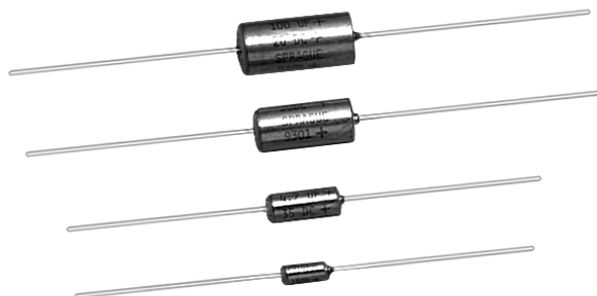


## Solid-Electrolyte TANTALEX<sup>®</sup> Capacitors Hermetically-Sealed, Axial-Lead



### FEATURES

- Terminations: Tin/lead (SnPb), 100 % Tin (RoHS compliant)
- These high performance, hermetically-sealed TANTALEX<sup>®</sup> capacitors have set the standard for solid-electrolyte tantalum capacitors for more than three decades.
- High capacitance, low DCL, low dissipation factor and exceptional operating stability.
- Performance and reliability have been proven in commercial, industrial and military applications.
- Available in four case codes and capacitors are supplied with plastic-film insulation.
- Terminals are solid, tinned nickel wire leads.
- The Military equivalent to the 150D is the M39003/01 (style CSR13) which is qualified to MIL-PRF-39003.
- Compliant to RoHS directive 2002/95/EC



Available  
**RoHS\***  
COMPLIANT

### PERFORMANCE CHARACTERISTICS

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

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

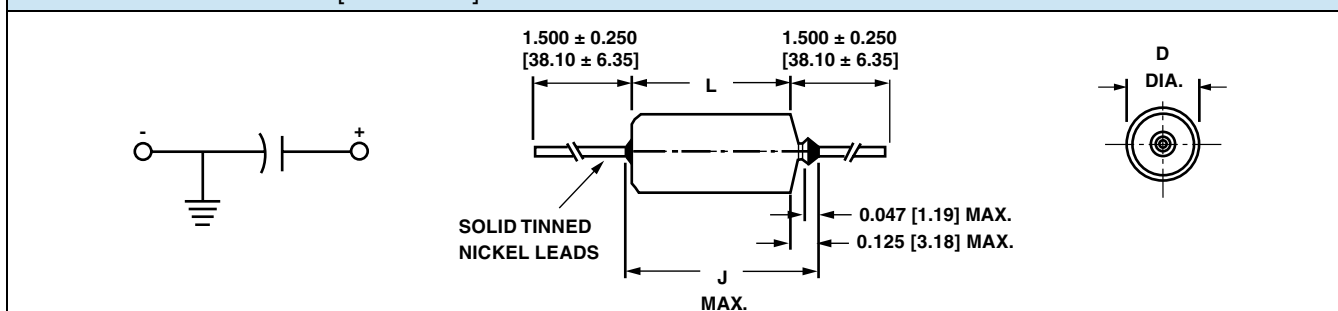
**At +125 °C:** Leakage shall not exceed 15 times the values listed in the Standard Ratings Tables.

**Life Test:** Capacitors shall withstand rated DC voltage applied at + 85 °C for 2000 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
2. Dissipation Factor shall meet the initial requirement
3. Change in capacitance shall not exceed ± 5 %

### DIMENSIONS in inches [millimeters]



| CASE CODE | WITH INSULATING SLEEVE <sup>(1)</sup> |                                 | J (MAXIMUM)       | LEAD SIZE |                  |
|-----------|---------------------------------------|---------------------------------|-------------------|-----------|------------------|
|           | D                                     | L                               |                   | AWG NO.   | NOMINAL DIAMETER |
| A         | 0.135 ± 0.016<br>[3.43 ± 0.41]        | 0.286 ± 0.031<br>[7.26 ± 0.79]  | 0.422<br>[10.720] | 24        | 0.020<br>[0.51]  |
| B         | 0.185 ± 0.016<br>[4.70 ± 0.41]        | 0.474 ± 0.031<br>[12.04 ± 0.79] | 0.610<br>[15.490] | 24        | 0.020<br>[0.51]  |
| R         | 0.289 ± 0.016<br>[7.34 ± 0.41]        | 0.686 ± 0.031<br>[17.42 ± 0.79] | 0.822<br>[20.880] | 22        | 0.025<br>[0.64]  |
| S         | 0.351 ± 0.016<br>[8.92 ± 0.41]        | 0.786 ± 0.031<br>[19.96 ± 0.79] | 0.922<br>[23.420] | 22        | 0.025<br>[0.64]  |

#### Note

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

\* Pb containing terminations are not RoHS compliant, exemptions may apply

Solid-Electrolyte TANTALEX® Capacitors  
Hermetically-Sealed, Axial-Lead

Vishay Sprague

## ORDERING INFORMATION

| 150D  | 224                                                                                                                            | X0                                                                      | 006                                                                                              | A                                 | 2                                     | T                             | E3                                                                      |
|-------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------------|-------------------------------|-------------------------------------------------------------------------|
| MODEL | CAPACITANCE                                                                                                                    | CAPACITANCE TOLERANCE                                                   | DC VOLTAGE RATING                                                                                | CASE CODE                         | STYLE NUMBER                          | PACKAGING                     | ROHS COMPLIANT                                                          |
|       | This is expressed in picofarads. The first two digits are the significant figures. The third is the number of zeros to follow. | X0 = $\pm 20\%$<br>X9 = $\pm 10\%$<br>*X5 = $\pm 5\%$<br>*Special Order | This is expressed in volts. To complete the three-digit block, zeros precede the voltage rating. | See Ratings and Case Codes Table. | 0 = No Sleeve<br>2 = Insulated sleeve | B = Bulk<br>T = Tape and Reel | E3 = 100 % Tin termination (RoHS compliant)<br>Blank = SnPb termination |

## STANDARD RATINGS

| CAPACITANCE ( $\mu\text{F}$ )                                                              | CASE CODE | PART NUMBER <sup>(1)</sup><br>CAP. TOL. $\pm 20\%$ | PART NUMBER <sup>(1)</sup><br>CAP. TOL. $\pm 10\%$ | MAX. DCL<br>AT + 25 °C<br>( $\mu\text{A}$ ) | MAX. DF<br>AT + 25 °C<br>120 Hz (%) |
|--------------------------------------------------------------------------------------------|-----------|----------------------------------------------------|----------------------------------------------------|---------------------------------------------|-------------------------------------|
| 6 WV <sub>DC</sub> AT + 85 °C, SURGE = 8 V ... 4 WV <sub>DC</sub> AT + 125 °C, SURGE = 5 V |           |                                                    |                                                    |                                             |                                     |
| 0.22                                                                                       | A         | 150D224X0006A2                                     | 150D224X9006A2                                     | 0.5                                         | 2                                   |
| 0.27                                                                                       | A         | -                                                  | 150D274X9006A2                                     | 0.5                                         | 2                                   |
| 0.33                                                                                       | A         | 150D334X0006A2                                     | 150D334X9006A2                                     | 0.5                                         | 2                                   |
| 0.39                                                                                       | A         | -                                                  | 150D394X9006A2                                     | 0.5                                         | 2                                   |
| 0.47                                                                                       | A         | 150D474X0006A2                                     | 150D474X9006A2                                     | 0.5                                         | 2                                   |
| 0.56                                                                                       | A         | -                                                  | 150D564X9006A2                                     | 0.5                                         | 2                                   |
| 0.68                                                                                       | A         | 150D684X0006A2                                     | 150D684X9006A2                                     | 0.5                                         | 2                                   |
| 0.82                                                                                       | A         | -                                                  | 150D824X9006A2                                     | 0.5                                         | 2                                   |
| 1.0                                                                                        | A         | 150D105X0006A2                                     | 150D105X9006A2                                     | 0.5                                         | 2                                   |
| 1.2                                                                                        | A         | -                                                  | 150D125X9006A2                                     | 0.5                                         | 4                                   |
| 1.5                                                                                        | A         | 150D155X0006A2                                     | 150D155X9006A2                                     | 0.5                                         | 4                                   |
| 1.8                                                                                        | A         | -                                                  | 150D185X9006A2                                     | 0.5                                         | 4                                   |
| 2.2                                                                                        | A         | 150D225X0006A2                                     | 150D225X9006A2                                     | 0.5                                         | 4                                   |
| 2.7                                                                                        | A         | -                                                  | 150D275X9006A2                                     | 0.5                                         | 4                                   |
| 3.3                                                                                        | A         | 150D335X0006A2                                     | 150D335X9006A2                                     | 0.5                                         | 4                                   |
| 3.9                                                                                        | A         | -                                                  | 150D395X9006A2                                     | 0.5                                         | 4                                   |
| 4.7                                                                                        | A         | 150D475X0006A2                                     | 150D475X9006A2                                     | 0.5                                         | 4                                   |
| 5.6                                                                                        | A         | -                                                  | 150D565X9006A2                                     | 0.5                                         | 4                                   |
| 6.8                                                                                        | A         | 150D685X0006A2                                     | 150D685X9006A2                                     | 0.5                                         | 6                                   |
| 8.2                                                                                        | B         | -                                                  | 150D825X9006B2                                     | 0.5                                         | 6                                   |
| 10.0                                                                                       | B         | 150D106X0006B2                                     | 150D106X9006B2                                     | 0.5                                         | 6                                   |
| 12.0                                                                                       | B         | -                                                  | 150D126X9006B2                                     | 0.5                                         | 6                                   |
| 15.0                                                                                       | B         | 150D156X0006B2                                     | 150D156X9006B2                                     | 1.0                                         | 6                                   |
| 18.0                                                                                       | B         | -                                                  | 150D186X9006B2                                     | 1.0                                         | 6                                   |
| 22.0                                                                                       | B         | 150D226X0006B2                                     | 150D226X9006B2                                     | 1.0                                         | 6                                   |
| 27.0                                                                                       | B         | -                                                  | 150D276X9006B2                                     | 1.0                                         | 6                                   |
| 33.0                                                                                       | B         | 150D336X0006B2                                     | 150D336X9006B2                                     | 1.0                                         | 6                                   |
| 39.0                                                                                       | B         | -                                                  | 150D396X9006B2                                     | 1.0                                         | 6                                   |
| 47.0                                                                                       | B         | 150D476X0006B2                                     | 150D476X9006B2                                     | 2.0                                         | 6                                   |
| 56.0                                                                                       | B         | -                                                  | 150D566X9006B2                                     | 2.0                                         | 6                                   |
| 68.0                                                                                       | R         | 150D686X0006R2                                     | 150D686X9006R2                                     | 3.0                                         | 6                                   |
| 82.0                                                                                       | R         | -                                                  | 150D826X9006R2                                     | 3.0                                         | 6                                   |
| 100.0                                                                                      | R         | 150D107X0006R2                                     | 150D107X9006R2                                     | 3.0                                         | 6                                   |
| 120.0                                                                                      | R         | 150D127X0006R2                                     | 150D127X9006R2                                     | 3.0                                         | 6                                   |
| 150.0                                                                                      | R         | 150D157X0006R2                                     | 150D157X9006R2                                     | 6.0                                         | 6                                   |
| 180.0                                                                                      | R         | 150D187X0006R2                                     | 150D187X9006R2                                     | 6.0                                         | 6                                   |
| 220.0                                                                                      | S         | 150D227X0006S2                                     | 150D227X9006S2                                     | 6.0                                         | 8                                   |
| 270.0                                                                                      | S         | 150D277X0006S2                                     | 150D277X9006S2                                     | 6.0                                         | 8                                   |
| 330.0                                                                                      | S         | 150D337X0006S2                                     | 150D337X9006S2                                     | 10.0                                        | 8                                   |

## Note

<sup>(1)</sup> Insert capacitance tolerance code "X5" for  $\pm 5\%$  units (special order)

**STANDARD RATINGS**

| CAPACITANCE (μF)                                                                                      | CASE CODE | PART NUMBER (1)<br>CAP. TOL. ± 20 % | PART NUMBER (1)<br>CAP. TOL. ± 10 % | MAX. DCL<br>AT + 25 °C<br>(μA) | MAX. DF<br>AT + 25 °C<br>120 Hz (%) |
|-------------------------------------------------------------------------------------------------------|-----------|-------------------------------------|-------------------------------------|--------------------------------|-------------------------------------|
| <b>10 WV<sub>DC</sub> AT + 85 °C, SURGE = 13 V . . . 7 WV<sub>DC</sub> AT + 125 °C, SURGE = 9 V</b>   |           |                                     |                                     |                                |                                     |
| 0.22                                                                                                  | A         | 150D224X0010A2                      | 150D224X9010A2                      | 0.5                            | 2                                   |
| 0.27                                                                                                  | A         | -                                   | 150D274X9010A2                      | 0.5                            | 2                                   |
| 0.33                                                                                                  | A         | 150D334X0010A2                      | 150D334X9010A2                      | 0.5                            | 2                                   |
| 0.39                                                                                                  | A         | -                                   | 150D394X9010A2                      | 0.5                            | 2                                   |
| 0.47                                                                                                  | A         | 150D474X0010A2                      | 150D474X9010A2                      | 0.5                            | 2                                   |
| 0.56                                                                                                  | A         | -                                   | 150D564X9010A2                      | 0.5                            | 2                                   |
| 0.68                                                                                                  | A         | 150D684X0010A2                      | 150D684X9010A2                      | 0.5                            | 2                                   |
| 0.82                                                                                                  | A         | -                                   | 150D824X9010A2                      | 0.5                            | 2                                   |
| 1.0                                                                                                   | A         | 150D105X0010A2                      | 150D105X9010A2                      | 0.5                            | 2                                   |
| 1.2                                                                                                   | A         | -                                   | 150D125X9010A2                      | 0.5                            | 4                                   |
| 1.5                                                                                                   | A         | 150D155X0010A2                      | 150D155X9010A2                      | 0.5                            | 4                                   |
| 1.8                                                                                                   | A         | -                                   | 150D185X9010A2                      | 0.5                            | 4                                   |
| 2.2                                                                                                   | A         | 150D225X0010A2                      | 150D225X9010A2                      | 0.5                            | 4                                   |
| 2.7                                                                                                   | A         | -                                   | 150D275X9010A2                      | 0.5                            | 4                                   |
| 3.3                                                                                                   | A         | 150D335X0010A2                      | 150D335X9010A2                      | 0.5                            | 4                                   |
| 3.9                                                                                                   | A         | -                                   | 150D395X9010A2                      | 0.5                            | 4                                   |
| 4.7                                                                                                   | A         | 150D475X0010A2                      | 150D475X9010A2                      | 0.5                            | 4                                   |
| 5.6                                                                                                   | B         | -                                   | 150D565X9010B2                      | 0.5                            | 4                                   |
| 6.8                                                                                                   | B         | 150D685X0010B2                      | 150D685X9010B2                      | 1.0                            | 6                                   |
| 8.2                                                                                                   | B         | -                                   | 150D825X9010B2                      | 1.0                            | 6                                   |
| 10.0                                                                                                  | B         | 150D106X0010B2                      | 150D106X9010B2                      | 1.0                            | 6                                   |
| 12.0                                                                                                  | B         | -                                   | 150D126X9010B2                      | 1.0                            | 6                                   |
| 15.0                                                                                                  | B         | 150D156X0010B2                      | 150D156X9010B2                      | 1.0                            | 6                                   |
| 18.0                                                                                                  | B         | -                                   | 150D186X9010B2                      | 1.0                            | 6                                   |
| 22.0                                                                                                  | B         | 150D226X0010B2                      | 150D226X9010B2                      | 2.0                            | 6                                   |
| 27.0                                                                                                  | B         | -                                   | 150D276X9010B2                      | 2.0                            | 6                                   |
| 33.0                                                                                                  | B         | 150D336X0010B2                      | 150D336X9010B2                      | 2.0                            | 6                                   |
| 39.0                                                                                                  | B         | -                                   | 150D396X9010B2                      | 2.0                            | 6                                   |
| 47.0                                                                                                  | R         | 150D476X0010R2                      | 150D476X9010R2                      | 3.0                            | 6                                   |
| 56.0                                                                                                  | R         | -                                   | 150D566X9010R2                      | 3.0                            | 6                                   |
| 68.0                                                                                                  | R         | 150D686X0010R2                      | 150D686X9010R2                      | 3.0                            | 6                                   |
| 82.0                                                                                                  | R         | -                                   | 150D826X9010R2                      | 3.0                            | 6                                   |
| 100.0                                                                                                 | R         | 150D107X0010R2                      | 150D107X9010R2                      | 6.0                            | 6                                   |
| 120.0                                                                                                 | R         | 150D127X0010R2                      | 150D127X9010R2                      | 6.0                            | 6                                   |
| 150.0                                                                                                 | S         | 150D157X0010S2                      | 150D157X9010S2                      | 10.0                           | 6                                   |
| 180.0                                                                                                 | S         | 150D187X0010S2                      | 150D187X9010S2                      | 10.0                           | 6                                   |
| 220.0                                                                                                 | S         | 150D227X0010S2                      | 150D227X9010S2                      | 10.0                           | 8                                   |
| <b>15 WV<sub>DC</sub> AT + 85 °C, SURGE = 20 V . . . 10 WV<sub>DC</sub> AT + 125 °C, SURGE = 12 V</b> |           |                                     |                                     |                                |                                     |
| 0.22                                                                                                  | A         | 150D224X0015A2                      | 150D224X9015A2                      | 0.5                            | 2                                   |
| 0.27                                                                                                  | A         | -                                   | 150D274X9015A2                      | 0.5                            | 2                                   |
| 0.33                                                                                                  | A         | 150D334X0015A2                      | 150D334X9015A2                      | 0.5                            | 2                                   |
| 0.39                                                                                                  | A         | -                                   | 150D394X9015A2                      | 0.5                            | 2                                   |
| 0.47                                                                                                  | A         | 150D474X0015A2                      | 150D474X9015A2                      | 0.5                            | 2                                   |
| 0.56                                                                                                  | A         | -                                   | 150D564X9015A2                      | 0.5                            | 2                                   |
| 0.68                                                                                                  | A         | 150D684X0015A2                      | 150D684X9015A2                      | 0.5                            | 2                                   |
| 0.82                                                                                                  | A         | -                                   | 150D824X9015A2                      | 0.5                            | 2                                   |
| 1.0                                                                                                   | A         | 150D105X0015A2                      | 150D105X9015A2                      | 0.5                            | 2                                   |
| 1.2                                                                                                   | A         | -                                   | 150D125X9015A2                      | 0.5                            | 4                                   |
| 1.5                                                                                                   | A         | 150D155X0015A2                      | 150D155X9015A2                      | 0.5                            | 4                                   |
| 1.8                                                                                                   | A         | -                                   | 150D185X9015A2                      | 0.5                            | 4                                   |
| 2.2                                                                                                   | A         | 150D225X0015A2                      | 150D225X9015A2                      | 0.5                            | 4                                   |
| 2.7                                                                                                   | A         | -                                   | 150D275X9015A2                      | 0.5                            | 4                                   |
| 3.3                                                                                                   | A         | 150D335X0015A2                      | 150D335X9015A2                      | 0.5                            | 4                                   |
| 3.9                                                                                                   | B         | -                                   | 150D395X9015B2                      | 0.5                            | 4                                   |
| 4.7                                                                                                   | B         | 150D475X0015B2                      | 150D475X9015B2                      | 1.0                            | 4                                   |

**Note**

(1) Insert capacitance tolerance code "X5" for ± 5 % units (special order)

Solid-Electrolyte TANTALEX® Capacitors  
Hermetically-Sealed, Axial-Lead

Vishay Sprague

| STANDARD RATINGS                                                                                 |           |                                                |                                                |                                |                                     |
|--------------------------------------------------------------------------------------------------|-----------|------------------------------------------------|------------------------------------------------|--------------------------------|-------------------------------------|
| CAPACITANCE (μF)                                                                                 | CASE CODE | PART NUMBER <sup>(1)</sup><br>CAP. TOL. ± 20 % | PART NUMBER <sup>(1)</sup><br>CAP. TOL. ± 10 % | MAX. DCL<br>AT + 25 °C<br>(μA) | MAX. DF<br>AT + 25 °C<br>120 Hz (%) |
| 15 WV <sub>DC</sub> AT + 85 °C, SURGE = 20 V . . . 10 WV <sub>DC</sub> AT + 125 °C, SURGE = 12 V |           |                                                |                                                |                                |                                     |
| 5.6                                                                                              | B         | -                                              | 150D565X9015B2                                 | 1.0                            | 4                                   |
| 6.8                                                                                              | B         | 150D685X0015B2                                 | 150D685X9015B2                                 | 1.0                            | 6                                   |
| 8.2                                                                                              | B         | -                                              | 150D825X9015B2                                 | 1.0                            | 6                                   |
| 10.0                                                                                             | B         | 150D106X0015B2                                 | 150D106X9015B2                                 | 1.0                            | 6                                   |
| 12.0                                                                                             | B         | -                                              | 150D126X9015B2                                 | 1.0                            | 6                                   |
| 15.0                                                                                             | B         | 150D156X0015B2                                 | 150D156X9015B2                                 | 2.0                            | 6                                   |
| 18.0                                                                                             | B         | -                                              | 150D186X9015B2                                 | 2.0                            | 6                                   |
| 22.0                                                                                             | B         | 150D226X0015B2                                 | 150D226X9015B2                                 | 3.0                            | 6                                   |
| 27.0                                                                                             | R         | -                                              | 150D276X9015R2                                 | 3.0                            | 6                                   |
| 33.0                                                                                             | R         | 150D336X0015R2                                 | 150D336X9015R2                                 | 3.0                            | 6                                   |
| 39.0                                                                                             | R         | -                                              | 150D396X9015R2                                 | 3.0                            | 6                                   |
| 47.0                                                                                             | R         | 150D476X0015R2                                 | 150D476X9015R2                                 | 6.0                            | 6                                   |
| 56.0                                                                                             | R         | -                                              | 150D566X9015R2                                 | 6.0                            | 6                                   |
| 68.0                                                                                             | R         | 150D686X0015R2                                 | 150D686X9015R2                                 | 6.0                            | 6                                   |
| 82.0                                                                                             | S         | -                                              | 150D826X9015S2                                 | 6.0                            | 6                                   |
| 100.0                                                                                            | S         | 150D107X0015S2                                 | 150D107X9015S2                                 | 6.0                            | 6                                   |
| 120.0                                                                                            | S         | 150D127X0015S2                                 | 150D127X9015S2                                 | 6.0                            | 6                                   |
| 150.0                                                                                            | S         | 150D157X0015S2                                 | 150D157X9015S2                                 | 10.0                           | 6                                   |
| 20 WV <sub>DC</sub> AT + 85 °C, SURGE = 26 V . . . 13 WV <sub>DC</sub> AT + 125 °C, SURGE = 16 V |           |                                                |                                                |                                |                                     |
| 0.033                                                                                            | A         | 150D333X0020A2                                 | 150D333X9020A2                                 | 0.1                            | 2                                   |
| 0.039                                                                                            | A         | -                                              | 150D393X9020A2                                 | 0.1                            | 2                                   |
| 0.047                                                                                            | A         | 150D473X0020A2                                 | 150D473X9020A2                                 | 0.1                            | 2                                   |
| 0.056                                                                                            | A         | -                                              | 150D563X9020A2                                 | 0.1                            | 2                                   |
| 0.068                                                                                            | A         | 150D683X0020A2                                 | 150D683X9020A2                                 | 0.1                            | 2                                   |
| 0.082                                                                                            | A         | -                                              | 150D823X9020A2                                 | 0.1                            | 2                                   |
| 0.10                                                                                             | A         | 150D104X0020A2                                 | 150D104X9020A2                                 | 0.5                            | 2                                   |
| 0.12                                                                                             | A         | -                                              | 150D124X9020A2                                 | 0.5                            | 2                                   |
| 0.15                                                                                             | A         | 150D154X0020A2                                 | 150D154X9020A2                                 | 0.5                            | 2                                   |
| 0.18                                                                                             | A         | -                                              | 150D184X9020A2                                 | 0.5                            | 2                                   |
| 0.22                                                                                             | A         | 150D224X0020A2                                 | 150D224X9020A2                                 | 0.5                            | 2                                   |
| 0.27                                                                                             | A         | -                                              | 150D274X9020A2                                 | 0.5                            | 2                                   |
| 0.33                                                                                             | A         | 150D334X0020A2                                 | 150D334X9020A2                                 | 0.5                            | 2                                   |
| 0.39                                                                                             | A         | -                                              | 150D394X9020A2                                 | 0.5                            | 2                                   |
| 0.47                                                                                             | A         | 150D474X0020A2                                 | 150D474X9020A2                                 | 0.5                            | 2                                   |
| 0.56                                                                                             | A         | -                                              | 150D564X9020A2                                 | 0.5                            | 2                                   |
| 0.68                                                                                             | A         | 150D684X0020A2                                 | 150D684X9020A2                                 | 0.5                            | 2                                   |
| 0.82                                                                                             | A         | -                                              | 150D824X9020A2                                 | 0.5                            | 2                                   |
| 1.0                                                                                              | A         | 150D105X0020A2                                 | 150D105X9020A2                                 | 0.5                            | 2                                   |
| 1.2                                                                                              | A         | -                                              | 150D125X9020A2                                 | 0.5                            | 4                                   |
| 1.5                                                                                              | A         | 150D155X0020A2                                 | 150D155X9020A2                                 | 0.5                            | 4                                   |
| 1.8                                                                                              | A         | -                                              | 150D185X9020A2                                 | 0.5                            | 4                                   |
| 2.2                                                                                              | A         | 150D225X0020A2                                 | 150D225X9020A2                                 | 0.5                            | 4                                   |
| 2.7                                                                                              | B         | -                                              | 150D275X9020B2                                 | 0.5                            | 4                                   |
| 3.3                                                                                              | B         | 150D335X0020B2                                 | 150D335X9020B2                                 | 0.5                            | 4                                   |
| 3.9                                                                                              | B         | -                                              | 150D395X9020B2                                 | 1.0                            | 4                                   |
| 4.7                                                                                              | B         | 150D475X0020B2                                 | 150D475X9020B2                                 | 1.0                            | 4                                   |
| 5.6                                                                                              | B         | -                                              | 150D565X9020B2                                 | 1.0                            | 4                                   |
| 6.8                                                                                              | B         | 150D685X0020B2                                 | 150D685X9020B2                                 | 1.0                            | 6                                   |
| 8.2                                                                                              | B         | -                                              | 150D825X9020B2                                 | 1.0                            | 6                                   |
| 10.0                                                                                             | B         | 150D106X0020B2                                 | 150D106X9020B2                                 | 1.0                            | 6                                   |
| 12.0                                                                                             | B         | -                                              | 150D126X9020B2                                 | 1.0                            | 6                                   |
| 15.0                                                                                             | B         | 150D156X0020B2                                 | 150D156X9020B2                                 | 2.0                            | 6                                   |

## Note

<sup>(1)</sup> Insert capacitance tolerance code "X5" for ± 5 % units (special order)

**STANDARD RATINGS**

| CAPACITANCE (μF)                                                                                      | CASE CODE | PART NUMBER (1)<br>CAP. TOL. ± 20 % | PART NUMBER (1)<br>CAP. TOL. ± 10 % | MAX. DCL<br>AT + 25 °C<br>(μA) | MAX. DF<br>AT + 25 °C<br>120 Hz (%) |
|-------------------------------------------------------------------------------------------------------|-----------|-------------------------------------|-------------------------------------|--------------------------------|-------------------------------------|
| <b>20 WV<sub>DC</sub> AT + 85 °C, SURGE = 26 V . . . 13 WV<sub>DC</sub> AT + 125 °C, SURGE = 16 V</b> |           |                                     |                                     |                                |                                     |
| 18.0                                                                                                  | R         | -                                   | 150D186X9020R2                      | 3.0                            | 6                                   |
| 22.0                                                                                                  | R         | 150D226X0020R2                      | 150D226X9020R2                      | 3.0                            | 6                                   |
| 27.0                                                                                                  | R         | -                                   | 150D276X9020R2                      | 3.0                            | 6                                   |
| 33.0                                                                                                  | R         | 150D336X0020R2                      | 150D336X9020R2                      | 3.0                            | 6                                   |
| 39.0                                                                                                  | R         | -                                   | 150D396X9020R2                      | 3.0                            | 6                                   |
| 47.0                                                                                                  | R         | 150D476X0020R2                      | 150D476X9020R2                      | 6.0                            | 6                                   |
| 56.0                                                                                                  | S         | -                                   | 150D566X9020S2                      | 6.0                            | 6                                   |
| 68.0                                                                                                  | S         | 150D686X0020S2                      | 150D686X9020S2                      | 6.0                            | 6                                   |
| 82.0                                                                                                  | S         | -                                   | 150D826X9020S2                      | 6.0                            | 6                                   |
| 100.0                                                                                                 | S         | 150D107X0020S2                      | 150D107X9020S2                      | 10.0                           | 6                                   |
| <b>25 WV<sub>DC</sub> AT + 85 °C, SURGE = 32 V . . . 17 WV<sub>DC</sub> AT + 125 °C, SURGE = 21 V</b> |           |                                     |                                     |                                |                                     |
| 1.2                                                                                                   | A         | 150D125X0025A2                      | 150D125X9025A2                      | 0.5                            | 4                                   |
| 1.5                                                                                                   | A         | 150D155X0025A2                      | 150D155X9025A2                      | 0.5                            | 4                                   |
| 1.8                                                                                                   | A         | 150D185X0025A2                      | 150D185X9025A2                      | 0.5                            | 4                                   |
| 4.7                                                                                                   | B         | 150D475X0025B2                      | 150D475X9025B2                      | 1.2                            | 4                                   |
| 5.6                                                                                                   | B         | 150D565X0025B2                      | 150D565X9025B2                      | 1.4                            | 4                                   |
| 6.8                                                                                                   | B         | 150D685X0025B2                      | 150D685X9025B2                      | 1.7                            | 4                                   |
| 8.2                                                                                                   | B         | 150D825X0025B2                      | 150D825X9025B2                      | 2.1                            | 4                                   |
| 10                                                                                                    | B         | 150D106X0025B2                      | 150D106X9025B2                      | 2.5                            | 6                                   |
| 15                                                                                                    | B         | 150D156X0025B2                      | 150D156X9025B2                      | 3.8                            | 6                                   |
| 33                                                                                                    | R         | 150D336X0025R2                      | 150D336X9025R2                      | 8.3                            | 6                                   |
| 68                                                                                                    | S         | 150D686X0025S2                      | 150D686X9025S2                      | 17                             | 6                                   |
| 100                                                                                                   | S         | 150D107X0025S2                      | 150D107X9025S2                      | 25                             | 6                                   |
| <b>35 WV<sub>DC</sub> AT + 85 °C, SURGE = 46 V . . . 23 WV<sub>DC</sub> AT + 125 °C, SURGE = 28 V</b> |           |                                     |                                     |                                |                                     |
| 0.033                                                                                                 | A         | 150D333X0035A2                      | 150D333X9035A2                      | 0.1                            | 2                                   |
| 0.039                                                                                                 | A         | -                                   | 150D393X9035A2                      | 0.1                            | 2                                   |
| 0.047                                                                                                 | A         | 150D473X0035A2                      | 150D473X9035A2                      | 0.1                            | 2                                   |
| 0.056                                                                                                 | A         | -                                   | 150D563X9035A2                      | 0.1                            | 2                                   |
| 0.068                                                                                                 | A         | 150D683X0035A2                      | 150D683X9035A2                      | 0.1                            | 2                                   |
| 0.082                                                                                                 | A         | -                                   | 150D823X9035A2                      | 0.1                            | 2                                   |
| 0.10                                                                                                  | A         | 150D104X0035A2                      | 150D104X9035A2                      | 0.5                            | 2                                   |
| 0.12                                                                                                  | A         | -                                   | 150D124X9035A2                      | 0.5                            | 2                                   |
| 0.15                                                                                                  | A         | 150D154X0035A2                      | 150D154X9035A2                      | 0.5                            | 2                                   |
| 0.18                                                                                                  | A         | -                                   | 150D184X9035A2                      | 0.5                            | 2                                   |
| 0.22                                                                                                  | A         | 150D224X0035A2                      | 150D224X9035A2                      | 0.5                            | 2                                   |
| 0.27                                                                                                  | A         | -                                   | 150D274X9035A2                      | 0.5                            | 2                                   |
| 0.33                                                                                                  | A         | 150D334X0035A2                      | 150D334X9035A2                      | 0.5                            | 2                                   |
| 0.39                                                                                                  | A         | -                                   | 150D394X9035A2                      | 0.5                            | 2                                   |
| 0.47                                                                                                  | A         | 150D474X0035A2                      | 150D474X9035A2                      | 0.5                            | 2                                   |
| 0.56                                                                                                  | A         | -                                   | 150D564X9035A2                      | 0.5                            | 2                                   |
| 0.68                                                                                                  | A         | 150D684X0035A2                      | 150D684X9035A2                      | 0.5                            | 2                                   |
| 0.82                                                                                                  | A         | -                                   | 150D824X9035A2                      | 0.5                            | 2                                   |
| 1.0                                                                                                   | A         | 150D105X0035A2                      | 150D105X9035A2                      | 0.5                            | 2                                   |
| 1.2                                                                                                   | B         | -                                   | 150D125X9035B2                      | 0.5                            | 4                                   |
| 1.5                                                                                                   | B         | 150D155X0035B2                      | 150D155X9035B2                      | 0.5                            | 4                                   |
| 1.8                                                                                                   | B         | -                                   | 150D185X9035B2                      | 0.5                            | 4                                   |
| 2.2                                                                                                   | B         | 150D225X0035B2                      | 150D225X9035B2                      | 1.0                            | 4                                   |
| 2.7                                                                                                   | B         | -                                   | 150D275X9035B2                      | 1.0                            | 4                                   |
| 3.3                                                                                                   | B         | 150D335X0035B2                      | 150D335X9035B2                      | 1.0                            | 4                                   |
| 3.9                                                                                                   | B         | -                                   | 150D395X9035B2                      | 1.0                            | 4                                   |
| 4.7                                                                                                   | B         | 150D475X0035B2                      | 150D475X9035B2                      | 1.0                            | 4                                   |

**Note**

(1) Insert capacitance tolerance code "X5" for ± 5 % units (special order)

Solid-Electrolyte TANTALEX® Capacitors  
Hermetically-Sealed, Axial-Lead

Vishay Sprague

| STANDARD RATINGS                                                                               |           |                                                |                                                |                                |                                     |
|------------------------------------------------------------------------------------------------|-----------|------------------------------------------------|------------------------------------------------|--------------------------------|-------------------------------------|
| CAPACITANCE (μF)                                                                               | CASE CODE | PART NUMBER <sup>(1)</sup><br>CAP. TOL. ± 20 % | PART NUMBER <sup>(1)</sup><br>CAP. TOL. ± 10 % | MAX. DCL<br>AT + 25 °C<br>(μA) | MAX. DF<br>AT + 25 °C<br>120 Hz (%) |
| 35 WV <sub>DC</sub> AT + 85 °C, SURGE = 46 V ... 23 WV <sub>DC</sub> AT + 125 °C, SURGE = 28 V |           |                                                |                                                |                                |                                     |
| 5.6                                                                                            | B         | -                                              | 150D565X9035B2                                 | 1.0                            | 4                                   |
| 6.8                                                                                            | B         | 150D685X0035B2                                 | 150D685X9035B2                                 | 2.0                            | 4                                   |
| 8.2                                                                                            | R         | -                                              | 150D825X9035R2                                 | 3.0                            | 4                                   |
| 10.0                                                                                           | R         | 150D106X0035R2                                 | 150D106X9035R2                                 | 3.0                            | 4                                   |
| 12.0                                                                                           | R         | -                                              | 150D126X9035R2                                 | 3.0                            | 4                                   |
| 15.0                                                                                           | R         | 150D156X0035R2                                 | 150D156X9035R2                                 | 3.0                            | 4                                   |
| 18.0                                                                                           | R         | -                                              | 150D186X9035R2                                 | 3.0                            | 4                                   |
| 22.0                                                                                           | R         | 150D226X0035R2                                 | 150D226X9035R2                                 | 6.0                            | 4                                   |
| 27.0                                                                                           | S         | -                                              | 150D276X9035S2                                 | 6.0                            | 4                                   |
| 33.0                                                                                           | S         | 150D336X0035S2                                 | 150D336X9035S2                                 | 6.0                            | 4                                   |
| 39.0                                                                                           | S         | -                                              | 150D396X9035S2                                 | 6.0                            | 4                                   |
| 47.0                                                                                           | S         | 150D476X0035S2                                 | 150D476X9035S2                                 | 10.0                           | 4                                   |
| 50 WV <sub>DC</sub> AT + 85 °C, SURGE = 65 V ... 33 WV <sub>DC</sub> AT + 125 °C, SURGE = 40 V |           |                                                |                                                |                                |                                     |
| 0.056                                                                                          | A         | -                                              | 150D563X9050A2                                 | 0.1                            | 2                                   |
| 0.068                                                                                          | A         | 150D683X0050A2                                 | 150D683X9050A2                                 | 0.1                            | 2                                   |
| 0.082                                                                                          | A         | -                                              | 150D823X9050A2                                 | 0.1                            | 2                                   |
| 0.10                                                                                           | A         | 150D104X0050A2                                 | 150D104X9050A2                                 | 0.5                            | 2                                   |
| 0.12                                                                                           | A         | -                                              | 150D124X9050A2                                 | 0.5                            | 2                                   |
| 0.15                                                                                           | A         | 150D154X0050A2                                 | 150D154X9050A2                                 | 0.5                            | 2                                   |
| 0.18                                                                                           | A         | -                                              | 150D184X9050A2                                 | 0.5                            | 2                                   |
| 0.22                                                                                           | A         | 150D224X0050A2                                 | 150D224X9050A2                                 | 0.5                            | 2                                   |
| 0.27                                                                                           | A         | -                                              | 150D274X9050A2                                 | 0.5                            | 2                                   |
| 0.33                                                                                           | A         | 150D334X0050A2                                 | 150D334X9050A2                                 | 0.5                            | 2                                   |
| 0.39                                                                                           | A         | -                                              | 150D394X9050A2                                 | 0.5                            | 2                                   |
| 0.47                                                                                           | A         | 150D474X0050A2                                 | 150D474X9050A2                                 | 0.5                            | 2                                   |
| 0.56                                                                                           | A         | -                                              | 150D564X9050A2                                 | 0.5                            | 2                                   |
| 0.68                                                                                           | A         | 150D684X0050A2                                 | 150D684X9050A2                                 | 0.5                            | 2                                   |
| 0.82                                                                                           | A         | -                                              | 150D824X9050A2                                 | 0.5                            | 2                                   |
| 1.0                                                                                            | A         | 150D105X0050A2                                 | 150D105X9050A2                                 | 0.5                            | 2                                   |
| 1.2                                                                                            | B         | -                                              | 150D125X9050B2                                 | 0.5                            | 4                                   |
| 1.5                                                                                            | B         | 150D155X0050B2                                 | 150D155X9050B2                                 | 0.5                            | 4                                   |
| 1.8                                                                                            | B         | -                                              | 150D185X9050B2                                 | 0.5                            | 4                                   |
| 2.2                                                                                            | B         | 150D225X0050B2                                 | 150D225X9050B2                                 | 1.0                            | 4                                   |
| 2.7                                                                                            | B         | -                                              | 150D275X9050B2                                 | 1.0                            | 4                                   |
| 3.3                                                                                            | B         | 150D335X0050B2                                 | 150D335X9050B2                                 | 2.0                            | 4                                   |
| 3.9                                                                                            | B         | -                                              | 150D395X9050B2                                 | 2.0                            | 4                                   |
| 4.7                                                                                            | B         | 150D475X0050B2                                 | 150D475X9050B2                                 | 3.0                            | 4                                   |
| 5.6                                                                                            | R         | -                                              | 150D565X9050R2                                 | 3.0                            | 4                                   |
| 6.8                                                                                            | R         | 150D685X0050R2                                 | 150D685X9050R2                                 | 3.0                            | 4                                   |
| 8.2                                                                                            | R         | -                                              | 150D825X9050R2                                 | 3.0                            | 4                                   |
| 10.0                                                                                           | R         | 150D106X0050R2                                 | 150D106X9050R2                                 | 3.0                            | 4                                   |
| 12.0                                                                                           | R         | -                                              | 150D126X9050R2                                 | 3.0                            | 4                                   |
| 15.0                                                                                           | R         | 150D156X0050R2                                 | 150D156X9050R2                                 | 6.0                            | 4                                   |
| 18.0                                                                                           | R         | -                                              | 150D186X9050R2                                 | 6.0                            | 4                                   |
| 22.0                                                                                           | S         | 150D226X0050S2                                 | 150D226X9050S2                                 | 6.0                            | 4                                   |
| 60 WV <sub>DC</sub> AT + 85 °C, SURGE = 78 V ... 40 WV <sub>DC</sub> AT + 125 °C, SURGE = 49 V |           |                                                |                                                |                                |                                     |
| 0.1                                                                                            | A         | 150D104X0060A2                                 | 150D104X9060A2                                 | 0.5                            | 4.0                                 |
| 0.12                                                                                           | A         | 150D124X0060A2                                 | 150D124X9060A2                                 | 0.5                            | 4.0                                 |
| 0.15                                                                                           | A         | 150D154X0060A2                                 | 150D154X9060A2                                 | 0.5                            | 4.0                                 |
| 0.18                                                                                           | A         | 150D184X0060A2                                 | 150D184X9060A2                                 | 0.5                            | 4.0                                 |
| 0.22                                                                                           | A         | 150D224X0060A2                                 | 150D224X9060A2                                 | 0.5                            | 4.0                                 |
| 0.27                                                                                           | A         | 150D274X0060A2                                 | 150D274X9060A2                                 | 0.5                            | 4.0                                 |

## Note

<sup>(1)</sup> Insert capacitance tolerance code "X5" for ± 5 % units (special order)

**STANDARD RATINGS**

| CAPACITANCE (μF)                                                                                    | CASE CODE | PART NUMBER (1)<br>CAP. TOL. ± 20 % | PART NUMBER (1)<br>CAP. TOL. ± 10 % | MAX. DCL<br>AT + 25 °C<br>(μA) | MAX. DF<br>AT + 25 °C<br>120 Hz (%) |
|-----------------------------------------------------------------------------------------------------|-----------|-------------------------------------|-------------------------------------|--------------------------------|-------------------------------------|
| <b>60 WV<sub>DC</sub> AT + 85 °C, SURGE = 78 V ... 40 WV<sub>DC</sub> AT + 125 °C, SURGE = 49 V</b> |           |                                     |                                     |                                |                                     |
| 0.33                                                                                                | A         | 150D334X0060A2                      | 150D334X9060A2                      | 0.5                            | 4.0                                 |
| 0.39                                                                                                | A         | 150D394X0060A2                      | 150D394X9060A2                      | 0.5                            | 4.0                                 |
| 0.47                                                                                                | A         | 150D474X0060A2                      | 150D474X9060A2                      | 0.5                            | 4.0                                 |
| 0.56                                                                                                | A         | 150D564X0060A2                      | 150D564X9060A2                      | 0.5                            | 4.0                                 |
| 0.68                                                                                                | A         | 150D684X0060A2                      | 150D684X9060A2                      | 0.5                            | 4.0                                 |
| 1.0                                                                                                 | B         | 150D105X0060B2                      | 150D105X9060B2                      | 0.5                            | 4.0                                 |
| 2.2                                                                                                 | B         | 150D225X0060B2                      | 150D225X9060B2                      | 1.0                            | 4.0                                 |
| 4.7                                                                                                 | R         | 150D475X0060R2                      | 150D475X9060R2                      | 3.0                            | 6.0                                 |
| 5.6                                                                                                 | R         | 150D565X0060R2                      | 150D565X9060R2                      | 3.0                            | 6.0                                 |
| 6.8                                                                                                 | R         | 150D685X0060R2                      | 150D685X9060R2                      | 4.0                            | 6.0                                 |
| 8.2                                                                                                 | R         | 150D825X0060R2                      | 150D825X9060R2                      | 5.0                            | 6.0                                 |
| 10                                                                                                  | R         | 150D106X0060R2                      | 150D106X9060R2                      | 6.0                            | 6.0                                 |
| 12                                                                                                  | S         | 150D126X0060S2                      | 150D126X9060S2                      | 6.0                            | 6.0                                 |
| 15                                                                                                  | S         | 150D156X0060S2                      | 150D156X9060S2                      | 9.0                            | 6.0                                 |
| 18                                                                                                  | S         | 150D186X0060S2                      | 150D186X9060S2                      | 10.0                           | 6.0                                 |
| 22                                                                                                  | S         | 150D226X0060S2                      | 150D226X9060S2                      | 12.0                           | 6.0                                 |
| <b>75 WV<sub>DC</sub> AT + 85 °C, SURGE = 98 V ... 50 WV<sub>DC</sub> AT + 125 °C, SURGE = 64 V</b> |           |                                     |                                     |                                |                                     |
| 0.033                                                                                               | A         | 150D333X0075A2                      | 150D333X9075A2                      | 0.5                            | 2                                   |
| 0.039                                                                                               | A         | -                                   | 150D393X9075A2                      | 0.5                            | 2                                   |
| 0.047                                                                                               | A         | 150D473X0075A2                      | 150D473X9075A2                      | 0.5                            | 2                                   |
| 0.056                                                                                               | A         | -                                   | 150D563X9075A2                      | 0.5                            | 2                                   |
| 0.068                                                                                               | A         | 150D683X0075A2                      | 150D683X9075A2                      | 0.5                            | 2                                   |
| 0.082                                                                                               | A         | -                                   | 150D823X9075A2                      | 0.5                            | 2                                   |
| 0.10                                                                                                | A         | 150D104X0075A2                      | 150D104X9075A2                      | 0.5                            | 2                                   |
| 0.12                                                                                                | A         | -                                   | 150D124X9075A2                      | 0.5                            | 2                                   |
| 0.15                                                                                                | A         | 150D154X0075A2                      | 150D154X9075A2                      | 0.5                            | 2                                   |
| 0.18                                                                                                | A         | -                                   | 150D184X9075A2                      | 0.5                            | 2                                   |
| 0.22                                                                                                | A         | 150D224X0075A2                      | 150D224X9075A2                      | 0.5                            | 2                                   |
| 0.27                                                                                                | A         | -                                   | 150D274X9075A2                      | 0.5                            | 2                                   |
| 0.33                                                                                                | A         | 150D334X0075A2                      | 150D334X9075A2                      | 0.5                            | 2                                   |
| 0.39                                                                                                | A         | -                                   | 150D394X9075A2                      | 0.5                            | 2                                   |
| 0.47                                                                                                | A         | 150D474X0075A2                      | 150D474X9075A2                      | 0.5                            | 2                                   |
| 0.56                                                                                                | A         | -                                   | 150D564X9075A2                      | 0.5                            | 2                                   |
| 0.68                                                                                                | A         | 150D684X0075A2                      | 150D684X9075A2                      | 0.5                            | 2                                   |
| 0.82                                                                                                | B         | -                                   | 150D824X9075B2                      | 0.5                            | 2                                   |
| 1.0                                                                                                 | B         | 150D105X0075B2                      | 150D105X9075B2                      | 0.5                            | 2                                   |
| 1.2                                                                                                 | B         | -                                   | 150D125X9075B2                      | 0.5                            | 4                                   |
| 1.5                                                                                                 | B         | 150D155X0075B2                      | 150D155X9075B2                      | 1.0                            | 4                                   |
| 1.8                                                                                                 | B         | -                                   | 150D185X9075B2                      | 1.0                            | 4                                   |
| 2.2                                                                                                 | B         | 150D225X0075B2                      | 150D225X9075B2                      | 1.0                            | 4                                   |
| 2.7                                                                                                 | B         | -                                   | 150D275X9075B2                      | 1.0                            | 4                                   |
| 3.3                                                                                                 | B         | 150D335X0075B2                      | 150D335X9075B2                      | 2.0                            | 4                                   |
| 3.9                                                                                                 | B         | -                                   | 150D395X9075B2                      | 2.0                            | 4                                   |
| 4.7                                                                                                 | R         | 150D475X0075R2                      | 150D475X9075R2                      | 4.0                            | 4                                   |
| 5.6                                                                                                 | R         | -                                   | 150D565X9075R2                      | 4.0                            | 4                                   |
| 6.8                                                                                                 | R         | 150D685X0075R2                      | 150D685X9075R2                      | 6.0                            | 4                                   |
| 8.2                                                                                                 | R         | -                                   | 150D825X9075R2                      | 6.0                            | 4                                   |
| 10.0                                                                                                | R         | 150D106X0075R2                      | 150D106X9075R2                      | 8.0                            | 4                                   |
| 12.0                                                                                                | S         | -                                   | 150D126X9075S2                      | 10.0                           | 4                                   |
| 15.0                                                                                                | S         | 150D156X0075S2                      | 150D156X9075S2                      | 12.0                           | 4                                   |

**Note**

(1) Insert capacitance tolerance code "X5" for ± 5 % units (special order).



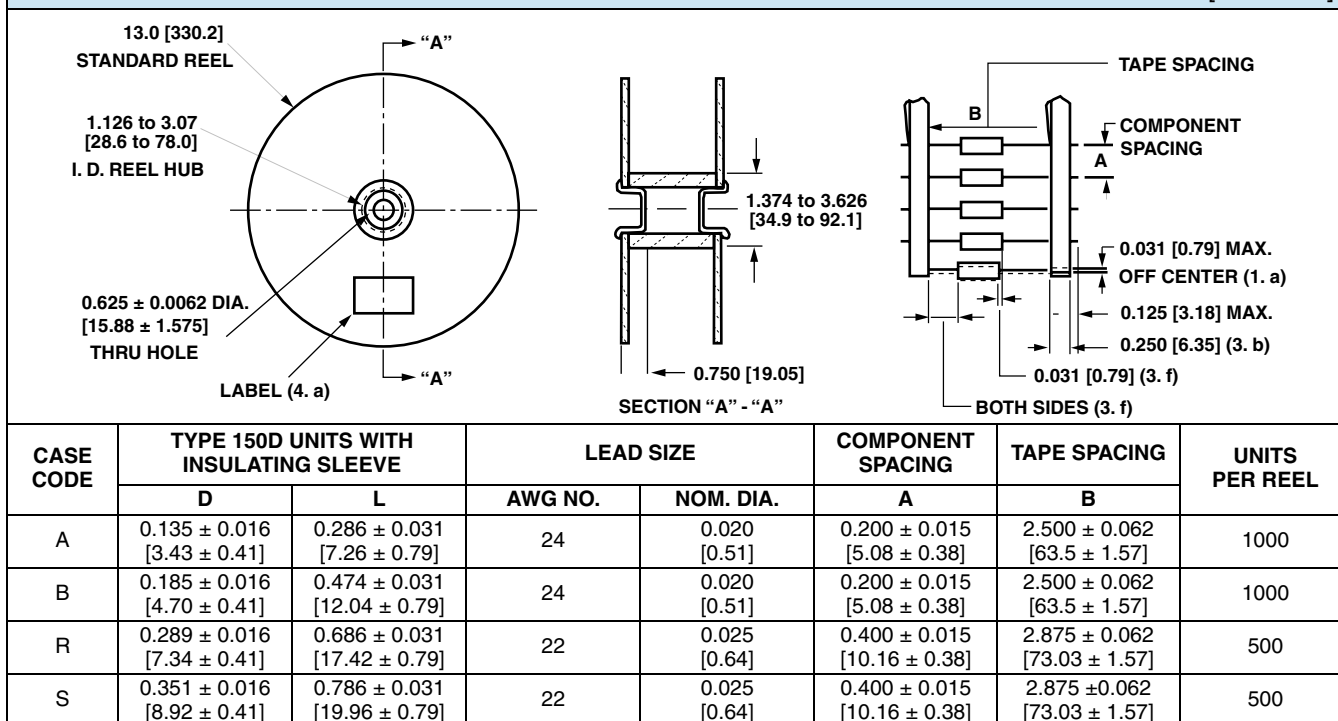
Solid-Electrolyte TANTALEX® Capacitors  
Hermetically-Sealed, Axial-Lead

Vishay Sprague

| STANDARD RATINGS                                                                                   |           |                                                |                                                |                                |                                     |
|----------------------------------------------------------------------------------------------------|-----------|------------------------------------------------|------------------------------------------------|--------------------------------|-------------------------------------|
| CAPACITANCE (μF)                                                                                   | CASE CODE | PART NUMBER <sup>(1)</sup><br>CAP. TOL. ± 20 % | PART NUMBER <sup>(1)</sup><br>CAP. TOL. ± 10 % | MAX. DCL<br>AT + 25 °C<br>(μA) | MAX. DF<br>AT + 25 °C<br>120 Hz (%) |
| 100 WV <sub>DC</sub> AT + 85 °C, SURGE = 130 V . . . 67 WV <sub>DC</sub> AT + 125 °C, SURGE = 86 V |           |                                                |                                                |                                |                                     |
| 0.033                                                                                              | A         | 150D333X0100A2                                 | 150D333X9100A2                                 | 0.5                            | 2                                   |
| 0.039                                                                                              | A         | -                                              | 150D393X9100A2                                 | 0.5                            | 2                                   |
| 0.047                                                                                              | A         | 150D473X0100A2                                 | 150D473X9100A2                                 | 0.5                            | 2                                   |
| 0.056                                                                                              | A         | -                                              | 150D563X9100A2                                 | 0.5                            | 2                                   |
| 0.068                                                                                              | A         | 150D683X0100A2                                 | 150D683X9100A2                                 | 0.5                            | 2                                   |
| 0.082                                                                                              | A         | -                                              | 150D823X9100A2                                 | 0.5                            | 2                                   |
| 0.10                                                                                               | A         | 150D104X0100A2                                 | 150D104X9100A2                                 | 0.5                            | 2                                   |
| 0.12                                                                                               | A         | -                                              | 150D124X9100A2                                 | 0.5                            | 2                                   |
| 0.15                                                                                               | A         | 150D154X0100A2                                 | 150D154X9100A2                                 | 0.5                            | 2                                   |
| 0.18                                                                                               | A         | -                                              | 150D184X9100A2                                 | 0.5                            | 2                                   |
| 0.22                                                                                               | A         | 150D224X0100A2                                 | 150D224X9100A2                                 | 0.5                            | 2                                   |
| 0.27                                                                                               | A         | -                                              | 150D274X9100A2                                 | 0.5                            | 2                                   |
| 0.33                                                                                               | A         | 150D334X0100A2                                 | 150D334X9100A2                                 | 0.5                            | 2                                   |
| 0.39                                                                                               | A         | -                                              | 150D394X9100A2                                 | 0.5                            | 2                                   |
| 0.47                                                                                               | A         | 150D474X0100A2                                 | 150D474X9100A2                                 | 0.5                            | 2                                   |
| 0.56                                                                                               | A         | -                                              | 150D564X9100A2                                 | 0.5                            | 2                                   |
| 0.68                                                                                               | B         | 150D684X0100B2                                 | 150D684X9100B2                                 | 0.5                            | 2                                   |
| 0.82                                                                                               | B         | -                                              | 150D824X9100B2                                 | 0.5                            | 2                                   |
| 1.0                                                                                                | B         | 150D105X0100B2                                 | 150D105X9100B2                                 | 0.5                            | 2                                   |
| 1.2                                                                                                | B         | -                                              | 150D125X9100B2                                 | 0.5                            | 3                                   |
| 1.5                                                                                                | B         | 150D155X0100B2                                 | 150D155X9100B2                                 | 0.6                            | 3                                   |
| 1.8                                                                                                | B         | -                                              | 150D185X9100B2                                 | 0.6                            | 3                                   |
| 2.2                                                                                                | B         | 150D225X0100B2                                 | 150D225X9100B2                                 | 0.6                            | 3                                   |
| 2.7                                                                                                | B         | -                                              | 150D275X9100B2                                 | 0.6                            | 3                                   |
| 3.3                                                                                                | R         | 150D335X0100R2                                 | 150D335X9100R2                                 | 2.5                            | 3                                   |
| 3.9                                                                                                | R         | -                                              | 150D395X9100R2                                 | 3.0                            | 3                                   |
| 4.7                                                                                                | R         | 150D475X0100R2                                 | 150D475X9100R2                                 | 4.0                            | 3                                   |
| 5.6                                                                                                | R         | -                                              | 150D565X9100R2                                 | 4.0                            | 3                                   |
| 6.8                                                                                                | R         | 150D685X0100R2                                 | 150D685X9100R2                                 | 6.0                            | 3                                   |
| 8.2                                                                                                | S         | 150D825X0100S2                                 | 150D825X9100S2                                 | 6.0                            | 3                                   |
| 10                                                                                                 | S         | 150D106X0100S2                                 | 150D106X9100S2                                 | 6.0                            | 3                                   |
| 125 WV <sub>DC</sub> AT + 85 °C, SURGE = 140 V . . . 82 WV <sub>DC</sub> AT + 125 °C, SURGE = 94 V |           |                                                |                                                |                                |                                     |
| 0.027                                                                                              | A         | -                                              | 150D273X9125A2                                 | 1.0                            | 2                                   |
| 0.033                                                                                              | A         | 150D333X0125A2                                 | 150D333X9125A2                                 | 1.0                            | 2                                   |
| 0.039                                                                                              | A         | -                                              | 150D393X9125A2                                 | 1.0                            | 2                                   |
| 0.047                                                                                              | A         | 150D473X0125A2                                 | 150D473X9125A2                                 | 1.0                            | 2                                   |
| 0.056                                                                                              | A         | -                                              | 150D563X9125A2                                 | 1.0                            | 2                                   |
| 0.068                                                                                              | A         | 150D683X0125A2                                 | 150D683X9125A2                                 | 1.0                            | 2                                   |
| 0.082                                                                                              | A         | -                                              | 150D823X9125A2                                 | 1.0                            | 2                                   |
| 0.10                                                                                               | A         | 150D104X0125A2                                 | 150D104X9125A2                                 | 1.0                            | 2                                   |
| 0.12                                                                                               | A         | -                                              | 150D124X9125A2                                 | 1.0                            | 2                                   |
| 0.15                                                                                               | A         | 150D154X0125A2                                 | 150D154X9125A2                                 | 1.0                            | 2                                   |
| 0.18                                                                                               | A         | -                                              | 150D184X9125A2                                 | 1.0                            | 2                                   |
| 0.22                                                                                               | A         | 150D224X0125A2                                 | 150D224X9125A2                                 | 1.0                            | 2                                   |
| 0.27                                                                                               | A         | -                                              | 150D274X9125A2                                 | 1.0                            | 2                                   |
| 0.33                                                                                               | A         | 150D334X0125A2                                 | 150D334X9125A2                                 | 1.0                            | 2                                   |
| 0.39                                                                                               | A         | -                                              | 150D394X9125A2                                 | 1.5                            | 2                                   |
| 0.47                                                                                               | A         | 150D474X0125A2                                 | 150D474X9125A2                                 | 1.5                            | 2                                   |
| 0.56                                                                                               | B         | -                                              | 150D564X9125B2                                 | 1.6                            | 2                                   |
| 0.68                                                                                               | B         | 150D684X0125B2                                 | 150D684X9125B2                                 | 1.8                            | 2                                   |
| 0.82                                                                                               | B         | -                                              | 150D824X9125B2                                 | 2.0                            | 2                                   |
| 1.0                                                                                                | B         | 150D105X0125B2                                 | 150D105X9125B2                                 | 2.0                            | 2                                   |
| 1.2                                                                                                | B         | -                                              | 150D125X9125B2                                 | 2.0                            | 3                                   |
| 1.5                                                                                                | B         | 150D155X0125B2                                 | 150D155X9125B2                                 | 2.0                            | 3                                   |
| 1.8                                                                                                | B         | -                                              | 150D185X9125B2                                 | 2.0                            | 3                                   |
| 2.2                                                                                                | B         | 150D225X0125B2                                 | 150D225X9125B2                                 | 2.0                            | 3                                   |

**Note**

<sup>(1)</sup> Insert capacitance tolerance code "X5" for ± 5 % units (special order).

**STANDARD REEL PACKAGING SPECIFICATIONS - MEETS EIA STANDARD RS-296 in inches [millimeters]****STANDARD REEL PACKAGING INFORMATION****1. Component Leads:**

- 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 inside tape edge and at the lead egress from the component.
- 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:**

- Components on any reel shall not represent more than two date codes when date code identification is required.
- Component leads shall be positioned between pairs of 0.250" [6.35 mm] tape.
- The disposable reels have hubs and corrugated fibreboard flanges and core or equivalent.
- 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.
- 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" [1.57 mm to 6.35 mm] less than the "C" dimension of the reel. Solid-Electrolyte TANTALEX® Capacitors Hermetically-Sealed, Axial-Lead.

- A row of components must be centered between tapes ± 0.047" [1.19 mm]. In addition, individual components may deviate from center of component row ± 0.031" [0.79 mm].
- 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.
- 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.
- A maximum of 0.25 % of the components per reel quantity may be missing without consecutive missing components.
- 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.



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