



TMCE32 Conductive Polymer Aluminum Solid Capacitors

1.Scope :

This specification covers polarized aluminium electrolytic capacitors with solid electrolyte for use in electronic equipment.

2. Operating Temperature Range :

-55 °C~+105 °C

3. Style:Radial Leaded

Voltage:6.3V

Capacitance:1000uF/820uF

Tolerance:±20%

4. Lead Forming Type , Lead Spacing and Lead Length

Lead Forming Type	Lead Spacing (mm)	Lead Length (mm)
Long Lead	3.5	Long Lead
Taping	5.0	
Cutting	3.5	3.3
	3.5	3.1

5. Dimension :8X8mm

6. Marking

Unless otherwise specified capacitor shall be clearly marked the following items on its aluminium that enamel by nylon laminate.

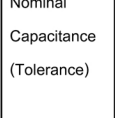
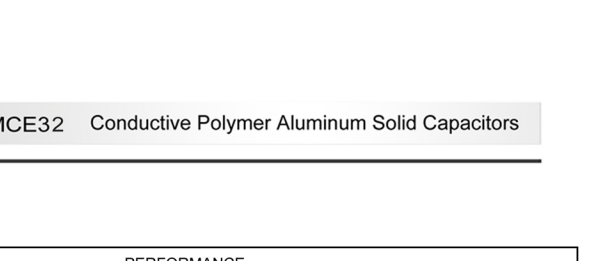
(1) Rated Voltage

(2) Rated Capacitance

(3) Negative Polarity

(4) Series


(5) Date Code



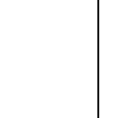
TMCE32 Conductive Polymer Aluminum Solid Capacitors

Table - 1 PERFORMANCE

		<p>Measuring Voltage : Not more than 0.5 Vrms +2.1 ~ 2.5 V.DC</p> <p>Measuring Temperature : 25 ± 10 °C</p> <p>< Criteria ></p> <p>820μF (±20%) 1000μF (±20%)</p>						
3	Tanδ of loss angle (Tanδ)	<p>< Condition ></p> <p>See ITEM2, Nominal Capacitance, for measuring frequency, voltage and temperature.</p> <p>< Criteria ></p> <table border="1"><tr><td>WV (V.dc)</td><td>6.3</td></tr><tr><td>Tan δ</td><td>0.12</td></tr></table>	WV (V.dc)	6.3	Tan δ	0.12		
WV (V.dc)	6.3							
Tan δ	0.12							
4	ESR	<p>< Condition ></p> <p>Measuring Frequency : 100 ~ 300 kHz ± 10%</p> <p>Measuring Voltage : Not more than 0.5 Vrms +2.1 ~ 2.5 V.DC</p> <p>Measuring Temperature : 25 ± 10 °C</p> <table border="1"><tr><td>1000μF</td><td>820μF</td></tr><tr><td>7mΩ Max</td><td>9mΩ Max</td></tr></table>	1000μF	820μF	7mΩ Max	9mΩ Max		
1000μF	820μF							
7mΩ Max	9mΩ Max							
5	Leakage Current	<p>< Condition ></p> <p>The rated voltage shall be applied between terminals of capacitor such that the terminal voltage will reach the rated voltage with in two minute and the leakage current shall be measured at following time after the voltage has reached the rated voltage across a 1000 ±10 Ω series protection resistor. Then the current value shall not exceed value calculated from following formula.</p> <p>< Criteria ></p> <table border="1"><tr><td>Rated</td><td>6.3 V / 1000 μF</td><td>6.3 V / 820 μF</td></tr><tr><td>LC (2 Minute)</td><td>1260 μA</td><td>1033 μA</td></tr></table>	Rated	6.3 V / 1000 μF	6.3 V / 820 μF	LC (2 Minute)	1260 μA	1033 μA
Rated	6.3 V / 1000 μF	6.3 V / 820 μF						
LC (2 Minute)	1260 μA	1033 μA						




TMCE32 Conductive Polymer Aluminum Solid Capacitors



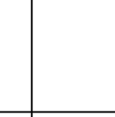
TMCE32 Conductive Polymer Aluminum Solid Capacitors

		following values.										
		<table><tr><td>Z(-25 °C)/Z(+20 °C)</td><td>1.15</td></tr><tr><td>Z(-55 °C)/Z(+20 °C)</td><td>1.25</td></tr></table>	Z(-25 °C)/Z(+20 °C)	1.15	Z(-55 °C)/Z(+20 °C)	1.25						
Z(-25 °C)/Z(+20 °C)	1.15											
Z(-55 °C)/Z(+20 °C)	1.25											
7	Endurance (Load Life Test)	<p><Condition></p> <p>Capacitors shall be applied the rated voltage continuously through 1000Ω series protective resistor at 105± 2 °C for 2000⁺⁴⁸₀ hours. After the test and returned in standard condition for 1~2 hours, and the capacitor shall meet the following requirements.</p> <p><Criteria></p> <table><tr><td>Capacitance Change</td><td>Within ±20 % of the initial value</td></tr><tr><td>Tanδ</td><td>Not more than 150% of the specified value</td></tr><tr><td>ESR</td><td>Not more than 150% of the specified value</td></tr><tr><td>Leakage Current</td><td>Not more than the specified value</td></tr></table>	Capacitance Change	Within ±20 % of the initial value	Tanδ	Not more than 150% of the specified value	ESR	Not more than 150% of the specified value	Leakage Current	Not more than the specified value		
Capacitance Change	Within ±20 % of the initial value											
Tanδ	Not more than 150% of the specified value											
ESR	Not more than 150% of the specified value											
Leakage Current	Not more than the specified value											
8	Surge Voltage	<p><Condition></p> <p>Capacitors shall be applied the surge voltage continuously through 1000Ω resistor in series for 30 ±5 seconds in every 6 ±0.5 minutes at 15~35 °C. Procedure shall be repeated 1000 times. Then the capacitors shall be left under normal humidity for 1~2 hours before measurement. [Cr : Nominal Capacitance(μF)]</p> <p><Criteria></p> <table><tr><td>Leakage Current</td><td>Not more than the specified value</td></tr><tr><td>Capacitance Change</td><td>Within ±20% of the initial value</td></tr><tr><td>Tanδ</td><td>Not more than 150% of the specified value</td></tr><tr><td>ESR</td><td>Not more than 150% of the specified value</td></tr><tr><td>Appearance</td><td>Notable changes shall not be found</td></tr></table> <p>This test simulates overvoltage at abnormal situations, and not be hypothesizing that overvoltage is always applied.</p>	Leakage Current	Not more than the specified value	Capacitance Change	Within ±20% of the initial value	Tanδ	Not more than 150% of the specified value	ESR	Not more than 150% of the specified value	Appearance	Notable changes shall not be found
Leakage Current	Not more than the specified value											
Capacitance Change	Within ±20% of the initial value											
Tanδ	Not more than 150% of the specified value											
ESR	Not more than 150% of the specified value											
Appearance	Notable changes shall not be found											




TMCE32 Conductive Polymer Aluminum Solid Capacitors

9	Vibration Test	<p><Condition></p> <p>Testing shall be done out in 3 AXIS for 2 hours each (total 6 hours) as below. Fix lead wire at a point not more than 4mm from the body, use mounting device separately for the one with a diameter 12.5mm and greater or with a length 25mm and longer.</p> <div><p>Vibration frequency range : 10 ~ 55 Hz</p><p>Peak to peak amplitude : 1.5 mm</p></div>
---	----------------	---



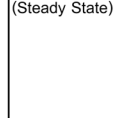
TMCE32 Conductive Polymer Aluminum Solid Capacitors

10	Solderability Test	<p><Condition></p> <p>1. Test method is refer to EIAJ ED-4701.</p> <p>2. Material :</p> <p>(1) Solder : Sn / 3.0 Ag / 0.5 Cu (Weight %)</p> <p>(2) Flux : Rosin 25% , IPA 75%</p> <p>3. Test condition : Take a capacitor subjected to the above pre-treatment , leave it for at least 2 hours at room temperature, and then, immersion for 3~5 seconds in the prescribe flux.</p> <table border="1"><tr><td>Solder Temp</td><td>235 ± 5 °C</td></tr><tr><td>Immersion depth</td><td>2 m / m</td></tr><tr><td>Immersion Time</td><td>3 seconds</td></tr></table> <p><Criteria></p> <p>Wetting must occure over at least 95 % of the solder immersion surface.</p>	Solder Temp	235 ± 5 °C	Immersion depth	2 m / m	Immersion Time	3 seconds
Solder Temp	235 ± 5 °C							
Immersion depth	2 m / m							
Immersion Time	3 seconds							
11	Solder Heat Resistance Test	<p><Condition></p> <p>According to the standard of EIAJ ED-4701 where test conditions as.</p> <p>1. Material of solder : Sn / 3.0 Ag / 0.5 Cu (weight %)</p> <p>2. Test A : Flow Soldering (Party heating)</p> <p>Terminal of the capacitor shall be immersed into solder bath at 260 +/-3 °C</p> <p>For ≤10 seconds to 1.5 ~ 2.0 mm depth from the body of capacitor or apply</p> <p>To 260 +/-3 °C for 5 seconds 2 times.</p>						




TMCE32 Conductive Polymer Aluminum Solid Capacitors

		<p><Criteria></p> <p>After test , the capacitor shall be left for 1-2 hours under the room temperature and normal humidity before measurement.</p> <table><tr><td>Leakage Current</td><td>Not more than the specified value</td></tr><tr><td>Capacitance</td><td>Within +/- 10 % of the initial value</td></tr></table>	Leakage Current	Not more than the specified value	Capacitance	Within +/- 10 % of the initial value
Leakage Current	Not more than the specified value					
Capacitance	Within +/- 10 % of the initial value					



TMCE32 Conductive Polymer Aluminum Solid Capacitors

		<table><tr><td>Leakage Current</td><td>Not more than the specified value</td></tr><tr><td>Appearance</td><td>Notable changes shall not be found</td></tr></table>	Leakage Current	Not more than the specified value	Appearance	Notable changes shall not be found					
Leakage Current	Not more than the specified value										
Appearance	Notable changes shall not be found										
13	Terminal Strength	<p><Condition></p> <p>1. Tensile Strength of Terminals</p> <p>The body of capacitor shall be fixed and the tensile force of following table shall be applied to the terminal in lead out direction of the terminal for 10 ± 1seconds.</p> <p>2. Bending Strenght of Terminals</p> <p>The body of capacitor shall be held in such a way that the regular lead out axis of leadwire terminal becomes vertical.The weight of following table shall be suspended from the end of terminal. In this condition , after the body of sample is bent through 90 degrees , it shall be returned to the original position. Next the body shall be revers bent through 90 degrees and again returned to the original position.</p> <table><tr><th>Diameter of lead wire</th><th>Tensile force N(kgf)</th><th>Bending force N(kgf)</th></tr><tr><td>0.5 mm and less</td><td>5(0.51)</td><td>2.5(0.25)</td></tr><tr><td>0.6 mm to 0.8 mm</td><td>10(1.0)</td><td>5(0.51)</td></tr></table> <p><Criteria></p> <p>Notable changes shall not be found , as breakage or looseness in the terminal.</p>	Diameter of lead wire	Tensile force N(kgf)	Bending force N(kgf)	0.5 mm and less	5(0.51)	2.5(0.25)	0.6 mm to 0.8 mm	10(1.0)	5(0.51)
Diameter of lead wire	Tensile force N(kgf)	Bending force N(kgf)									
0.5 mm and less	5(0.51)	2.5(0.25)									
0.6 mm to 0.8 mm	10(1.0)	5(0.51)									

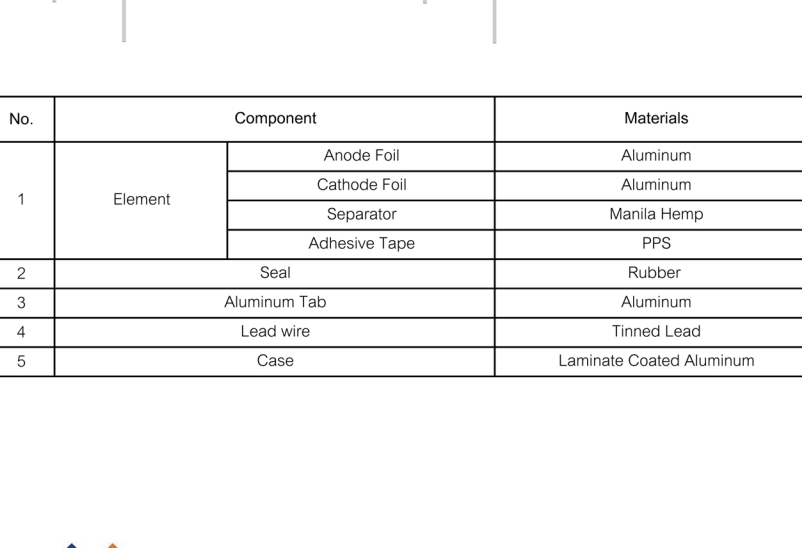


TMCE32 Conductive Polymer Aluminum Solid Capacitors

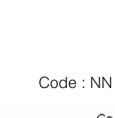


TMCE32 Conductive Polymer Aluminum Solid Capacitors

7. Construction and Material Details



No.	Component		Materials	
1	Element	Anode Foil	Aluminum	
		Cathode Foil	Aluminum	
		Separator	Manila Hemp	
		Adhesive Tape	PPS	
2	Seal		Rubber	
3	Aluminum Tab		Aluminum	
4	Lead wire		Tinned Lead	
5	Case		Laminate Coated Aluminum	



TMCE32 Conductive Polymer Aluminum Solid Capacitors

8. Table -2 Standard Ratings

Part Number	Rated Voltage (Vdc)	Rated Capacitance (μF)	Case Size φD×L (mm)	ESR	Rated	Tanδ	Leakage Current (μA)
				100 KHz~to 300KHz (mΩmax)	Ripple Current (mA rms/105 °C/100KHz)		
TMCE32-102M6.3VP3.5B	6.3 (0J)	1000	8×8	7	6100	0.12	1260
TMCE32-821M6.3VP3.5B	6.3 (0J)	820	8×8	9	5700	0.12	1033

