



Solid-Electrolyte TANTALEX[®] Capacitors for High Frequency Power Supplies



FEATURES

- Hermetically-sealed, axial-lead solid tantalum capacitors
- Small size and long life
- Exceptional capacitance stability and excellent resistance to severe environmental conditions
- The military equivalent is the CSR21 which is qualified to MIL-C-39003/09

APPLICATIONS

Designed for power supply filtering applications at above 100kHz

PERFORMANCE CHARACTERISTICS

Operating Temperature: - 55°C to + 85°C. (To + 125°C with voltage derating.)

Capacitance Tolerance: At 120 Hz, + 25°C. ± 20% and ± 10% standard. ± 5% available as a special.

Dissipation Factor: At 120 Hz, + 25°C. Dissipation factor, as determined from the expression $2\pi fRC$, shall not exceed the values listed in the Standard Ratings Tables.

DC Leakage Current (DCL Max.):

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: Leakage current shall not exceed 15 times the values listed in the Standard Ratings Tables.

Life Test: Capacitors shall withstand rated DC voltage applied at + 85°C for 2000 hours or derated DC voltage applied at + 125°C for 1000 hours.

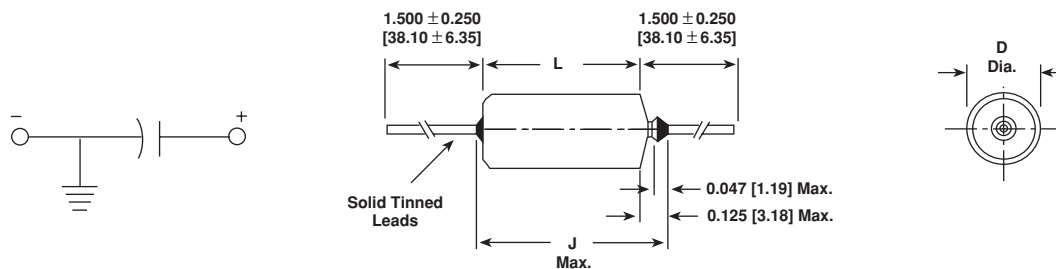
Following the life test:

1. DCL shall not exceed 125% of the initial requirement.
2. Dissipation Factor shall meet the initial requirement.
3. Change in capacitance shall not exceed ± 5%.

ORDERING INFORMATION

550D MODEL	157 CAPACITANCE	X0 CAPACITANCE TOLERANCE	006 DC VOLTAGE RATING AT + 85°C	R CASE CODE	2 STYLE NUMBER	T PACKAGING
This is expressed in picofarads. The first two digits are the significant figures. The third is the number of zeros to follow. Standard capacitance ratings are in accordance with EIA preferred number series wherever possible.		X0 = ± 20% X9 = ± 10% X5 = ± 5% Special Order.	This is expressed in volts. To complete the three-digit block, zeros precede the voltage rating.	See Ratings and Case Codes Table.	2 = Insulated sleeve.	T = Tape and Reel

DIMENSIONS in inches [millimeters]



CASE CODE	WITH INSULATING SLEEVE*			LEAD SIZE	
	D	L	J (MAX.)	AWG NO.	NOM. DIA.
R	0.289 ± 0.016 [7.34 ± 0.41]	0.686 ± 0.031 [17.42 ± 0.79]	0.822 [20.88]	22	0.025 [0.64]
S	0.351 ± 0.016 [8.92 ± 0.41]	0.786 ± 0.031 [19.96 ± 0.79]	0.922 [23.42]	22	0.025 [0.64]

*When a shrink-fitted insulation is used, it shall lap over the ends of the capacitor body.

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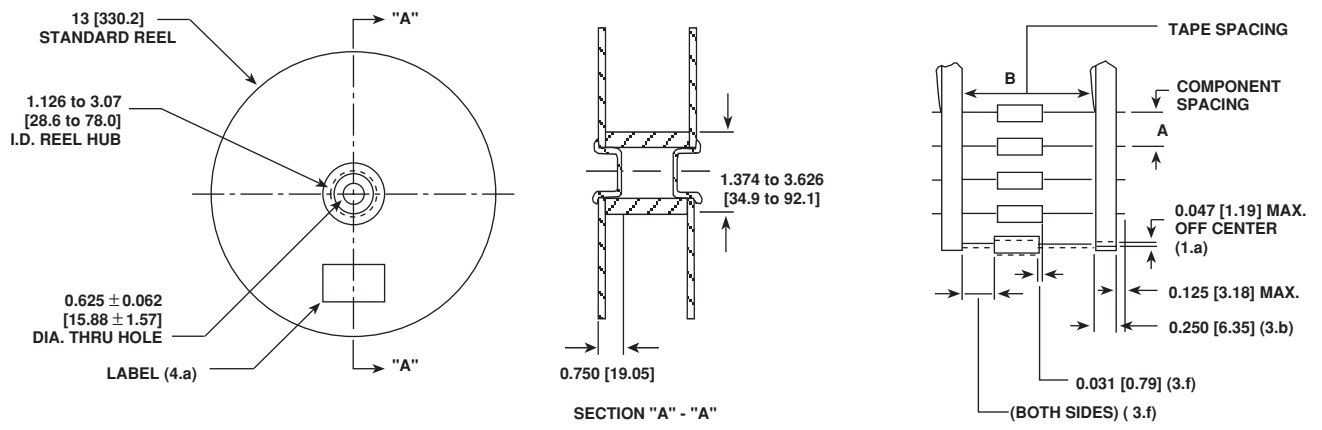
Vishay Sprague

STANDARD RATINGS						
CAPACITANCE (μ F)	CASE CODE	PART NUMBER* CAP. TOL. \pm 20%	PART NUMBER* CAP. TOL. \pm 10%	MAX. DCL @ + 25°C (μ A)	MAX. DF @ + 25°C 1kHz (%)	MAX. ESR @ + 25°C 100kHz (Ohms)
6 WVDC @ + 85°C, SURGE = 8 V . . . 4 WVDC @ + 125°C, SURGE = 5 V						
150	R	550D157X0006R2	550D157X9006R2	9	10	0.065
180	R	550D187X0006R2	550D187X9006R2	11	10	0.060
220	S	550D227X0006S2	550D227X9006S2	12	10	0.055
270	S	550D277X0006S2	550D277X9006S2	13	10	0.050
330	S	550D337X0006S2	550D337X9006S2	15	12	0.045
10 WVDC @ + 85°C, SURGE = 13 V . . . 7 WVDC @ + 125°C, SURGE = 9 V						
82	R	550D826X0010R2	550D826X9010R2	8	8	0.085
100	R	550D107X0010R2	550D107X9010R2	10	8	0.075
120	R	550D127X0010R2	550D127X9010R2	12	8	0.070
150	S	550D157X0010S2	550D157X9010S2	15	8	0.065
180	S	550D187X0010S2	550D187X9010S2	18	8	0.060
220	S	550D227X0010S2	550D227X9010S2	20	10	0.055
15 WVDC @ + 85°C, SURGE = 20 V . . . 10 WVDC @ + 125°C, SURGE = 12 V						
56	R	550D566X0015R2	550D566X9015R2	8	6	0.100
68	R	550D686X0015R2	550D686X9015R2	10	6	0.095
82	S	550D826X0015S2	550D826X9015S2	12	6	0.085
100	S	550D107X0015S2	550D107X9015S2	15	8	0.075
120	S	550D127X0015S2	550D127X9015S2	18	8	0.070
150	S	550D157X0015S2	550D157X9015S2	20	8	0.065
20 WVDC @ + 85°C, SURGE = 26 V . . . 13 WVDC @ + 125°C, SURGE = 16 V						
27	R	550D276X0020R2	550D276X9020R2	5	5	0.145
33	R	550D336X0020R2	550D336X9020R2	7	5	0.130
39	R	550D396X0020R2	550D396X9020R2	8	5	0.120
47	R	550D476X0020R2	550D476X9020R2	9	6	0.110
56	S	550D566X0020S2	550D566X9020S2	11	6	0.100
68	S	550D686X0020S2	550D686X9020S2	14	6	0.095
82	S	550D826X0020S2	550D826X9020S2	16	6	0.085
100	S	550D107X0020S2	550D107X9020S2	20	8	0.075
35 WVDC @ + 85°C, SURGE = 46 V . . . 23 WVDC @ + 125°C, SURGE = 28 V						
8.2	R	550D825X0035R2	550D825X9035R2	3	4	0.250
10	R	550D106X0035R2	550D106X9035R2	4	4	0.230
12	R	550D126X0035R2	550D126X9035R2	4	4	0.210
15	R	550D156X0035R2	550D156X9035R2	5	4	0.190
18	R	550D186X0035R2	550D186X9035R2	6	4	0.175
22	R	550D226X0035R2	550D226X9035R2	8	4	0.160
27	S	550D276X0035S2	550D276X9035S2	9	4	0.145
33	S	550D336X0035S2	550D336X9035S2	11	5	0.130
39	S	550D396X0035S2	550D396X9035S2	14	5	0.120
47	S	550D476X0035S2	550D476X9035S2	16	5	0.110
50 WVDC @ + 85°C, SURGE = 65 V . . . 33 WVDC @ + 125°C, SURGE = 40 V						
5.6	R	550D565X0050R2	550D565X9050R2	4	3	0.300
6.8	R	550D685X0050R2	550D685X9050R2	4	3	0.275
8.2	R	550D825X0050R2	550D825X9050R2	5	3	0.250
10.0	R	550D106X0050R2	550D106X9050R2	5	3	0.230
12.0	R	550D126X0050R2	550D126X9050R2	6	3	0.210
15.0	R	550D156X0050R2	550D156X9050R2	8	3	0.190
18.0	R	550D186X0050R2	550D186X9050R2	9	4	0.175
22.0	S	550D226X0050S2	550D226X9050S2	11	4	0.160

*Insert capacitance tolerance code "X5" for \pm 5% units (special order).



TAPE AND REEL PACKAGING in inches [millimeters]



CASE CODE	TYPE 550D UNITS WITH INSULATING SLEEVE			LEAD SIZE		COMPONENT SPACING	TAPE SPACING	UNITS PER REEL
	D	L	J (MAX.)	AWG NO.	NOM. DIA.	A	B	
R	0.289 ± 0.016 [7.34 ± 0.41]	0.686 ± 0.031 [17.42 ± 0.79]	0.822 [20.88]	22	0.025 [0.64]	0.400 ± 0.015 [10.16 ± 0.38]	2.875 ± 0.062 [73.03 ± 1.57]	500
S	0.351 ± 0.016 [8.92 ± 0.41]	0.786 ± 0.031 [19.96 ± 0.79]	0.922 [23.42]	22	0.025 [0.64]	0.400 ± 0.015 [10.16 ± 0.38]	2.875 ± 0.062 [73.03 ± 1.57]	500

STANDARD REEL PACKAGING INFORMATION

1. Component Leads:

- a. Component leads shall not be bent beyond 0.047" [1.19mm] maximum from their nominal position when measured from the leading edge of the component lead at the inside tape edge and at the lead egress from the component.
- b. The 'C' dimension shall be governed by the overall length of the reel packaged component. The distance between flanges shall be 0.125" to 0.250" [3.18mm to 6.35mm] greater than the overall component length.

2. Orientation:

- a. All polarized components must be oriented to one direction. The cathode lead tape shall be a color and the anode lead tape shall be white.

3. Reeling:

- a. Components on any reel shall not represent more than two date codes when date code identification is required.
- b. Component leads shall be positioned between pairs of 0.250" [6.35mm] tape.
- c. The disposable reels have hubs with corrugated fiber board flanges and core or equivalent.
- d. A minimum of 12" [304.8mm] leader of tape shall be provided before the first and after the last component on the reel.
- e. 50 or 60 lb. Kraft paper must be wound between layer of components as far as necessary for component protection. Width of paper to be 0.062" to 0.250" [1.57mm to 6.35mm] less than the 'C' dimension of the reel.

- f. A row of components must be centered between tapes ± 0.047" [1.19mm]. In addition, individual components may deviate from center of component row ± 0.031" [0.79mm].
- g. Staples shall not be used for splicing. Not more than 4 layers of tape shall be used in any splice area and no tape shall be offset from another by more than 0.031" [0.79mm] non-cumulative. Tape splices shall overlap at least 6" [152.4mm] for butt joints and at least 3" [76.2mm] for lap joints and shall not be weaker than unspliced tape. Universal splicing clips may also be used.
- h. Quantity per reel shall be controlled so that tape components and cover shall not extend beyond the smallest dimension of the flange (either across flats or diameter). Once the quantity per reel for each part number has been established, future orders for that part number shall be packaged in that quantity. When order or release quantity is less than the established quantity, a standard commercial pack is to be used.
- i. A maximum of 0.25% of the components per reel quantity may be missing without consecutive missing components.
- j. Adequate protection must be provided to prevent physical damage to both reel and components during shipment and storage.

4. Marking:

- a. Minimum reel and carton marking shall consist of the following: Customer Part Number, Purchase Order No., Quantity, Package Date, Manufacturer's name, Electrical Value, Date Code, Vishay Sprague Part Number and Country of Origin.