3600	362	■	■	■																								
3900	392	■	■	■																								
4300	432	■	■	■																								
4700	472	■	■	■																								
5100	512	■	■	■																								
5600	562	■	■	■																								
6200	622	■	■	■																								
6800	682	■	■	■																								
7500	752	■	■	■																								
8200	822	■	■	■																								
9100	912	■	■	■																								
10000	103	■	■	■																								
12000	123	■	■	■																								
15000	153	■	■	■																								
18000	183	■	■	■																								
22000	223	■	■	■																								
27000	273	■	■	■																								
33000	333	■	■	■																								
39000	393	■	■	■																								
47000	473	■	■	■																								
56000	563	■	■	■																								
68000	683	■	■	■																								
100000	104	■	■	■																								
120000	124	■	■	■																								
150000	154	■	■	■																								
180000	184	■	■	■																								

Capacitance Specification Table (Class II)														Unit:pF									
SIZE		0402										0603											
T.C		X7R				X5R			Y5V			X7R					X5R	Z5U					
Rated Voltage (V _{DC})	Code	50	25	16	10	16	10	6.3	50	25	16	200/250	100	50	25	16	10	25	16	10	6.3	50	
100	101																						
150	151																						
180	181																						
220	221																						
270	271																						
330	331																						
390	391																						
470	471																						
560	561																						
680	681																						
820	821																						
1000	102																						
1200	122																						
1500	152																						
1800	182																						
2200	222																						
2700	272																						
3300	332																						
3900	392																						
4700	472																						
5600	562																						
6800	682																						
8200	822																						
10000	103																						
12000	123																						
15000	153																						
18000	183																						
22000	223																						
27000	273																						
33000	333																						
39000	393																						
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56000	563																						
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100000	104																						
120000	124																						
150000	154																						
180000	184																						
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270000	274																						
330000	334																						
390000	394																						
470000	474																						
560000	564																						
680000	684																						
820000	824																						
1000000	105																						
1200000	125																						
1500000	155																						
1800000	185																						
2200000	225																						
2700000	275																						
3300000	335																						
3900000	395																						
4700000	475																						
5600000	565																						
6800000	685																						
8200000	825																						
10000000	106																						

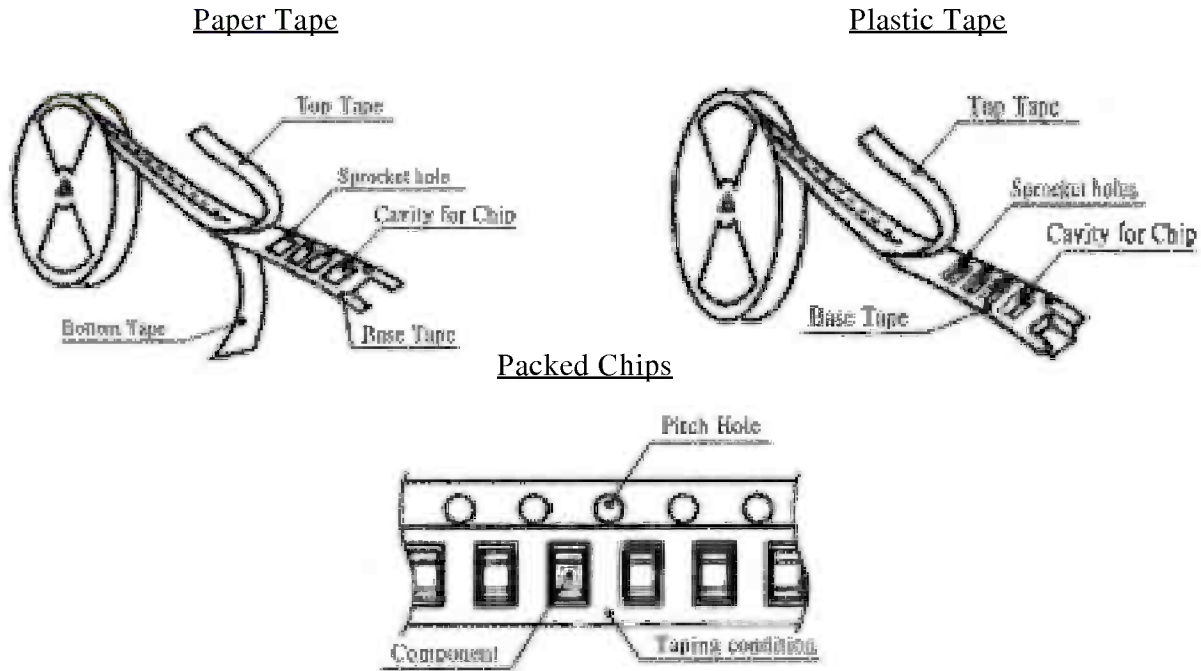
SIZE		Capacitance Specification Table (Class II)														Unit:pF					
T.C		0603					0805					0805				0805					
		Y5V					X7R					X5R			Z5U		Y5V				
Rated Voltage (V _{DC})	Code	50	25	16	10	6.3	200/250	100	50	25	16	10	16	10	6.3	50	25	50	25	16	10
100	101																				
150	151																				
180	181																				
220	221																				
270	271																				
330	331																				
390	391																				
470	471																				
560	561																				
680	681																				
820	821																				
1000	102																				
1200	122																				
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8200	822																				
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2700000	275																				
3300000	335																				
3900000	395																				
4700000	475																				
5600000	565																				
6800000	685																				
8200000	825																				
10000000	106																				

Capacitance Specification Table (Class II)																	Unit:pF									
SIZE		1206														1210										
T.C		X7R					X5R					Z5U	Y5V				X7R									
Rated Voltage (V _{DC})	Code	1K	630	500	200/250	100	50	25	16	10	250	50	25	16	10	6.3	50	50	25	16	10	1K	630	500	200/250	100
100	101	█																								
150	151	█																								
180	181	█																								
220	221	█																								
270	271	█																								
330	331	█																								
390	391	█																								
470	471	█																								
560	561	█																								
680	681	█																								
820	821	█																								
1000	102	█																								
1200	122	█																								
1500	152	█																								
1800	182	█																								
2200	222	█																								
2700	272	█																								
3300	332	█																								
3900	392	█																								
4700	472	█																								
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6800	682	█																								
8200	822	█																								
10000	103	█																								
12000	123	█																								
15000	153	█																								
18000	183	█																								
22000	223	█																								
27000	273	█																								
33000	333	█																								
39000	393	█																								
47000	473	█																								
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68000	683	█																								
100000	104	█																								
120000	124	█																								
150000	154	█																								
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330000	334	█																								
390000	394	█																								
470000	474	█																								
560000	564	█																								
680000	684	█																								
820000	824	█																								
1000000	105	█																								
1200000	125	█																								
1500000	155	█																								
1800000	185	█																								
2200000	225	█																								
2700000	275	█																								
3300000	335	█																								
3900000	395	█																								
4700000	475	█																								
5600000	565	█																								
6800000	685	█																								
8200000	825	█																								
10000000	106	█																								
22000000	226	█																								

		Capacitance Specification Table (Class II)																Unit:pF									
SIZE		1210				1808				1812				2220													
T.C		X5R				X7R				X7R				X5R													
Rated Voltage (V _{DC})	Code	25	16	10	6.3	3K	2K	1K	630	3K	2K	1K	630	500	200/250	100	25	16	10	6.3	3K	2K	1K	630	500	200/250	100
100	101																										
150	151																										
180	181																										
220	221																										
270	271																										
330	331																										
390	391																										
470	471																										
560	561																										
680	681																										
820	821																										
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2200	222																										
2700	272																										
3300	332																										
3900	392																										
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8200	822																										
10000	103																										
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22000	223																										
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3900000	395																										
4700000	475																										
6800000	685																										
8200000	825																										
10000000	106																										
22000000	226																										
47000000	476																										
100000000	107																										

9. Packaging G

(1) Reel specification: Standard reel diameter is 7" and 13"

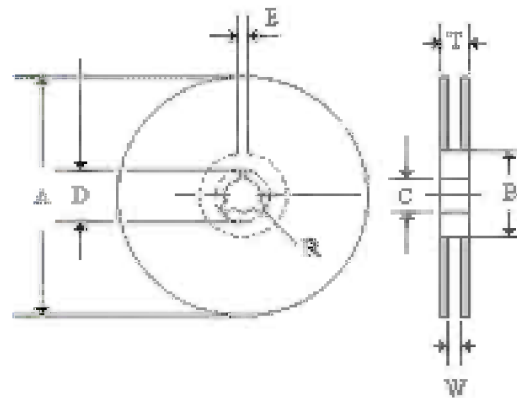


(2) Quantity for each reel

Chip Size	0402	0603	0805	1206	1210	1808	1812	2220	2225
Reel Size 7"	10000	3000/4000*	3000/4000*	3000	2000	2000	1000	1000	1000
Reel Size 13"	50000	16000	12000	10000	8000	8000	4000	4000	4000
Tape wide(mm)	8	8	8	8/12	8/12	8/12	8/12	8/12	8/12

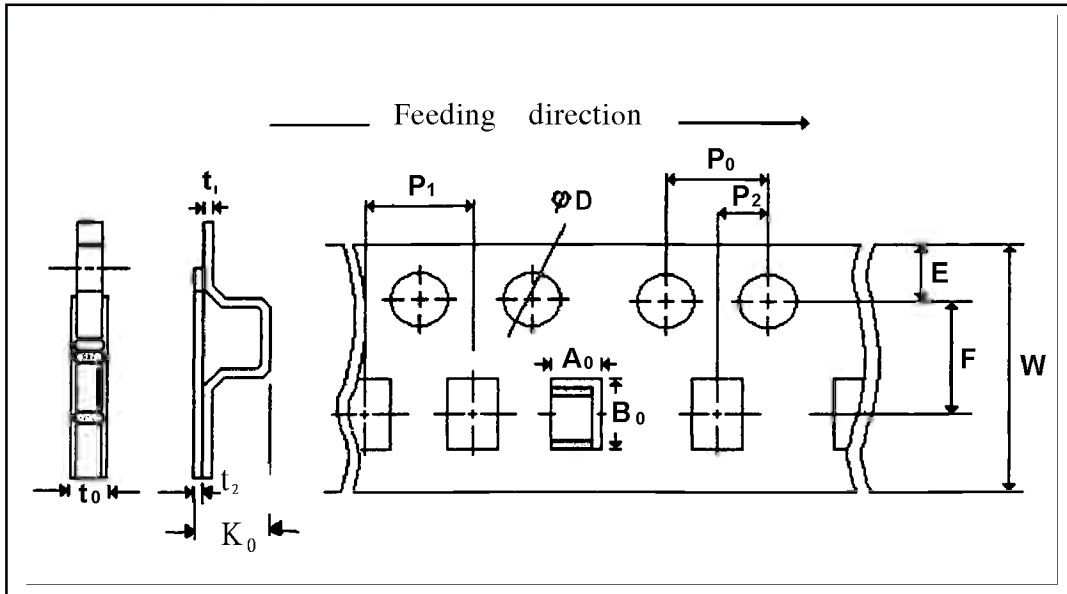
* Different size of reel base on different thickness of chips

(3) Dimension of Reel:



Dimension	A	B	C	D	E	T	W
Reel Size	7"	178±2	50 min.	13±0.5	21±0.8	2.0±0.5	12±2.0
	13"	330 max					18.4max.

(4) Tape Dimension



Unit: inch (mm)

Symbol	Description	8 mm tape	12 mm tape
W	Wide of Tape	8(0.135) \pm 0.2(0.008)	12(0.472) \pm 0.2(0.008)
F	Distance between drive hole center and cavity center	3.5(0.138) \pm 0.05(0.002)	5.5(0.213) \pm 0.05(0.002)
E	Distance between drive hole center and tape edge	1.75(0.069) \pm 0.1(0.004)	
P_1	Distance between cavity center	4(0.156) \pm 0.1(0.004)	8(0.135) \pm 0.1(0.004)
P_2	Axial distance between drive hole center and cavity center	2(0.079) \pm 0.05(0.002)	
P_0	Axial distance between drive hole	4(0.156) \pm 0.1(0.004) [2(0.079) \pm 0.05(0.002) only for 0402 chip]	
D_0	Drive hole diameter	1.5(0.059) \pm 0.1(0.004)-0	
t_1	Base tape thickness	0.3(0.012) \pm 0.1(0.004)	0.4(0.016) \pm 0.1(0.004)
t_2	Total tape thickness	0.1(0.004) max.	
t_0	Total height of paper tape	1.1 max.	
K_0	Total height of plastic tape	2.5 max.	

	0402	0603	0805	1206	1210 and above
A_0 (Wide of Cavity)	0.65 \pm 0.1	1.05 \pm 0.1	1.55 \pm 0.15	2.0 \pm 0.2	Dependent on chip size to minimize rotation
B_0 (Length of Cavity)	1.15 \pm 0.1	1.85 \pm 0.1	2.3 \pm 0.15	3.6 \pm 0.2	

PS: Axial – Refer direction that parallel to feeding direction.

Unit: mm (inch)