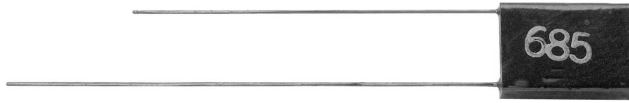


Subminiature, Leaded Solid Tantalum Capacitors Polar or Non-Polar



FEATURES

- Subminiature package size and light weight
- Rectangular case with axial or radial leads
- 2 to 35 V_{DC}
- 0.1 μF to 470 μF
- Operating temperature range: - 55 °C to + 125 °C
- High stability and reliability
- Tested in accordance with MIL-PRF-49137
- Unique and comprehensive custom design capability

ELECTRICAL CHARACTERISTICS

Operating temperature range: - 55 °C to + 125 °C

Capacitance: Measured at 120 Hz and 25 °C with a maximum of 2.2 V_{DC} bias and 1.0 V_{rms} signal.

Capacitance Tolerance: Standard tolerance is ± 20 % for ratings 0.1 μF and above, and + 40, - 20 % for ratings below 0.1 μF. Special tolerances are also available.

Dissipation Factor: When measured simultaneously with capacitance, DF shall not exceed the value shown in the ratings tables.

DC Leakage Current (DCL Max.):

When measured with DC voltage applied through a 1000 Ω resistor for 5 min, DC leakage (μA) shall not exceed:

At 25 °C: Leakage current shall not exceed the values listed in the Standard Ratings Tables

At 85 °C: Leakage current shall not exceed 10 times the values listed in the Standard Ratings Tables

At 125 °C and 66 % of Rated Voltage: Leakage current shall not exceed 15 times the values listed in the Standard Ratings Tables

Operating Voltage: Full working voltage up to 85 °C. From 85 °C to 125 °C working voltage derates linearly to 66 % of the 85 °C working voltage

APPLICATIONS

- Hearing aids
- Portable communications
- Space/avionics
- Laptop computers

MECHANICAL SPECIFICATIONS

Solder coated nickel leads (type N32 per MIL-STD-1276) are standard on all case sizes

Leads are weldable and/or solderable

Special leads are available on request (e.g. bare nickel, gold plated nickel or ribbon leads)

Lead length is 1 1/2" [38.1 mm] minimum on nonpolar parts

On polar parts the negative lead is 1 1/4" [31.8 mm] minimum and the positive lead is 1 1/2" [38.1 mm] minimum

ORDERING INFORMATION

STC	1.0	35	C2	A (1)	M
MODEL	CAPACITANCE IN μF	DC VOLTAGE RATING AT + 85 °C	CASE CODE	LEAD CONFIGURATION	CAPACITANCE TOLERANCE
			C = Polar N = Non-polar	A = Axial R = Radial	E = + 40, - 20 % M = ± 20 % K = ± 10 % J = ± 5 %
Example of Part Number Code: STC1.0-35C2AM					

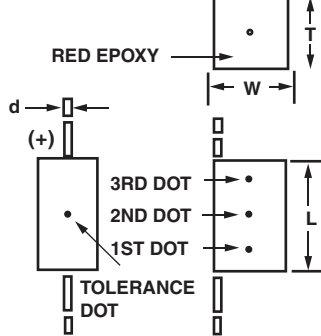
Note:

- (1) To complete part number in rating tables, add A or R.
Change suffix if special capacitance tolerance is required.

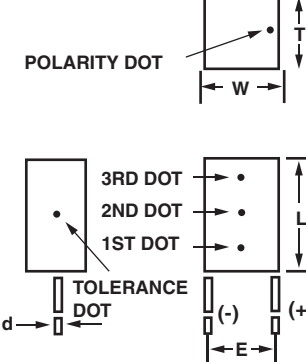
DIMENSIONS in inches [millimeters]

POLAR STYLE

AXIAL



RADIAL

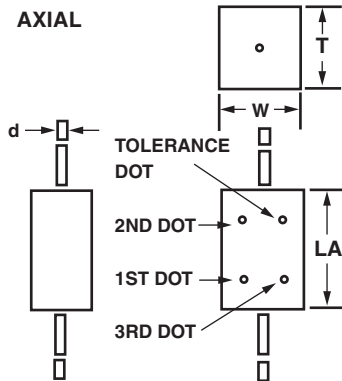


THE 3RD DOT IS ON THE END OF THE CX SIZE

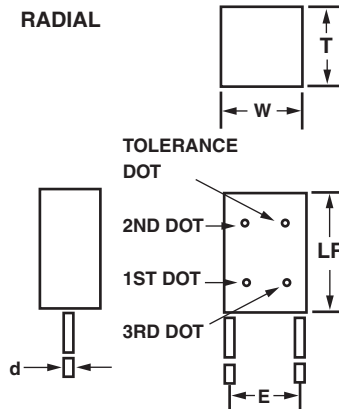
CASE CODE	L MAX.	W MAX.	T MAX.	E	E TOL. ±	d
CX	0.075 [1.91]	0.050 [1.27]	0.040 [1.02]	0.030 [0.76]	0.015 [0.38]	0.007 [0.18]
C0	0.100 [2.54]	0.050 [1.27]	0.040 [1.02]	0.030 [0.76]	0.015 [0.38]	0.007 [0.18]
C1	0.125 [3.18]	0.070 [1.78]	0.040 [1.02]	0.050 [1.27]	0.015 [0.38]	0.010 [0.25]
C2	0.165 [4.19]	0.120 [3.05]	0.070 [1.78]	0.100 [2.54]	0.020 [0.51]	0.010 [0.25]
C3	0.225 [5.72]	0.185 [4.70]	0.075 [1.91]	0.150 [3.81]	0.020 [0.51]	0.010 [0.25]
C4	0.290 [7.37]	0.220 [5.59]	0.110 [2.79]	0.180 [4.57]	0.025 [0.64]	0.016 [0.41]
C5	0.310 [7.87]	0.230 [5.84]	0.130 [3.30]	0.200 [[5.08]	0.025 [0.64]	0.016 [0.41]
C6	0.475 [12.07]	0.375 [9.53]	0.150 [3.81]	0.300 [7.62]	0.025 [0.64]	0.016 [0.41]

NON POLAR STYLE

AXIAL



RADIAL



CASE CODE	LA MAX.	LR MAX.	W MAX.	T MAX.	E MAX.	E TOL. ±	d
N1	0.220 [5.59]	0.180 [4.57]	0.125 [3.18]	0.125 [3.18]	0.100 [2.54]	0.020 [0.51]	0.010 [0.25]
N2	0.280 [7.11]	0.240 [6.10]	0.140 [3.56]	0.180 [4.57]	0.100 [2.54]	0.025 [0.64]	0.010 [0.25]
N3	0.370 [9.40]	0.315 [8.00]	0.180 [4.57]	0.220 [5.59]	0.150 [3.81]	0.025 [0.64]	0.016 [0.41]
N4	0.390 [9.91]	0.335 [8.51]	0.230 [5.84]	0.230 [5.84]	0.180 [4.57]	0.025 [0.64]	0.016 [0.41]



Subminiature, Leaded Solid Tantalum Capacitors
Polar or Non-Polar

Vishay Sprague

STANDARD RATINGS - POLAR CAPACITORS				
CAPACITANCE (μ F)	MAX DF (%)	MAX. DCL AT + 25 °C (μ A)	CASE CODE	PART NUMBER
2 WVDC AT + 85 °C				
0.0022	10	0.5	CX	STC.0022-2CX ⁽¹⁾ E
0.0033	10	0.5	CX	STC.0033-2CX ⁽¹⁾ E
0.0047	10	0.5	CX	STC.0047-2CX ⁽¹⁾ E
0.0068	10	0.5	CX	STC.0068-2CX ⁽¹⁾ E
0.10	10	0.5	CX	STC.10-2CX ⁽¹⁾ M
0.15	10	0.5	CX	STC.15-2CX ⁽¹⁾ M
0.22	10	0.5	CX	STC.22-2CX ⁽¹⁾ M
0.33	10	0.5	CX	STC.33-2CX ⁽¹⁾ M
0.47	10	0.5	CX	STC.47-2CX ⁽¹⁾ M
0.68	10	0.5	CX	STC.68-2CX ⁽¹⁾ M
1.0	10	0.5	CX	STC1.0-2CX ⁽¹⁾ M
1.5	10	0.5	CX	STC1.5-2CX ⁽¹⁾ M
2.2	10	0.5	CX	STC2.2-2CX ⁽¹⁾ M
2.2	10	0.5	C0	STC2.2-2C0 ⁽¹⁾ M
6.8	10	0.5	C1	STC6.8-2C1 ⁽¹⁾ M
100	10	2.0	C3	STC100-2C3 ⁽¹⁾ M
3 WVDC AT + 85 °C				
1.5	10	0.5	C0	STC1.5-3C0 ⁽¹⁾ M
22	10	1.0	C2	STC22-3C2 ⁽¹⁾ M
68	10	2.0	C3	STC68-3C3 ⁽¹⁾ M
100	10	3.0	C4	STC100-3C4 ⁽¹⁾ M
4 WVDC AT + 85 °C				
1.0	10	0.5	C0	STC1.0-4C0 ⁽¹⁾ M
4.7	10	0.5	C1	STC4.7-4C1 ⁽¹⁾ M
10	8	1.0	C2	STC10-4C2 ⁽¹⁾ M
15	8	1.0	C2	STC15-4C2 ⁽¹⁾ M
47	8	2.0	C3	STC47-4C3 ⁽¹⁾ M
68	8	3.0	C4	STC68-4C4 ⁽¹⁾ M
220	15	9.0	C5	STC220-4C5 ⁽¹⁾ M
470	15	10.0	C6	STC470-4C6 ⁽¹⁾ M
6 WVDC AT + 85 °C				
0.68	10	0.5	C0	STC.68-6C0 ⁽¹⁾ M
3.3	8	0.5	C1	STC3.3-6C1 ⁽¹⁾ M
33	6	2.0	C3	STC33-6C3 ⁽¹⁾ M
47	6	3.0	C4	STC47-6C4 ⁽¹⁾ M
150	10	9.0	C5	STC150-6C5 ⁽¹⁾ M
330	15	10.0	C6	STC330-6C6 ⁽¹⁾ M
10 WVDC AT + 85 °C				
0.47	10	0.5	C0	STC.47-10C0 ⁽¹⁾ M
1.5	6	0.5	C1	STC1.5-10C1 ⁽¹⁾ M
2.2	6	0.5	C1	STC2.2-10C1 ⁽¹⁾ M
6.8	6	1.0	C2	STC6.8-10C2 ⁽¹⁾ M
22	6	2.0	C3	STC22-10C3 ⁽¹⁾ M
33	6	3.0	C4	STC33-10C4 ⁽¹⁾ M
100	8	9.0	C5	STC100-10C5 ⁽¹⁾ M
220	6	0.5	C6	STC220-10C6 ⁽¹⁾ M
15 WVDC AT + 85 °C				
1.0	6	0.5	C1	STC1.0-15C1 ⁽¹⁾ M
4.7	6	1.0	C2	STC4.7-15C2 ⁽¹⁾ M
15	6	2.0	C3	STC15-15C3 ⁽¹⁾ M
22	6	3.0	C4	STC22-15C4 ⁽¹⁾ M
68	6	6.0	C5	STC68-15C5 ⁽¹⁾ M
150	10	10.0	C6	STC150-15C6 ⁽¹⁾ M

Note:

⁽¹⁾ Add A for axial, R for radial



STANDARD RATINGS - POLAR CAPACITORS				
CAPACITANCE (μ F)	MAX DF (%)	MAX. DCL AT + 25 °C (μ A)	CASE CODE	PART NUMBER
20 WVDC AT + 85 °C				
0.68	6	0.5	C1	STC.68-20C1 ⁽¹⁾ M
3.3	6	1.0	C2	STC3.3-20C2 ⁽¹⁾ M
6.8	6	2.0	C3	STC6.8-20C3 ⁽¹⁾ M
10	6	2.0	C3	STC10-20C3 ⁽¹⁾ M
15	6	3.0	C4	STC15-20C4 ⁽¹⁾ M
47	6	6.0	C5	STC47-20C5 ⁽¹⁾ M
100	10	10.0	C6	STC100-20C6 ⁽¹⁾ M
25 WVDC AT + 85 °C				
0.47	6	0.5	C1	STC.47-25C1 ⁽¹⁾ M
2.2	6	1.0	C2	STC2.2-25C2 ⁽¹⁾ M
3.3	6	2.0	C3	STC3.3-25C3 ⁽¹⁾ M
4.7	6	2.0	C3	STC4.7-25C3 ⁽¹⁾ M
10	6	3.0	C4	STC10-25C4 ⁽¹⁾ M
15	6	6.0	C5	STC15-25C5 ⁽¹⁾ M
22	6	6.0	C5	STC22-25C6 ⁽¹⁾ M
33	6	6.0	C5	STC33-25C5 ⁽¹⁾ M
68	6	10.0	C6	STC68-25C6 ⁽¹⁾ M
35 WVDC AT + 85 °C				
0.33	6	0.5	C1	STC.33-35C1 ⁽¹⁾ M
0.68	6	1.0	C2	STC.68-35C2 ⁽¹⁾ M
1.0	6	1.0	C2	STC1.0-35C2 ⁽¹⁾ M
1.5	6	1.0	C2	STC1.5-35C2 ⁽¹⁾ M

Note:

⁽¹⁾ Add A for axial, R for radial

STANDARD RATINGS - NON-POLAR CAPACITORS				
CAPACITANCE (μ F)	MAX DF (%)	MAX. DCL AT + 25 °C (μ A)	CASE CODE	PART NUMBER
2 WVDC AT + 85 °C				
10	10	1.0	N1	STC10-2N1 ⁽¹⁾ M
3 WVDC AT + 85 °C				
33	10	2.0	N2	STC33-3N2 ⁽¹⁾ M
47	8	3.0	N3	STC47-3N3 ⁽¹⁾ M
100	10	6.0	N4	STC100-3N4 ⁽¹⁾ M
4 WVDC AT + 85 °C				
6.8	8	1.0	N1	STC6.8-4N1 ⁽¹⁾ M
22	8	2.0	N2	STC22-4N2 ⁽¹⁾ M
33	8	3.0	N3	STC33-4N3 ⁽¹⁾ M
68	8	6.0	N4	STC68-4N4 ⁽¹⁾ M
6 WVDC AT + 85 °C				
4.7	6	1.0	N1	STC4.7-6N1 ⁽¹⁾ M
15	6	2.0	N2	STC15-6N2 ⁽¹⁾ M
22	6	3.0	N3	STC22-6N3 ⁽¹⁾ M
47	6	6.0	N4	STC47-6N4 ⁽¹⁾ M
10 WVDC AT + 85 °C				
3.3	6	1.0	N1	STC3.3-10N1 ⁽¹⁾ M
10	6	2.0	N2	STC10-10N2 ⁽¹⁾ M
15	6	3.0	N3	STC15-10N3 ⁽¹⁾ M
33	6	6.0	N4	STC33-10N4 ⁽¹⁾ M

Note:

⁽¹⁾ Add A for axial, R for radial



STANDARD RATINGS - NON-POLAR CAPACITORS				
CAPACITANCE (μ F)	MAX. DF (%)	MAX. DCL AT + 25 °C (μ A)	CASE CODE	PART NUMBER
15 WVDC AT + 85 °C				
2.2	6	1.0	N1	STC2.2-15N1 ⁽¹⁾ M
6.8	6	2.0	N2	STC6.8-15N2 ⁽¹⁾ M
10	6	3.0	N3	STC10-15N3 ⁽¹⁾ M
22	6	6.0	N4	STC22-15N4 ⁽¹⁾ M
20 WVDC AT + 85 °C				
1.5	6	1.0	N1	STC1.5-20N1 ⁽¹⁾ M
4.7	6	2.0	N2	STC4.7-20N2 ⁽¹⁾ M
6.8	6	3.0	N3	STC6.8-20N3 ⁽¹⁾ M
15	6	6.0	N4	STC15-20N4 ⁽¹⁾ M
25 WVDC AT + 85 °C				
1.0	6	1.0	N1	STC1.0-25N1 ⁽¹⁾ M
2.2	6	2.0	N2	STC2.2-25N2 ⁽¹⁾ M
3.3	6	2.0	N2	STC3.3-25N2 ⁽¹⁾ M
4.7	6	3.0	N3	STC4.7-25N3 ⁽¹⁾ M
10	6	6.0	N4	STC10-25N4 ⁽¹⁾ M
35 WVDC AT + 85 °C				
0.68	6	1.0	N1	STC.68-35N1 ⁽¹⁾ M

Note:

⁽¹⁾ Add A for axial, R for radial

MARKING																																		
STC Capacitors case sizes C3 - C6 and N2 - N4 are print marked: - Capacitance is in picofarads - 1st and 2nd digits are significant figures - 3rd digit indicates the number of zeros.		All other case sizes are have color dot marking:																																
		<table border="1"> <thead> <tr> <th>Capacitance</th> <th>Color</th> <th>Digit</th> </tr> </thead> <tbody> <tr> <td>In picofarads, indicated by 3 dots. 1st and 2nd dot give the significant digits.</td> <td>Black</td> <td>0</td> </tr> <tr> <td>3rd dot indicates the number of zeros.</td> <td>Brown</td> <td>1</td> </tr> <tr> <td>Color dot location is shown on the dimensional sketches.</td> <td>Red</td> <td>2</td> </tr> <tr> <td>Black dot is omitted on black sleeve.</td> <td>Orange</td> <td>3</td> </tr> <tr> <td></td> <td>Yellow</td> <td>4</td> </tr> <tr> <td></td> <td>Green</td> <td>5</td> </tr> <tr> <td></td> <td>Blue</td> <td>6</td> </tr> <tr> <td></td> <td>Violet</td> <td>7</td> </tr> <tr> <td></td> <td>Grey</td> <td>8</td> </tr> <tr> <td></td> <td>White</td> <td>9</td> </tr> </tbody> </table>	Capacitance	Color	Digit	In picofarads, indicated by 3 dots. 1st and 2nd dot give the significant digits.	Black	0	3rd dot indicates the number of zeros.	Brown	1	Color dot location is shown on the dimensional sketches.	Red	2	Black dot is omitted on black sleeve.	Orange	3		Yellow	4		Green	5		Blue	6		Violet	7		Grey	8		White
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	None	+ 40 %/- 20 %																																
The positive lead is indicated by a color dot of red epoxy on the unit.		e.g. Yellow-Violet-Green = 4 700 000 pf = 4.7 μ F																																

PERFORMANCE AND RELIABILITY

The capacitors are tested in accordance with MIL-PRF-49137, with specific requirements as follows:

Temperature Stability: When tested per MIL-PRF-49137/6, capacitance shall be within $\pm 15\%$ at $-55\text{ }^\circ\text{C}$ and $85\text{ }^\circ\text{C}$, and $\pm 10\%$ at $25\text{ }^\circ\text{C}$ after exposure to temperature extremes. DF shall be within 200% of initial limit at $-55\text{ }^\circ\text{C}$, 150% of initial limit at $85\text{ }^\circ\text{C}$, and meet the initial at $25\text{ }^\circ\text{C}$. DCL shall be within 10 x initial limit at $85\text{ }^\circ\text{C}$, and meet the initial limit at $25\text{ }^\circ\text{C}$.

Moisture Resistance: (per Method 106 of MIL-STD-202) After 10 cycles of 24 h at $25\text{ }^\circ\text{C}$ to $65\text{ }^\circ\text{C}$ and 80 - 98 % RH; capacitance shall be within $\pm 15\%$ of initial value, DF within 1.5 x initial limit and leakage within 3 x initial limit.

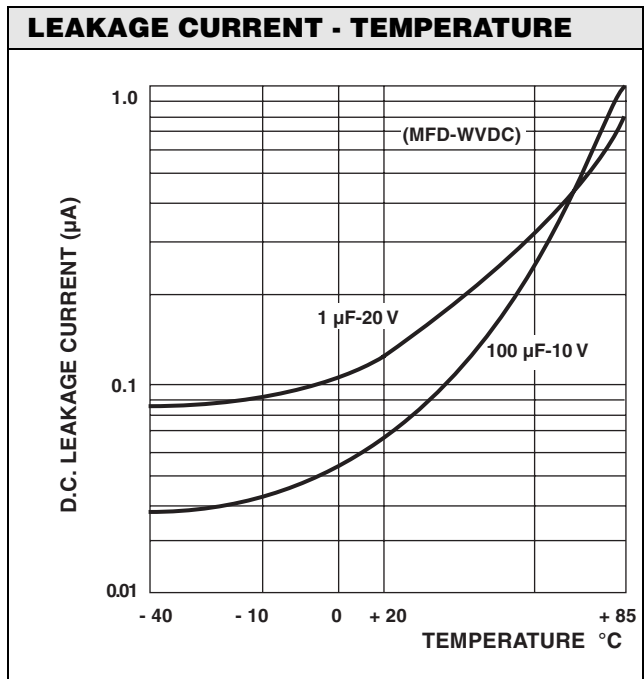
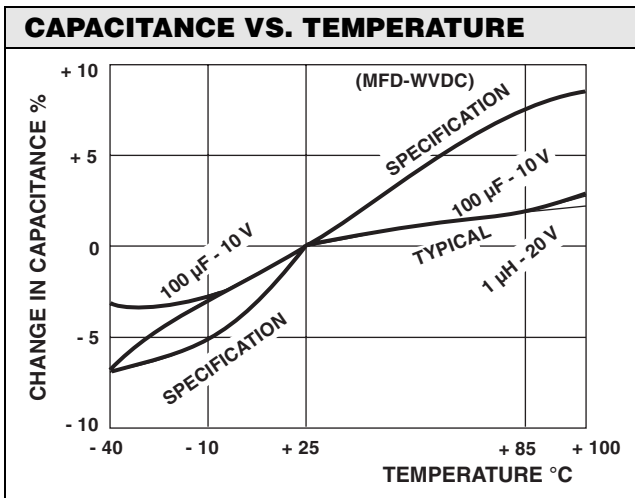
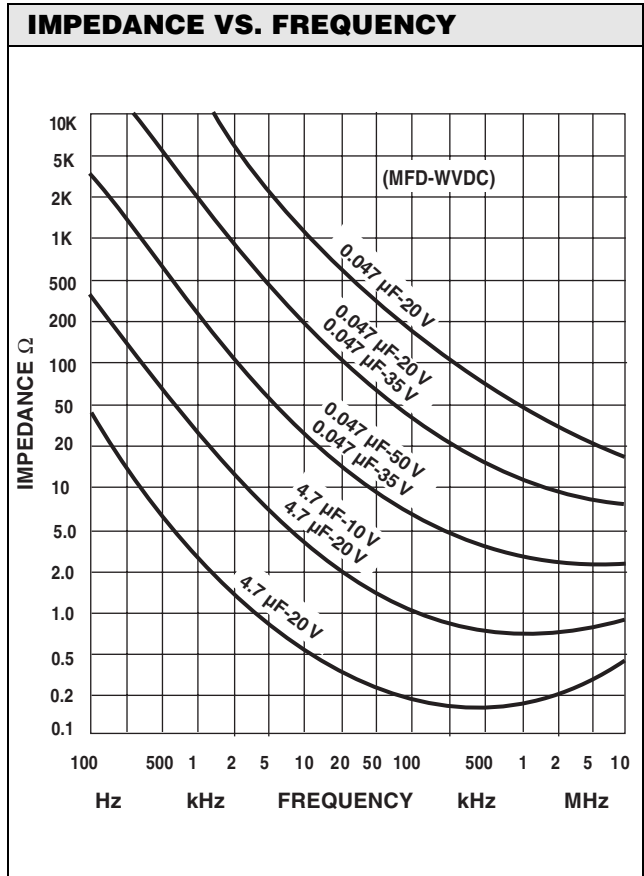
Life: (per Method 108 of MIL-STD-202) after 1000 h at $85\text{ }^\circ\text{C}$ and rated voltage; capacitance shall be within $\pm 10\%$ of initial limit, DF within initial limits, and leakage within 200% of initial limit.

Surge Voltage: (per MIL-PRF-49317) After 1000 cycles at $85\text{ }^\circ\text{C}$ and 1.3 x WVDC; capacitance shall be within $\pm 10\%$ of initial limit, DF and leakage within initial limits.

Resistance to Soldering Heat: (per Method 210 of MIL-STD-202, Condition B) After immersion in $260\text{ }^\circ\text{C}$ molten solder to within a 1/4" of the body of the unit, there shall be no evidence of mechanical or electrical degradation.

Solderability: (per Method 208 of MIL-STD-202) After dipping leads in $235\text{ }^\circ\text{C}$ molten solder to within 0.125" of the body of the unit, the solder shall cover 95% of the lead surface.

Terminal Strength: (per Method 211 of MIL-STD-202) After the following test there shall be no loosening of the terminals or permanent damage to the terminals. Test Condition A: (Pull Test) 0.010" leads withstand 1 pound, 0.016" leads 2 pounds and 0.007" leads 1/2 pound. Test Condition C: (Bend Test) All leads shall withstand 3 - 90° bends with a 1/2 pound applied force.





Disclaimer

All product specifications and data are subject to change without notice.

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