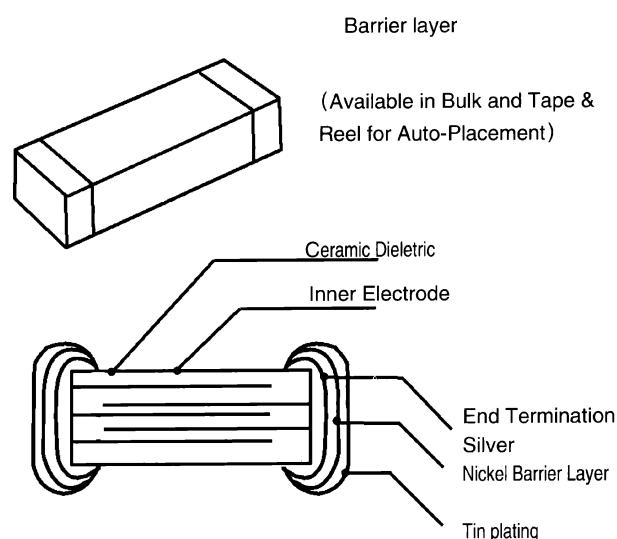
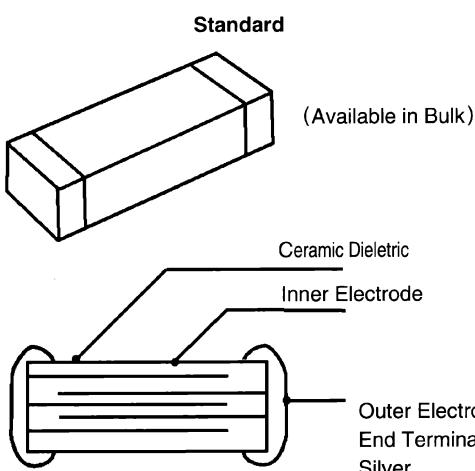


**FEATURES**

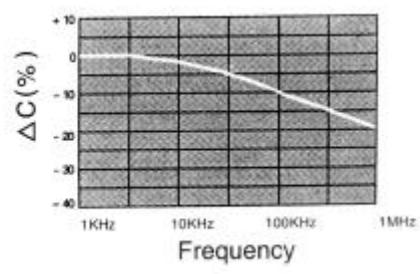
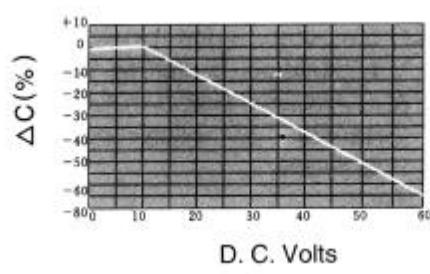
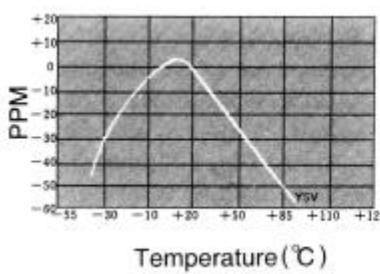
- Miniature size
- Wide capacitance, TC, voltage and tolerance range
- Industry standard sizes
- 8 mm and 12mm Tape & Reel for auto-placement
- Available for wave, reflow or vapor phase order

**HOW TO ORDER**

<b>0805</b>	<b>F</b>	<b>4</b>	<b>102</b>	<b>Z</b>	<b>500</b>	<b>N</b>	<b>T</b>
Size code inches	Dielectric	Total Ch.	Nominal (PF) Capacitance	Tolerance	Rated Voltage	Termination	Packaging Style
0402 0.04 x 0.02	F Y5V		102 10 x 10 <sup>2</sup>	K ±10%	160 16 x 10 <sup>0</sup>	S Silver	No Mark Bulk
0603 0.06 x 0.03	E Z5U	No. of total character (102 = 1000 =4)	103 10 x 10 <sup>3</sup>	M ±20%	250 25 x 10 <sup>0</sup>	N Nickel Barrier	T Tape & Reel
0805 0.08 x 0.05				S +50 -20%	500 50 x 10 <sup>0</sup>		
1206 0.12 x 0.06				Z +80 -20%	630 63 x 10 <sup>0</sup>		
1210 0.12 x 0.10				P +100 -0%	101 10 x 10 <sup>1</sup>		
1812 0.18 x 0.12					201 20 x 10 <sup>1</sup>		
2225 0.22 x 0.25					501 50 x 10 <sup>1</sup>		
3035 0.30 x 0.35					102 10 x 10 <sup>2</sup>		
					202 20 x 10 <sup>2</sup>		

**TERMINATION DIAGRAMS**

NOTE: Other Termination Available Upon Request (Contact Factory)

**TYPICAL CHARACTERISTICS**

## Y5V(F) / Z5U(E) Dielectric Characteristic Introduction &amp; Test Method

ITEM	SPECIFICATION		TEST METHOD			
CAPACITANCE	(1000PF ~ 10uF)					
Capacitance Tolerance	M = $\pm 20\%$ S = +50 ~ -20% Z = +80 ~ -20% P = $\pm 100\%$		1KHz $\pm 10\%$ , 1.0 $\pm 0.2$ Vrms			
Rated Voltage	16, 25, 50, 63, 100VDC					
Dissipation Factor (DF)	< 3.5%					
Insulation Resistance (IR)	C < 25nF : R > 400M : C > 25nF		Test Voltage: rating voltage , Charging time: 1min. Temperature : 18 ~ 25°C , Humidity: < 80°C			
Dielectric Withstanding Voltage	There shall be no evidence of damage or flash over during the test.		Apply 2.5 x rating voltage to both Terminations for 5 seconds. Charge and discharge current are less than 50mA.			
Termination Adhesion	There shall be no evidence of damage during the test		Test Condition : 5N; 10 $\pm$ 1s			
Bending Strength During the test.	There shall be no evidence of damage during the test, Capacitance tolerance shall be not more than 10%		After soldering capacitor on the PCB, 1mm of bending shall be applied for 1 second as shown by Drawing			
Solderability	Termination area shall be at least 80% covered with a new solder coating. There shall be no crack and ceramic exposure of terminated surface by melting					
Resistance to Soldering Heat	Type	Y5V (F) / Z5U (E)		The capacitors are completely immersed during 2 in the molten rosin, Then immersed 10MM during 2 $\pm$ 1s in the molten solder with a temperature of 235 $\pm$ 5°C. Pick up The capacitors-and cleaned with solvent, and put in on the >10 times microscope		
	Temp.	265 $\pm$ 5°C				
	Time	5 $\pm$ 1s				
	Cover %	>=75%				
	C/C	-10 ~ +20%				
Temperature Cycling	Type	Y5V (F) / Z5U (E)	Condition	Y5V (F)		
	C/C	<=30%	Temp. 0a	-25 $\pm$ 3°C		
			Temp. 0b	+85 $\pm$ 3°C		
		There shall be no evidence of damage during the test	Cycle times	5 times 30min / time		
			Resume time	24 hours		
Humidity Moisture Resistance			Changing times	2 ~ 3min.		
	Type	Y5V (F) / Z5U (E)				
	C/C	<= 20%	Permanent moisture: T = 40 $\pm$ 20°C t = 21d			
	D , F	0.07	Relative humidity : 93 + 2% - 3%			
	I , R	R x C > 25s	Resume time : 1 ~ 2 hours			
There shall be no evidence of damage during the test.						
T.C. Characteristics	Dielectric	C/C	Dielectric	T.C.		
	Z5U (E)	$\pm 22 \sim -56\%$	Z5U (E)	+20°C to 10°C +20°C to +85°C		
	Y5V (F)	$\pm 22 \sim -82\%$	Y5V (F)	+20°C to 25°C +20°C to +85°C		
Operating Temperature Range	-55 °C to +125 °C					
Vibration	There shall be no evidence of damage during the test		Vibration frequency: f = 10 ~ 500Hz Vibration range: 0.75mm/s <sup>2</sup> In 3 direction: 2 hours / direction			
Bump	Type	Y5V (F) / Z5U (E)	4000 times Adder speed: 390m / s <sup>2</sup> Pulse duration: 6ms			
	C/C	<=2%				
	There shall be no evidence of damage during the test					
Life test	Type	Y5V (F) / Z5U (E)	Conditions	Y5V (F) / Z5U (E)		
	C/C	<=30%	Temperature	+85°C		
	D , F	0.05	Time	T = 100 <sup>h</sup>		
	I , R	R x C >= 25s	Voltage	V = 1.5Vr		
	There shall be no evidence of damage during the test		Resume time	24 $\pm$ 1 hour		
6 grade failure test	Type	Y5V (F) / Z5U (E)	Conditions	Y5V (F) / Z5U (E)		
	C/C	<= 30%	Creditability	60%		
	D , F	0.07	Temperature	+85°C + 2°C		
	I , R	R x C >= 25s	Voltage	Rating Voltage		
	There shall be no evidence of damage during the test		Time	1000 hours		

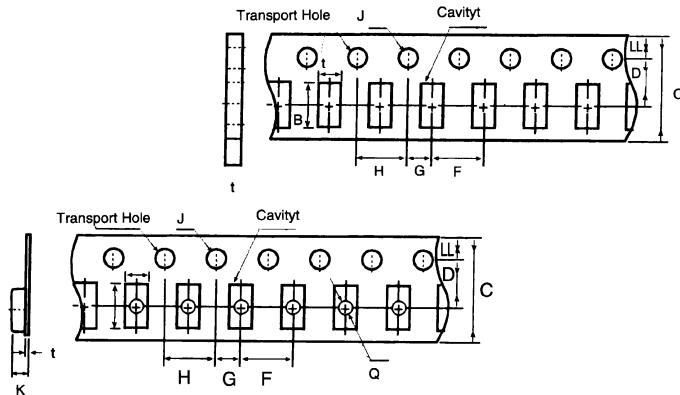
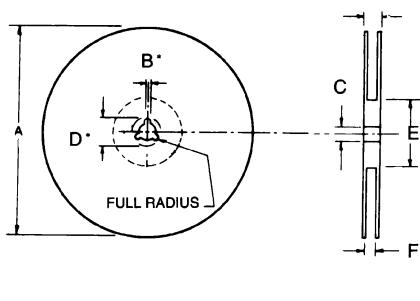
## PACKAGING

## Structure and Dimension

## 1. TAPE &amp; REEL

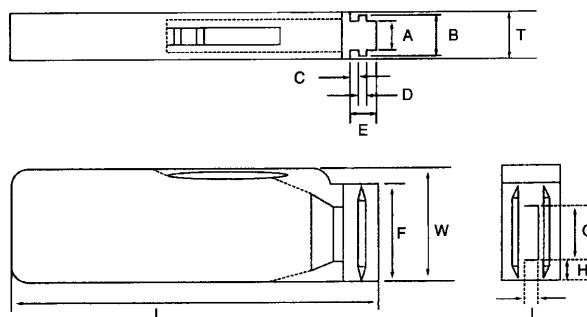
A	B	C	D	E	F	G
$178 \pm 2.0$	3.0	$13 \pm 0.5$	32	50 MIN	$10.0 \pm$	14.9
				$\pm 1$	1.5	$12 \pm 2.0$

PAPER TAPE		PLASTIC TAPE (TE)			
SIZE	A	B	SIZE	A	B
0402	$0.6 \pm 0.2$	$1.1 \pm 0.2$	0402	$0.5 \pm 0.2$	$1.2 \pm 0.2$
0603	$1.1 \pm 0.2$	$1.4 \pm 0.2$	0603	$0.8 \pm 0.2$	$2.0 \pm 0.2$
0805	$1.45 \pm 0.2$	$2.3 \pm 0.2$	0805	$1.65 \pm 0.2$	$2.4 \pm 0.2$
1206	$1.8 \pm 0.2$	$3.4 \pm 0.2$	1206	$2.0 \pm 0.2$	$3.6 \pm 0.2$



## 2. CARTRIDGE

Symbol	A	B	T	C	D	E
Dimension	$6.8 \pm 0.1$	$8.8 \pm 0.1$	$12 \pm 0.1$	$1.5 \pm 0.1 - 0$	$2 + 0 - 0.1$	$4.7 \pm 0.1$
Symbol	F	W	G	H	L	I
Dimension	$31.5 \pm 0.2 - 0$	$36 + 0 - 0.2$	$19 \pm 0.35$	$7 \pm 0.35$	$110 \pm 0.7$	$5 \pm 0.35$



## PACKAGING QUANTITY

SIZE	QUANTITY			
	TP	TE	BC	BP
0402	10000		20000	2000
0603	4000	2500	15000	2000
0805	4000	2500	1000	2000
1206	4000	1000	5000	2000
1210				500
1812				500
2225				200
3035				200

## SIZE CODE CAPACITANCE AND VOLTAGE

SIZE CODE	DIMENSIONS				VOLTAGE	CAPACITANCE (PE) Y5V (F) / Z5U (E)
	L	W	T	ME		
0402	$1.0 \pm 0.05$	$0.5 \pm 0.05$	$0.5 \pm 0.05$	$0.1 \pm 0.05$	16V	103 ~ 104
					25V	103 ~ 473
					50V	
0603	$1.6 \pm 0.1$	$0.8 \pm 0.10$	$0.8 \pm 0.1$	$0.3 \pm 0.1$	25V	103 ~ 224
					50V	103 ~ 154
					100V	
					200V	
0805	$2.00 \pm 0.20$	$1.25 \pm 0.20$	$0.7 \pm 0.3$ $1.25 \pm 0.15$ $1.0 \pm 0.3$	$0.5 \pm 0.25$	25V	103 ~ 105
					50V	103 ~ 224
					100V	103 ~ 104
					200V	
					500V	
1206	$3.20 \pm 0.30$	$1.60 \pm 0.20$	$1.0 \pm 0.3$ $1.25 \pm 0.2$ $1.25 \pm 0$	$0.5 \pm 0.25$	25V	103 ~ 475
					50V	103 ~ 474
					100V	103 ~ 224
					200V	103 ~ 104
					500V	103 ~ 393
					1000V	
					2000V	
1210	$3.20 \pm 0.30$	$2.50 \pm 0.30$	$1.25 \pm 0.3$ $1.25 \pm 0.3$	$0.70 \pm 0.25$	25V	104 ~ 105
					50V	104 ~ 474
					100V	
					200V	
					500V	
					1000V	
					2000V	
1812	$4.50 \pm 0.40$	$3.20 \pm 0.30$	2.5	$0.70 \pm 0.25$	25V	104 ~ 105
					50V	104 ~ 105
					100V	104 ~ 474
					200V	104 ~ 474
					250V	104 ~ 474
					1000V	
					2000V	
2225	$5.70 \pm 0.50$	$6.40 \pm 0.50$	2.5	$0.70 \pm 0.25$	25V	684 ~ 475
					50V	684 ~ 335
					100V	
					200V	
					500V	
					1000V	
					2000V	
3035	$7.60 \pm 10.50$	$9.00 \pm 0.50$	3.0	$1.00 \pm 0.25$	25V	105 ~ 106
					50V	105 ~ 685
					100V	
					200V	
					500V	
					1000V	
					2000V	