TECATE INDUSTRIES,INC. CHIP STACKED FILM CAPACITOR

TYPE 933

SURFACE MOUNT STACKED METALLIZED PPS FILM CAPACITOR

- Stacked metallized polyphenylene sulfide (PPS) film
- Very small sizes in EIA 0805, 1206, 1210 & 1913
- Wide temperature range (−55~ +125°C)
- Both dip and reflow soldering applicable
- Tape/reel package available in all sizes
- High heat and moisture resistance
- Stable temperature, frequency and bias characteristics

PART NUMBER SYSTEM

933 - 050 / 103 J TR 1206B

- 933: Type
- 050: Rated DC Voltage
- 103: Capacitance Code (pF) — Code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow)
- J: Tolerance
- TR: Packaging (TR = Tape Reel)
- 1206B: Case Code

SPECIFICATIONS:

Item		Characteristics / Specifications
Operating Temperature Range at Rated Voltage		−55~ +125°C
Rated Voltage		16 & 50 Vdc
Rated Capacitance Range (20°C 1KHz)		0.0001~0.1 μ F (E12 series)
Capacitance Tolerance		±5 (J) STD or ±2% (G) Optional
Maximum Dissipation Factor (20°C 1KHz)		0.5%
Minimum Insulation Resistance (20°C) after 1 minute		3,000M Ω at rated dc voltage except 16Vdc. 16Vdc rating should be measured at 10Vdc
Withstanding Voltage (between terminals) applied through min. 2K Ω resistor		1.5 times of rated voltage for 1 minute or 1.75 times for 1-5 seconds
Life Test at 125°C 1,000 hours with 125% of rated voltage	Capacitance Change	Within ±2% of initial measured value
	Dissipation Factor	Maximum 0.66%
	Insulation Resistance	More than 1,000M Ω between terminals
Humidity Load Test 1 at 40°C & 90-95% RH 1,000 hours with Rated voltage	Capacitance Change	Within ±2% of initial measured value
	Dissipation Factor	Maximum 0.9%
	Insulation Resistance	Minimum 1000M Ω between terminals
	Withstanding Voltage	Withstand 130% of rated voltage for 1 min.
Humidity Load Test 2 at 60°C & 90-95% RH 500 hours with Rated voltage	Capacitance Change	Within ±2% of initial measured value
	Dissipation Factor	Maximum 0.9%
	Insulation Resistance	Minimum 500M Ω
	Withstanding Voltage	Withstand 130% of rated voltage for 1 min.
Temperature Stability	Δ C/C at −55°C	Within ±2% of initial value at 20°C
	Δ C/C at +125°C	Within ±3% of initial value at 20°C
Resistance to Soldering Heat	Capacitance Change	Within ±3% of initial measured value
	Dissipation Factor	Maximum 0.66%
	Insultation Resistance	Minimum 1000M Ω
Dip : 260°C for 5 sec. Reflow : 260°C peak	Withstanding Voltage	150% of rated voltage for 1 minute or 175% of rated voltage for 1-5 seconds
Solderability		
Terminal shall be immersed into 10%wt rosin-methanol flux, and then immersed into molten solder at 235±5°C. The solder coverage shall be more than 90% of electrode.		

DIMENSIONS IN MM:

Fig. 1

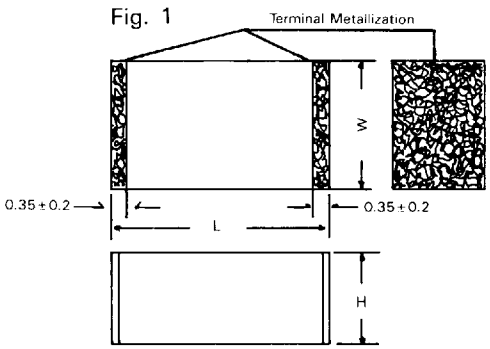

Chart 1 : EIA Size Code + Height Code

Case Code	Dimensions (mm) L ± 0.2	W	H ± 0.2
0805A	2.0	1.25 ± 0.2	0.8
0805B			1.0
1206A	3.2	1.6 ± 0.2	0.8
1206B			1.0
1206C			1.4
1210B	3.2	2.5 ± 0.2	1.0
1210C			1.4
1210D			2.0
1913C	4.8	3.3 ± 0.3	1.4
1913D			2.0
1913E			2.8

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STANDARD PRODUCTS TABLE by EIA SIZE and HEIGHT CODE

Voltage	16 Vdc							50 Vdc							
EIA Size	0805		1206			1210		0805	1206		1210			1913	
Height Code	A	B	A	B	C	C	D	A	A	B	B	C	D	C	D
0.0001 μF								■							
0.00012								■							
0.00015								■							
0.00018								■							
0.00022								■							
0.00027								■							
0.00033								■							
0.00039								■							
0.00047								■							
0.00056								■							
0.00068								■							
0.00082								■							
0.0010								■							
0.0012								■							
0.0015								■							
0.0018								■							
0.0022								■							
0.0027								■	■						
0.0033	■									■					
0.0039	■									■					
0.0047	■									■					
0.0056	■									■					
0.0068	■									■					
0.0082		■									■				
0.01		■									■				
0.012			■									■			
0.015			■									■			
0.018			■										■		
0.022			■										■		
0.027				■									■		
0.033				■										■	
0.039					■									■	
0.047					■										■
0.056						■									■
0.068						■									■
0.082							■								■
0.1							■								■

Height Code	A	B	C	D	E
Height (mm)	0.8	1.0	1.4	2.0	2.8

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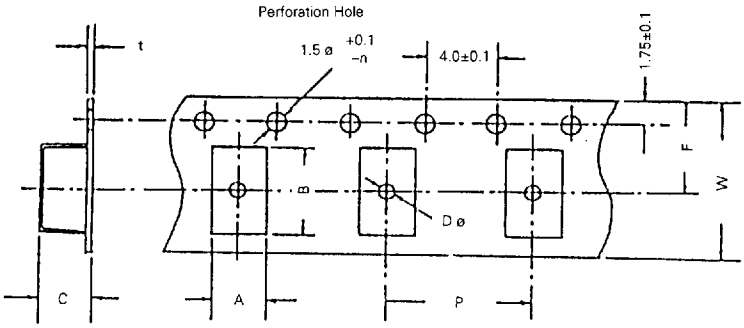
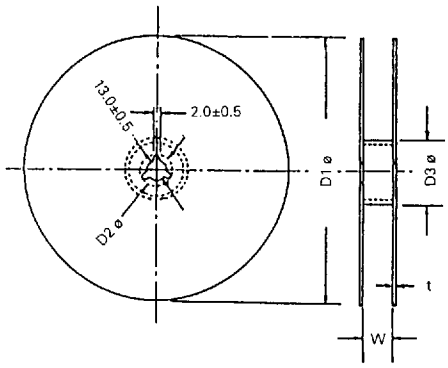
TAPING SPECIFICATIONS:

Embossed Plastic Carrier Tape



Reel



Tape Dimensions (mm)

Case Size	A ± 0.1	B ± 0.1	C ± 0.2	t ± 0.05	W ± 0.3	F ± 0.05	P ± 0.1	D $^{+0.2}_{-0}$
0805A	1.55	2.3	1.3	0.25	8.0	3.5	4.0	1.0
0805B			1.5					
1206A	1.9	3.5	1.5	0.25	8.0	3.5	4.0	1.0
1206B			1.9					
1206C			1.9					
1210B	2.8	3.5	1.9	0.25	8.0	3.5	4.0	1.0
1210C			2.5					
1210D			2.5					
1913C	3.8	5.1	2.0	0.30	12.0	5.5	8.0	1.5
1913D			2.6					
1913E			3.4					

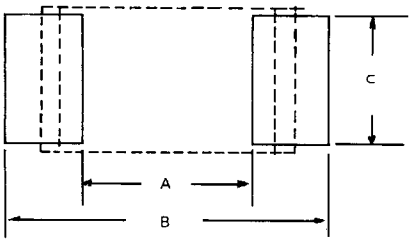
Reel Dimensions (mm) & Quantity per Reel (pcs)

Case Size	D1 ± 2.0	D2	D3 ± 2.0	W	t ± 0.5	Q'ty/Reel
0805A	178	23.5 ± 0.5	60.0	9.5 ± 0.5	1.2	3,000
0805B						
1206A	178	23.5 ± 0.5	60.0	9.5 ± 0.5	1.2	3,000
1206B						3,000
1206C						2,000
1210B	178	23.5 ± 0.5	60.0	9.5 ± 0.5	1.2	2,000
1210C						
1210D						
1913C	330	21.0 ± 0.8	80.0	14.0 ± 1.5	3.0	3,000
1913D						3,000
1913E						2,000

Note : Each reel has minimum 400mm leader tape and/or empty tape.
The ending of tape has minimum 400mm empty tape.

HANDLING CAUTIONS AND RECOMMENDATIONS:

1. Recommended Land Pattern (mm)



EIA SIZE	A	B	C
0805	1.0	2.7	1.1
1206	2.2	3.8	1.4
1210	2.2	3.8	2.3
1913	2.6	6.6	3.0

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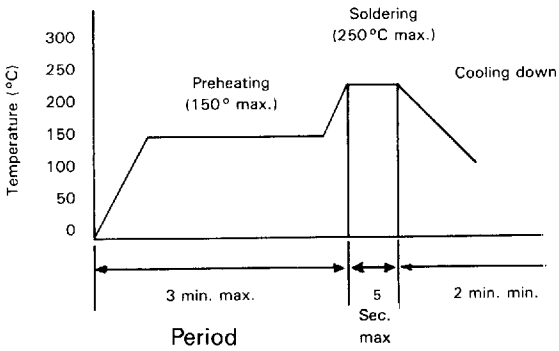
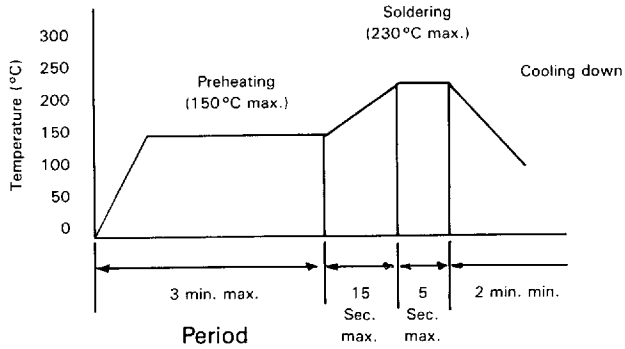
2. Recommended Soldering Conditions

(1) Dip Soldering



(2) Reflow Soldering



3. Cleaning Conditions

(1) Freon TE, TES, TMS, TP-35, trichloroethane and isopropyl alcohol are recommended under following conditions:

Dipping at room temperature : max. 5 minutes
Vapor less than 50°C : max. 5 minutes
Ultrasonic less than 50°C : max. 5 minutes

(2) Dichloroethane, trichloroethylene, toluene, xylene and MEK can not be used.

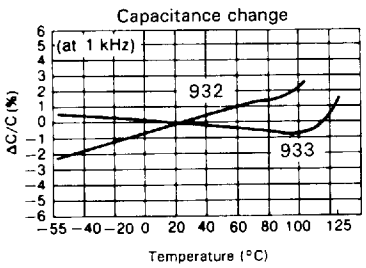
(3) After cleaning, the board must be dried up not to remain the solvent.

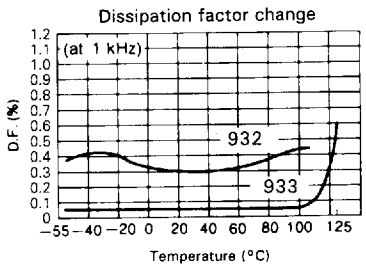
4. Storage under cool and low humidity without any harmful gas is recommended.

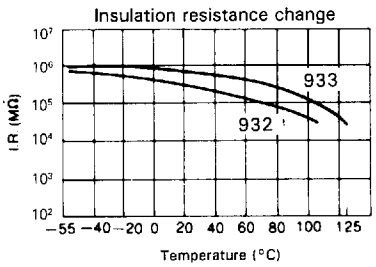
5. High frequency application

The sum of DC voltage and peak value of AC voltage shall not exceed the rated voltage. Also, the capacitor shall be used in a condition that the self temperature rise shall not exceed 10°C at ambient temperature of 40°C, and the sum of ambient temperature and self temperature rise shall not exceed 105°C.

TEMPERATURE CHARACTERISTICS (Typical curve)







FREQUENCY CHARACTERISTICS (Typical curve)