Vishay Sprague



Solid-Electrolyte TANTALEX[®] Capacitors, **Extended Capacitance Values, Hermetically-Sealed**



PERFORMANCE CHARACTERISTICS

Operating Temperature: - 55 °C to + 85 °C

(to + 125 °C with voltage derating)

Capacitance Tolerance: At 120 Hz, + 25 °C

 \pm 20 % and \pm 10 % standard. \pm 5 % available as special

Dissipation Factor: At 120 Hz, + 25 °C

Dissipation factor, as determined from the expression 2π fRC, shall not exceed the values listed in the Standard Ratings table

DC Leakage Current (DCL Max.):

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

FEATURES

- Axial through-hole terminatons: (SnPb), 100 % tin (RoHS compliant) Tin/lead
- High capacitance and small size
- Exceptional operating stability
- Hermetically-sealed, cylindrical, metal-case
- Low leakage current and low dissipation factor
- The military equivalent to the 152D is the CSR23 which is qualified to MIL-C-39003/03
- Provide proven reliability in a wide variety of high
- Material categorization: For definitions please see www.vishay.com/doc?99912

Lead (Pb)-containing terminations are not RoHS-compliant. Exemptions may apply.

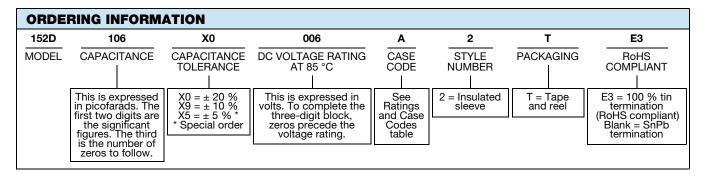
At + 85 °C: Leakage current shall not exceed 10 times the values listed in the Standard Ratings table

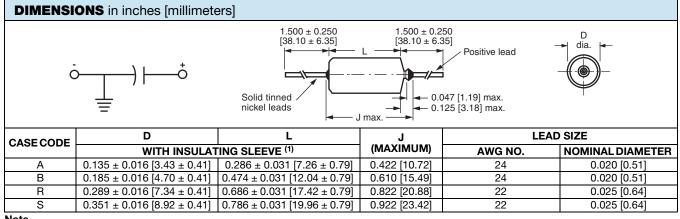
At + 125 °C: Leakage shall not exceed 12 times the values listed in the Standard Ratings table

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

Following the life test:

- 1. DCL shall not exceed 125 % of the initial requirement. In no case need the leakage current be less than 2 µA
- 2. Dissipation factor shall meet the initial requirement
- 3. Change in capacitance shall not exceed ± 5 %





Note

⁽¹⁾ When a shrink-fitted insulation is used, it shall lap over the ends of the capacitor body

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RoHS

COMPLIANT

152D

Note

152D

Vishay Sprague

STANDARD RATIN	GS			
CAPACITANCE (µF)	CASE CODE	PART NUMBER	MAX. DCL AT + 25 °C (μΑ)	MAX. DF AT + 25 °C 120 Hz (%)
	6 V _{DC} AT + 85 °C,	SURGE = 8 V; 4 V _{DC} AT + 125	5 °C, SURGE = 5 V	
10	A	152D106(1)006A2	1.0	6
12	А	152D126(1)006A2	1.0	6
15	А	152D156(1)006A2	1.0	6
68	В	152D686(1)006B2	3.0	6
82	В	152D826(1)006B2	3.0	6
100	В	152D107(1)006B2	6.0	6
330	R	152D337(1)006R2	10.0	8
390	R	152D397(1)006R2	10.0	8
470	R	152D477(1)006R2	10.0	8
560	S	152D567(1)006S2	20.0	10
680	S	152D687(1)006S2	20.0	10
820	S	152D827(1)006S2	20.0	10
1000	S	152D108(1)006S2	20.0	10
1000	-	SURGE = 13 V; 7 V _{DC} AT + 12		10
5.6	A	152D565(1)010A2	1.0	4
6.8	A	152D685(1)010A2	1.0	6
8.2	A	152D825(1)010A2	1.2	6
10	A	152D106(1)010A2	1.2	6
47	В	152D476(1)010B2	4.0	6
56	В	152D566(1)010B2	5.0	6
68	В	152D686(1)010B2	6.0	6
82	В	152D826(1)010B2	7.0	6
150		152D157(1)010R2	8.0	
180	R R		8.0	8
	R	152D187(1)010R2		8
220		152D227(1)010R2	12.0	8
270	R	152D277(1)010R2	13.0	8
330	S	152D337(1)010S2	16.0	8
390	S	152D397(1)010S2	16.0	10
470	S	152D477(1)010S2	16.0	10
560	S	152D567(1)010S2	20.0	10
0.0		SURGE = 20 V; 10 V _{DC} AT + 12		
3.9	A	152D395(1)015A2	1.0	4
4.7	A	152D475(1)015A2	1.0	4
5.6	A	152D565(1)015A2	1.3	4
6.8	A	152D685(1)015A2	1.3	6
27	В	152D276(1)015B2	3.0	6
33	В	152D336(1)015B2	5.0	6
39	В	152D396(1)015B2	5.0	6
82	R	152D826(1)015R2	8.0	6
100	R	152D107(1)015R2	10.0	8
120	R	152D127(1)015R2	10.0	8
150	R	152D157(1)015R2	15.0	8
180	R	152D187(1)015R2	15.0	8
220	S	152D227(1)015S2	20.0	8
270	S	152D277(1)015S2	20.0	8
330	S	152D337(1)015S2	20.0	8

Note

• Part number definitions:

(1) For 10 % tolerance specify X9; for 20 % specify "X0"; for 5 % "X5" (special order)

152D





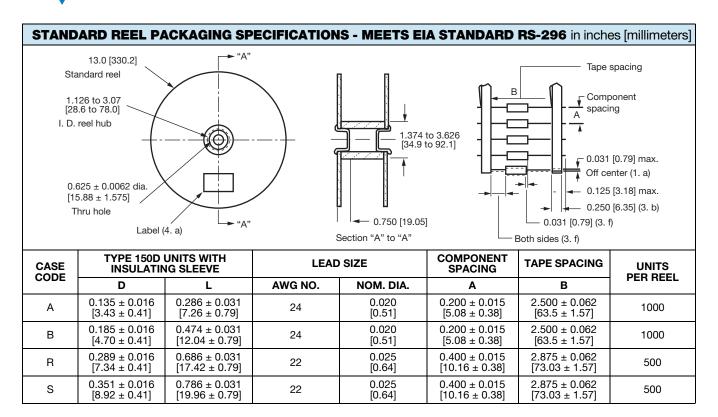
CAPACITANCE [µP] CASE CODE PART NUMBER MAX. DCL AT ≠ 25 °C µW) AT ≠ 25 °C µW) MAX. DF AT ≠ 25 °C µW) 20 VD _C AT + 85 °C, SURGE = 16 V 20 VD _C AT + 85 °C, SURGE = 26 V; 13 VD _C AT + 125 °C, SURGE = 16 V 4 3.3 A 152D38(1)020A2 1.0 4 3.3 A 152D38(1)020A2 1.2 4 4.4 7 A 152D38(1)020A2 1.2 4 4.7 A 152D38(1)020A2 1.2 4 4.8 152D188(1)020B2 3.0 4 4 2.2 B 152D38(1)020B2 3.0 4 2.6 R 152D38(1)020B2 4.0 6 5.6 R 152D38(1)020B2 1.0 6 6 5.8 R 152D18(1)020B2 1.0 6 6 5.0 S 152D187(1)020B2 1.0 4 4 2.2 A 152D187(1)020B2 1.0 4 4 2.2 A 152D187(1)020B	STANDARD RATIN	GS							
2.7 A 152D275(1)20A2 0.8 4 3.3 A 152D35(1)20A2 1.0 4 3.9 A 152D35(1)20A2 1.2 4 4.7 A 152D35(1)20A2 1.2 4 1.8 B 152D26(1)20B2 3.0 4 2.2 B 152D26(1)20B2 3.0 4 2.2 B 152D26(1)20B2 4.0 4 6.6 R 152D526(1)20B2 4.0 4 6.6 R 152D526(1)20P2 8.0 6 6.8 R 152D526(1)20P2 1.0 6 100 R 152D172(1)20P2 12.0 6 150 S 152D172(1)20P2 15.0 8 200 S 152D172(1)20P2 15.0 8 210 R 152D172(1)20P2 15.0 8 22 A 152D27(1)20P2 1.0 4 12 A 152D172(1)20P2 1.0 4 12 A 152D172(1)30P2 3.0 <td< th=""><th></th><th>CASE CODE</th><th>PART NUMBER</th><th>AT + 25 °C</th><th>AT + 25 °C 120 Hz</th></td<>		CASE CODE	PART NUMBER	AT + 25 °C	AT + 25 °C 120 Hz				
2.7 A 152D275(1)20A2 0.8 4 3.3 A 152D35(1)20A2 1.0 4 3.9 A 152D35(1)20A2 1.2 4 4.7 A 152D35(1)20A2 1.2 4 1.8 B 152D26(1)20B2 3.0 4 2.2 B 152D26(1)20B2 3.0 4 2.2 B 152D26(1)20B2 4.0 4 6.6 R 152D526(1)20B2 4.0 4 6.6 R 152D526(1)20P2 8.0 6 6.8 R 152D526(1)20P2 1.0 6 100 R 152D172(1)20P2 12.0 6 150 S 152D172(1)20P2 15.0 8 200 S 152D172(1)20P2 15.0 8 210 R 152D172(1)20P2 15.0 8 22 A 152D27(1)20P2 1.0 4 12 A 152D172(1)20P2 1.0 4 12 A 152D172(1)30P2 3.0 <td< td=""><td colspan="9"></td></td<>									
3.3 A 152D335(1)20A2 1.0 4 3.9 A 152D35(1)20A2 1.2 4 4.7 A 152D475(1)20A2 1.2 4 18 B 152D45(1)20B2 3.0 4 22 B 152D25(1)20B2 3.0 4 26 R 152D56(1)20B2 4.0 4 26 R 152D56(1)20B2 7.0 6 82 R 152D66(1)20B2 1.0.0 6 100 R 152D67(1)20B2 12.0 6 120 R 152D167(1)20S2 15.0 8 130 S 162D167(1)20S2 15.0 8 140 S 162D27(1)30A2 1.0 4 12 A 152D267(1)30A2 1.0 4 12 A 152D267(1)30A2 1.0 4 12 A 152D267(1)30A2 1.0 4 15 B 152D167(1)30B2	2.7				4				
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56 R 152D566(1)020R2 7.0 6 68 R 152D508(1)020R2 8.0 6 100 R 152D107(1)020R2 12.0 6 120 R 152D107(1)020R2 12.0 6 150 S 152D157(1)02052 15.0 8 220 S 152D257(1)02052 15.0 8 220 S 152D227(1)02052 15.0 8 220 S 152D227(1)02052 1.0 4 221 A 152D227(1)030A2 1.0 4 12 B 152D125(1)030A2 1.0 4 15 B 152D125(1)030A2 3.0 4 16 R 152D25(1)030A2 1.0 4 18 B 152D167(1)030B2 3.0 4 18 B 152D168(1)030B2 3.0 4 18 B 152D168(1)030B2 1.0 8 190 S 152D167(1)035A2 0.6 4 1.5 A 152D167(1)035A2 <td< td=""><td></td><td></td><td>· · /</td><td></td><td>4</td></td<>			· · /		4				
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150 S 1520157(1)02052 15.0 8 180 S 1520187(1)02052 15.0 8 220 S 1520227(1)02052 15.0 8 30 V _{DC} AT + 85 °C, SURGE = 39 V; 20 V _{DC} AT + 125 °C, SURGE = 26 V 2.2 A 1520227(1)030A2 1.0 4 2.7 A 1520227(1)030B2 3.0 4 15 B 1520156(1)030B2 3.0 4 15 B 1520156(1)030B2 3.0 4 166 R 152056(1)030R2 7.0 6 68 R 1520166(1)030R2 7.0 6 82 S 1520167(1)030S2 10.0 8 100 S 1520170(1)030S2 10.0 8 11.5 A 1520167(1)035A2 0.6 4 1.8 A 1520125(1)035A2 0.6 4 1.8 A 1520127(1)035B2 3.0 4 1.5 A 1520127(1)035A2 0.6 6 3.3 R 1520126(1)035B2			· · /						
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• Part number definitions:

(1) For 10 % tolerance specify X9; for 20 % specify "X0"; for 5 % "X5" (special order)

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Vishay Sprague



STANDARD REEL PACKAGING INFORMATION

1. Component Leads

- a. Component leads shall not be bent beyond 0.047" [1.19 mm] maximum from their nominal position when measured from the leading edge of the component lead 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" [3.18 mm to 6.35 mm] greater than the overall component length.

2. Orientation

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" [6.35 mm] tape.
- c. The disposable reels have hubs and corrugated fibreboard flanges and core or equivalent.
- d. A minimum of 12.0" [304.8 mm] leader of tape shall be provided before the first and after the last component on the reel.
- e. 50 lb 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" [1.57 mm to 6.35 mm] less than the "C" dimension of the reel.

- f. A row of components must be centered between tapes \pm 0.047" [1.19 mm]. In addition, individual components may deviate from center of component row \pm 0.031" [0.79 mm].
- 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" [0.79 mm] non-cumulative. Tape splices shall overlap at least 6.0" [152.4 mm] for butt joints and at least 3.0" [76.2 mm] 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

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.



Vishay

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Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.