

## Solid-Electrolyte TANTALEX™ Capacitors, Hermetically-Sealed, Axial-Lead



### PERFORMANCE CHARACTERISTICS

**Operating Temperature:** -55 °C to +125 °C  
(above 85 °C, voltage derating is required)

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

**Dissipation Factor:** at 120 Hz, +25 °C

**DC Leakage Current (DCL Max.):**  
**at +25 °C:** leakage current shall not exceed the values listed in the Standard Ratings table  
**at +85 °C:** leakage current shall not exceed 10 times the values listed in the Standard Ratings table  
**at +125 °C:** leakage shall not exceed 15 times the values listed in the Standard Ratings table

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

Following the life test:

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

### FEATURES

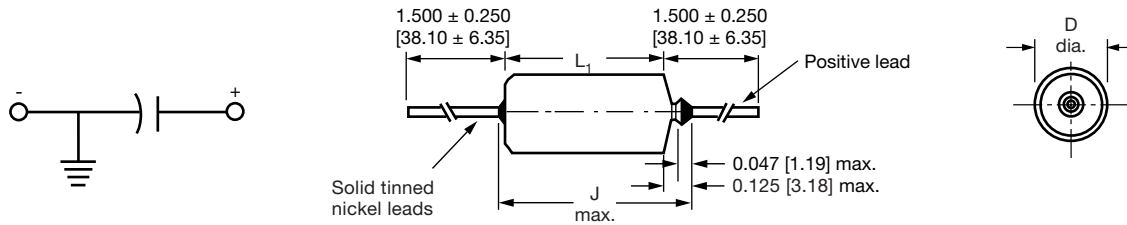
- Terminations: tin / lead (SnPb), 100 % tin (RoHS-compliant)
- These high performance, hermetically-sealed TANTALEX capacitors have set the standard for solid-electrolyte tantalum capacitors for more than three decades
- High capacitance, low DCL, low dissipation factor and exceptional operating stability
- Performance and reliability have been proven in commercial, industrial and military applications
- Available in four case codes and capacitors and are supplied with plastic-film insulation
- Terminals are solid, tinned nickel wire leads
- The military equivalent of the 150D is the M39003/01 (style CSR13) which is qualified to MIL-PRF-39003/1
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### Note

\* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non-RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details.

| ORDERING INFORMATION |  |   |  |                                  |                                       |  |   |
|----------------------|--|---|--|----------------------------------|---------------------------------------|--|---|
| 150D                 | 224  | X0  | 006  | A                                | 2                                     | T  | E3  |
| MODEL                | CAPACITANCE  | CAPACITANCE TOLERANCE   | DC VOLTAGE RATING AT 85 °C   | 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 = ± 20 %<br>X9 = ± 10 %<br>X5 = ± 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<br>G = ammo pack | E3 = 100 % tin termination (RoHS-compliant)<br>Blank = SnPb termination |

**DIMENSIONS** in inches [millimeters]


| CASE CODE | D                                     | $L_1$                            | J              | LEAD SIZE |                  |
|-----------|---------------------------------------|----------------------------------|----------------|-----------|------------------|
|           | WITH INSULATING SLEEVE <sup>(1)</sup> |                                  |                | AWG NO.   | NOMINAL DIAMETER |
| A         | $0.135 \pm 0.016$ [3.43 ± 0.41]       | $0.286 \pm 0.031$ [7.26 ± 0.79]  | 0.422 [10.720] | 24        | 0.020 [0.51]     |
| B         | $0.185 \pm 0.016$ [4.70 ± 0.41]       | $0.474 \pm 0.031$ [12.04 ± 0.79] | 0.610 [15.490] | 24        | 0.020 [0.51]     |
| R         | $0.289 \pm 0.016$ [7.34 ± 0.41]       | $0.686 \pm 0.031$ [17.42 ± 0.79] | 0.822 [20.880] | 22        | 0.025 [0.64]     |
| S         | $0.351 \pm 0.016$ [8.92 ± 0.41]       | $0.786 \pm 0.031$ [19.96 ± 0.79] | 0.922 [23.420] | 22        | 0.025 [0.64]     |

**Note**

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

**STANDARD RATINGS**

| CAPACITANCE<br>( $\mu$ F)  | CASE CODE | PART NUMBER             | MAX. DCL<br>AT +25 °C<br>( $\mu$ A) | MAX. DF<br>AT +25 °C<br>120 Hz<br>(%) |
|--|-----------|-------------------------|-------------------------------------|---------------------------------------|
| <b>6 V<sub>DC</sub> AT +85 °C, SURGE = 8 V; 4 V<sub>DC</sub> AT +125 °C, SURGE = 5 V</b> |           |                         |                                     |                                       |
| 0.22   | A         | 150D224(1)006A(2)(3)(4) | 0.5                                 | 2                                     |
| 0.27   | A         | 150D274(1)006A(2)(3)(4) | 0.5                                 | 2                                     |
| 0.33   | A         | 150D334(1)006A(2)(3)(4) | 0.5                                 | 2                                     |
| 0.39   | A         | 150D394(1)006A(2)(3)(4) | 0.5                                 | 2                                     |
| 0.47   | A         | 150D474(1)006A(2)(3)(4) | 0.5                                 | 2                                     |
| 0.56   | A         | 150D564(1)006A(2)(3)(4) | 0.5                                 | 2                                     |
| 0.68   | A         | 150D684(1)006A(2)(3)(4) | 0.5                                 | 2                                     |
| 0.82   | A         | 150D824(1)006A(2)(3)(4) | 0.5                                 | 2                                     |
| 1.0  | A         | 150D105(1)006A(2)(3)(4) | 0.5                                 | 2                                     |
| 1.2  | A         | 150D125(1)006A(2)(3)(4) | 0.5                                 | 4                                     |
| 1.5  | A         | 150D155(1)006A(2)(3)(4) | 0.5                                 | 4                                     |
| 1.8  | A         | 150D185(1)006A(2)(3)(4) | 0.5                                 | 4                                     |
| 2.2  | A         | 150D225(1)006A(2)(3)(4) | 0.5                                 | 4                                     |
| 2.7  | A         | 150D275(1)006A(2)(3)(4) | 0.5                                 | 4                                     |
| 3.3  | A         | 150D335(1)006A(2)(3)(4) | 0.5                                 | 4                                     |
| 3.9  | A         | 150D395(1)006A(2)(3)(4) | 0.5                                 | 4                                     |
| 4.7  | A         | 150D475(1)006A(2)(3)(4) | 0.5                                 | 4                                     |
| 5.6  | A         | 150D565(1)006A(2)(3)(4) | 0.5                                 | 4                                     |
| 6.8  | A         | 150D685(1)006A(2)(3)(4) | 0.5                                 | 6                                     |
| 8.2  | B         | 150D825(1)006B(2)(3)(4) | 0.5                                 | 6                                     |
| 10   | B         | 150D106(1)006B(2)(3)(4) | 0.5                                 | 6                                     |
| 12   | B         | 150D126(1)006B(2)(3)(4) | 0.5                                 | 6                                     |
| 15   | B         | 150D156(1)006B(2)(3)(4) | 1.0                                 | 6                                     |
| 18   | B         | 150D186(1)006B(2)(3)(4) | 1.0                                 | 6                                     |

**Note**

- Part number definitions:
  - For 10 % tolerance specify "X9"; for 20 % specify "X0"; for 5 % "X5" (special order)
  - Style number: 0 = no sleeve, 2 = insulated sleeve
  - Packaging options: B = bulk, T = tape and reel, G = ammo pack
  - Termination: E3 = 100 % tin, blank = SnPb



| STANDARD RATINGS   |           |                         |                                     |                                       |  |
|--|-----------|-------------------------|-------------------------------------|---------------------------------------|--|
| CAPACITANCE<br>( $\mu$ F)  | CASE CODE | PART NUMBER             | MAX. DCL<br>AT +25 °C<br>( $\mu$ A) | MAX. DF<br>AT +25 °C<br>120 Hz<br>(%) |  |
| <b>6 V<sub>DC</sub> AT +85 °C, SURGE = 8 V; 4 V<sub>DC</sub> AT +125 °C, SURGE = 5 V</b>   |           |                         |                                     |                                       |  |
| 22   | B         | 150D226(1)006B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 27   | B         | 150D276(1)006B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 33   | B         | 150D336(1)006B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 39   | B         | 150D396(1)006B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 47   | B         | 150D476(1)006B(2)(3)(4) | 2.0                                 | 6                                     |  |
| 56   | B         | 150D566(1)006B(2)(3)(4) | 2.0                                 | 6                                     |  |
| 68   | R         | 150D686(1)006R(2)(3)(4) | 3.0                                 | 6                                     |  |
| 82   | R         | 150D826(1)006R(2)(3)(4) | 3.0                                 | 6                                     |  |
| 100  | R         | 150D107(1)006R(2)(3)(4) | 3.0                                 | 6                                     |  |
| 120  | R         | 150D127(1)006R(2)(3)(4) | 3.0                                 | 6                                     |  |
| 150  | R         | 150D157(1)006R(2)(3)(4) | 6.0                                 | 6                                     |  |
| 180  | R         | 150D187(1)006R(2)(3)(4) | 6.0                                 | 6                                     |  |
| 220  | S         | 150D227(1)006S(2)(3)(4) | 6.0                                 | 8                                     |  |
| 270  | S         | 150D277(1)006S(2)(3)(4) | 6.0                                 | 8                                     |  |
| 330  | S         | 150D337(1)006S(2)(3)(4) | 10.0                                | 8                                     |  |
| <b>10 V<sub>DC</sub> AT +85 °C, SURGE = 13 V; 7 V<sub>DC</sub> AT +125 °C, SURGE = 9 V</b> |           |                         |                                     |                                       |  |
| 0.22   | A         | 150D224(1)010A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.27   | A         | 150D274(1)010A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.33   | A         | 150D334(1)010A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.39   | A         | 150D394(1)010A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.47   | A         | 150D474(1)010A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.56   | A         | 150D564(1)010A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.68   | A         | 150D684(1)010A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.82   | A         | 150D824(1)010A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 1.0  | A         | 150D105(1)010A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 1.2  | A         | 150D125(1)010A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 1.5  | A         | 150D155(1)010A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 1.8  | A         | 150D185(1)010A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 2.2  | A         | 150D225(1)010A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 2.7  | A         | 150D275(1)010A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 3.3  | A         | 150D335(1)010A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 3.9  | A         | 150D395(1)010A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 4.7  | A         | 150D475(1)010A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 5.6  | B         | 150D565(1)010B(2)(3)(4) | 0.5                                 | 4                                     |  |
| 6.8  | B         | 150D685(1)010B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 8.2  | B         | 150D825(1)010B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 10   | B         | 150D106(1)010B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 12   | B         | 150D126(1)010B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 15   | B         | 150D156(1)010B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 18   | B         | 150D186(1)010B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 22   | B         | 150D226(1)010B(2)(3)(4) | 2.0                                 | 6                                     |  |
| 27   | B         | 150D276(1)010B(2)(3)(4) | 2.0                                 | 6                                     |  |

**Note**

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  - Style number: 0 = no sleeve, 2 = insulated sleeve
  - Packaging options: B = bulk, T = tape and reel, G = ammo pack
  - Termination: E3 = 100 % tin, blank = SnPb



| STANDARD RATINGS   |           |                         |                                     |                                       |  |
|--|-----------|-------------------------|-------------------------------------|---------------------------------------|--|
| CAPACITANCE<br>( $\mu$ F)  | CASE CODE | PART NUMBER             | MAX. DCL<br>AT +25 °C<br>( $\mu$ A) | MAX. DF<br>AT +25 °C<br>120 Hz<br>(%) |  |
| <b>10 V<sub>DC</sub> AT +85 °C, SURGE = 13 V; 7 V<sub>DC</sub> AT +125 °C, SURGE = 9 V</b>   |           |                         |                                     |                                       |  |
| 33   | B         | 150D336(1)010B(2)(3)(4) | 2.0                                 | 6                                     |  |
| 39   | B         | 150D396(1)010B(2)(3)(4) | 2.0                                 | 6                                     |  |
| 47   | R         | 150D476(1)010R(2)(3)(4) | 3.0                                 | 6                                     |  |
| 56   | R         | 150D566(1)010R(2)(3)(4) | 3.0                                 | 6                                     |  |
| 68   | R         | 150D686(1)010R(2)(3)(4) | 3.0                                 | 6                                     |  |
| 82   | R         | 150D826(1)010R(2)(3)(4) | 3.0                                 | 6                                     |  |
| 100  | R         | 150D107(1)010R(2)(3)(4) | 6.0                                 | 6                                     |  |
| 120  | R         | 150D127(1)010R(2)(3)(4) | 6.0                                 | 6                                     |  |
| 150  | S         | 150D157(1)010S(2)(3)(4) | 10.0                                | 6                                     |  |
| 180  | S         | 150D187(1)010S(2)(3)(4) | 10.0                                | 6                                     |  |
| 220  | S         | 150D227(1)010S(2)(3)(4) | 10.0                                | 8                                     |  |
| <b>15 V<sub>DC</sub> AT +85 °C, SURGE = 20 V; 10 V<sub>DC</sub> AT +125 °C, SURGE = 12 V</b> |           |                         |                                     |                                       |  |
| 0.22   | A         | 150D224(1)015A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.27   | A         | 150D274(1)015A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.33   | A         | 150D334(1)015A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.39   | A         | 150D394(1)015A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.47   | A         | 150D474(1)015A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.56   | A         | 150D564(1)015A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.68   | A         | 150D684(1)015A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.82   | A         | 150D824(1)015A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 1.0  | A         | 150D105(1)015A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 1.2  | A         | 150D125(1)015A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 1.5  | A         | 150D155(1)015A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 1.8  | A         | 150D185(1)015A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 2.2  | A         | 150D225(1)015A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 2.7  | A         | 150D275(1)015A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 3.3  | A         | 150D335(1)015A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 3.9  | B         | 150D395(1)015B(2)(3)(4) | 0.5                                 | 4                                     |  |
| 4.7  | B         | 150D475(1)015B(2)(3)(4) | 1.0                                 | 4                                     |  |
| 5.6  | B         | 150D565(1)015B(2)(3)(4) | 1.0                                 | 4                                     |  |
| 6.8  | B         | 150D685(1)015B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 8.2  | B         | 150D825(1)015B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 10   | B         | 150D106(1)015B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 12   | B         | 150D126(1)015B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 15   | B         | 150D156(1)015B(2)(3)(4) | 2.0                                 | 6                                     |  |
| 18   | B         | 150D186(1)015B(2)(3)(4) | 2.0                                 | 6                                     |  |
| 22   | B         | 150D226(1)015B(2)(3)(4) | 3.0                                 | 6                                     |  |
| 27   | R         | 150D276(1)015R(2)(3)(4) | 3.0                                 | 6                                     |  |
| 33   | R         | 150D336(1)015R(2)(3)(4) | 3.0                                 | 6                                     |  |
| 39   | R         | 150D396(1)015R(2)(3)(4) | 3.0                                 | 6                                     |  |
| 47   | R         | 150D476(1)015R(2)(3)(4) | 6.0                                 | 6                                     |  |
| 56   | R         | 150D566(1)015R(2)(3)(4) | 6.0                                 | 6                                     |  |

Note

- Part number definitions:
  - For 10 % tolerance specify "X9"; for 20 % specify "X0"; for 5 % "X5" (special order)
  - Style number: 0 = no sleeve, 2 = insulated sleeve
  - Packaging options: B = bulk, T = tape and reel, G = ammo pack
  - Termination: E3 = 100 % tin, blank = SnPb



| STANDARD RATINGS   |           |                         |                                     |                                       |  |
|--|-----------|-------------------------|-------------------------------------|---------------------------------------|--|
| CAPACITANCE<br>( $\mu$ F)  | CASE CODE | PART NUMBER             | MAX. DCL<br>AT +25 °C<br>( $\mu$ A) | MAX. DF<br>AT +25 °C<br>120 Hz<br>(%) |  |
| <b>15 V<sub>DC</sub> AT +85 °C, SURGE = 20 V; 10 V<sub>DC</sub> AT +125 °C, SURGE = 12 V</b> |           |                         |                                     |                                       |  |
| 68   | R         | 150D686(1)015R(2)(3)(4) | 6.0                                 | 6                                     |  |
| 82   | S         | 150D826(1)015S(2)(3)(4) | 6.0                                 | 6                                     |  |
| 100  | S         | 150D107(1)015S(2)(3)(4) | 6.0                                 | 6                                     |  |
| 120  | S         | 150D127(1)015S(2)(3)(4) | 6.0                                 | 6                                     |  |
| 150  | S         | 150D157(1)015S(2)(3)(4) | 10.0                                | 6                                     |  |
| <b>20 V<sub>DC</sub> AT +85 °C, SURGE = 26 V; 13 V<sub>DC</sub> AT +125 °C, SURGE = 16 V</b> |           |                         |                                     |                                       |  |
| 0.033  | A         | 150D333(1)020A(2)(3)(4) | 0.1                                 | 2                                     |  |
| 0.039  | A         | 150D393(1)020A(2)(3)(4) | 0.1                                 | 2                                     |  |
| 0.047  | A         | 150D473(1)020A(2)(3)(4) | 0.1                                 | 2                                     |  |
| 0.056  | A         | 150D563(1)020A(2)(3)(4) | 0.1                                 | 2                                     |  |
| 0.068  | A         | 150D683(1)020A(2)(3)(4) | 0.1                                 | 2                                     |  |
| 0.082  | A         | 150D823(1)020A(2)(3)(4) | 0.1                                 | 2                                     |  |
| 0.10   | A         | 150D104(1)020A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.12   | A         | 150D124(1)020A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.15   | A         | 150D154(1)020A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.18   | A         | 150D184(1)020A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.22   | A         | 150D224(1)020A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.27   | A         | 150D274(1)020A(2)(3)(4) | 0.5                                 | 2                                     |  |
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| 0.56   | A         | 150D564(1)020A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.68   | A         | 150D684(1)020A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.82   | A         | 150D824(1)020A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 1.0  | A         | 150D105(1)020A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 1.2  | A         | 150D125(1)020A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 1.5  | A         | 150D155(1)020A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 1.8  | A         | 150D185(1)020A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 2.2  | A         | 150D225(1)020A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 2.7  | B         | 150D275(1)020B(2)(3)(4) | 0.5                                 | 4                                     |  |
| 3.3  | B         | 150D335(1)020B(2)(3)(4) | 0.5                                 | 4                                     |  |
| 3.9  | B         | 150D395(1)020B(2)(3)(4) | 1.0                                 | 4                                     |  |
| 4.7  | B         | 150D475(1)020B(2)(3)(4) | 1.0                                 | 4                                     |  |
| 5.6  | B         | 150D565(1)020B(2)(3)(4) | 1.0                                 | 4                                     |  |
| 6.8  | B         | 150D685(1)020B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 8.2  | B         | 150D825(1)020B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 10   | B         | 150D106(1)020B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 12   | B         | 150D126(1)020B(2)(3)(4) | 1.0                                 | 6                                     |  |
| 15   | B         | 150D156(1)020B(2)(3)(4) | 2.0                                 | 6                                     |  |
| 18   | R         | 150D186(1)020R(2)(3)(4) | 3.0                                 | 6                                     |  |
| 22   | R         | 150D226(1)020R(2)(3)(4) | 3.0                                 | 6                                     |  |
| 27   | R         | 150D276(1)020R(2)(3)(4) | 3.0                                 | 6                                     |  |

Note

- Part number definitions:
  - For 10 % tolerance specify "X9"; for 20 % specify "X0"; for 5 % "X5" (special order)
  - Style number: 0 = no sleeve, 2 = insulated sleeve
  - Packaging options: B = bulk, T = tape and reel, G = ammo pack
  - Termination: E3 = 100 % tin, blank = SnPb



| STANDARD RATINGS   |           |                         |                                     |                                       |  |
|--|-----------|-------------------------|-------------------------------------|---------------------------------------|--|
| CAPACITANCE<br>( $\mu$ F)  | CASE CODE | PART NUMBER             | MAX. DCL<br>AT +25 °C<br>( $\mu$ A) | MAX. DF<br>AT +25 °C<br>120 Hz<br>(%) |  |
| <b>20 V<sub>DC</sub> AT +85 °C, SURGE = 26 V; 13 V<sub>DC</sub> AT +125 °C, SURGE = 16 V</b> |           |                         |                                     |                                       |  |
| 33   | R         | 150D336(1)020R(2)(3)(4) | 3.0                                 | 6                                     |  |
| 39   | R         | 150D396(1)020R(2)(3)(4) | 3.0                                 | 6                                     |  |
| 47   | R         | 150D476(1)020R(2)(3)(4) | 6.0                                 | 6                                     |  |
| 56   | S         | 150D566(1)020S(2)(3)(4) | 6.0                                 | 6                                     |  |
| 68   | S         | 150D686(1)020S(2)(3)(4) | 6.0                                 | 6                                     |  |
| 82   | S         | 150D826(1)020S(2)(3)(4) | 6.0                                 | 6                                     |  |
| 100  | S         | 150D107(1)020S(2)(3)(4) | 10.0                                | 6                                     |  |
| <b>25 V<sub>DC</sub> AT +85 °C, SURGE = 32 V; 17 V<sub>DC</sub> AT +125 °C, SURGE = 21 V</b> |           |                         |                                     |                                       |  |
| 1.2  | A         | 150D125(1)025A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 1.5  | A         | 150D155(1)025A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 1.8  | A         | 150D185(1)025A(2)(3)(4) | 0.5                                 | 4                                     |  |
| 4.7  | B         | 150D475(1)025B(2)(3)(4) | 1.2                                 | 4                                     |  |
| 5.6  | B         | 150D565(1)025B(2)(3)(4) | 1.4                                 | 4                                     |  |
| 6.8  | B         | 150D685(1)025B(2)(3)(4) | 1.7                                 | 4                                     |  |
| 8.2  | B         | 150D825(1)025B(2)(3)(4) | 2.1                                 | 4                                     |  |
| 10   | B         | 150D106(1)025B(2)(3)(4) | 2.5                                 | 6                                     |  |
| 15   | B         | 150D156(1)025B(2)(3)(4) | 3.8                                 | 6                                     |  |
| 33   | R         | 150D336(1)025R(2)(3)(4) | 8.3                                 | 6                                     |  |
| 68   | S         | 150D686(1)025S(2)(3)(4) | 17                                  | 6                                     |  |
| 100  | S         | 150D107(1)025S(2)(3)(4) | 25                                  | 6                                     |  |
| <b>35 V<sub>DC</sub> AT +85 °C, SURGE = 46 V; 23 V<sub>DC</sub> AT +125 °C, SURGE = 28 V</b> |           |                         |                                     |                                       |  |
| 0.033  | A         | 150D333(1)035A(2)(3)(4) | 0.1                                 | 2                                     |  |
| 0.039  | A         | 150D393(1)035A(2)(3)(4) | 0.1                                 | 2                                     |  |
| 0.047  | A         | 150D473(1)035A(2)(3)(4) | 0.1                                 | 2                                     |  |
| 0.056  | A         | 150D563(1)035A(2)(3)(4) | 0.1                                 | 2                                     |  |
| 0.068  | A         | 150D683(1)035A(2)(3)(4) | 0.1                                 | 2                                     |  |
| 0.082  | A         | 150D823(1)035A(2)(3)(4) | 0.1                                 | 2                                     |  |
| 0.10   | A         | 150D104(1)035A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.12   | A         | 150D124(1)035A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.15   | A         | 150D154(1)035A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.18   | A         | 150D184(1)035A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.22   | A         | 150D224(1)035A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.27   | A         | 150D274(1)035A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.33   | A         | 150D334(1)035A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.39   | A         | 150D394(1)035A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.47   | A         | 150D474(1)035A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.56   | A         | 150D564(1)035A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.68   | A         | 150D684(1)035A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.82   | A         | 150D824(1)035A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 1.0  | A         | 150D105(1)035A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 1.2  | B         | 150D125(1)035B(2)(3)(4) | 0.5                                 | 4                                     |  |
| 1.5  | B         | 150D155(1)035B(2)(3)(4) | 0.5                                 | 4                                     |  |

**Note**

- Part number definitions:
  - For 10 % tolerance specify "X9"; for 20 % specify "X0"; for 5 % "X5" (special order)
  - Style number: 0 = no sleeve, 2 = insulated sleeve
  - Packaging options: B = bulk, T = tape and reel, G = ammo pack
  - Termination: E3 = 100 % tin, blank = SnPb



| STANDARD RATINGS   |           |                         |                                     |                                       |  |
|--|-----------|-------------------------|-------------------------------------|---------------------------------------|--|
| CAPACITANCE<br>( $\mu$ F)  | CASE CODE | PART NUMBER             | MAX. DCL<br>AT +25 °C<br>( $\mu$ A) | MAX. DF<br>AT +25 °C<br>120 Hz<br>(%) |  |
| <b>35 V<sub>DC</sub> AT +85 °C, SURGE = 46 V; 23 V<sub>DC</sub> AT +125 °C, SURGE = 28 V</b> |           |                         |                                     |                                       |  |
| 1.8  | B         | 150D185(1)035B(2)(3)(4) | 0.5                                 | 4                                     |  |
| 2.2  | B         | 150D225(1)035B(2)(3)(4) | 1.0                                 | 4                                     |  |
| 2.7  | B         | 150D275(1)035B(2)(3)(4) | 1.0                                 | 4                                     |  |
| 3.3  | B         | 150D335(1)035B(2)(3)(4) | 1.0                                 | 4                                     |  |
| 3.9  | B         | 150D395(1)035B(2)(3)(4) | 1.0                                 | 4                                     |  |
| 4.7  | B         | 150D475(1)035B(2)(3)(4) | 1.0                                 | 4                                     |  |
| 5.6  | B         | 150D565(1)035B(2)(3)(4) | 1.0                                 | 4                                     |  |
| 6.8  | B         | 150D685(1)035B(2)(3)(4) | 2.0                                 | 4                                     |  |
| 8.2  | R         | 150D825(1)035R(2)(3)(4) | 3.0                                 | 4                                     |  |
| 10   | R         | 150D106(1)035R(2)(3)(4) | 3.0                                 | 4                                     |  |
| 12   | R         | 150D126(1)035R(2)(3)(4) | 3.0                                 | 4                                     |  |
| 15   | R         | 150D156(1)035R(2)(3)(4) | 3.0                                 | 4                                     |  |
| 18   | R         | 150D186(1)035R(2)(3)(4) | 3.0                                 | 4                                     |  |
| 22   | R         | 150D226(1)035R(2)(3)(4) | 6.0                                 | 4                                     |  |
| 27   | S         | 150D276(1)035S(2)(3)(4) | 6.0                                 | 4                                     |  |
| 33   | S         | 150D336(1)035S(2)(3)(4) | 6.0                                 | 4                                     |  |
| 39   | S         | 150D396(1)035S(2)(3)(4) | 6.0                                 | 4                                     |  |
| 47   | S         | 150D476(1)035S(2)(3)(4) | 10.0                                | 4                                     |  |
| <b>50 V<sub>DC</sub> AT +85 °C, SURGE = 65 V; 33 V<sub>DC</sub> AT +125 °C, SURGE = 40 V</b> |           |                         |                                     |                                       |  |
| 0.056  | A         | 150D563(1)050A(2)(3)(4) | 0.1                                 | 2                                     |  |
| 0.068  | A         | 150D683(1)050A(2)(3)(4) | 0.1                                 | 2                                     |  |
| 0.082  | A         | 150D823(1)050A(2)(3)(4) | 0.1                                 | 2                                     |  |
| 0.10   | A         | 150D104(1)050A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.12   | A         | 150D124(1)050A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.15   | A         | 150D154(1)050A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.18   | A         | 150D184(1)050A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.22   | A         | 150D224(1)050A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.27   | A         | 150D274(1)050A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.33   | A         | 150D334(1)050A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.39   | A         | 150D394(1)050A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.47   | A         | 150D474(1)050A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.56   | A         | 150D564(1)050A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.68   | A         | 150D684(1)050A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.82   | A         | 150D824(1)050A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 1.0  | A         | 150D105(1)050A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 1.2  | B         | 150D125(1)050B(2)(3)(4) | 0.5                                 | 4                                     |  |
| 1.5  | B         | 150D155(1)050B(2)(3)(4) | 0.5                                 | 4                                     |  |
| 1.8  | B         | 150D185(1)050B(2)(3)(4) | 0.5                                 | 4                                     |  |
| 2.2  | B         | 150D225(1)050B(2)(3)(4) | 1.0                                 | 4                                     |  |
| 2.7  | B         | 150D275(1)050B(2)(3)(4) | 1.0                                 | 4                                     |  |
| 3.3  | B         | 150D335(1)050B(2)(3)(4) | 2.0                                 | 4                                     |  |
| 3.9  | B         | 150D395(1)050B(2)(3)(4) | 2.0                                 | 4                                     |  |

**Note**

- Part number definitions:
  - For 10 % tolerance specify "X9"; for 20 % specify "X0"; for 5 % "X5" (special order)
  - Style number: 0 = no sleeve, 2 = insulated sleeve
  - Packaging options: B = bulk, T = tape and reel, G = ammo pack
  - Termination: E3 = 100 % tin, blank = SnPb



| STANDARD RATINGS   |           |                         |                                     |                                       |  |
|--|-----------|-------------------------|-------------------------------------|---------------------------------------|--|
| CAPACITANCE<br>( $\mu$ F)  | CASE CODE | PART NUMBER             | MAX. DCL<br>AT +25 °C<br>( $\mu$ A) | MAX. DF<br>AT +25 °C<br>120 Hz<br>(%) |  |
| <b>50 V<sub>DC</sub> AT +85 °C, SURGE = 65 V; 33 V<sub>DC</sub> AT +125 °C, SURGE = 40 V</b> |           |                         |                                     |                                       |  |
| 4.7  | B         | 150D475(1)050B(2)(3)(4) | 3.0                                 | 4                                     |  |
| 5.6  | R         | 150D565(1)050R(2)(3)(4) | 3.0                                 | 4                                     |  |
| 6.8  | R         | 150D685(1)050R(2)(3)(4) | 3.0                                 | 4                                     |  |
| 8.2  | R         | 150D825(1)050R(2)(3)(4) | 3.0                                 | 4                                     |  |
| 10   | R         | 150D106(1)050R(2)(3)(4) | 3.0                                 | 4                                     |  |
| 12   | R         | 150D126(1)050R(2)(3)(4) | 3.0                                 | 4                                     |  |
| 15   | R         | 150D156(1)050R(2)(3)(4) | 6.0                                 | 4                                     |  |
| 18   | R         | 150D186(1)050R(2)(3)(4) | 6.0                                 | 4                                     |  |
| 22   | S         | 150D226(1)050S(2)(3)(4) | 6.0                                 | 4                                     |  |
| <b>60 V<sub>DC</sub> AT +85 °C, SURGE = 78 V; 40 V<sub>DC</sub> AT +125 °C, SURGE = 49 V</b> |           |                         |                                     |                                       |  |
| 0.10   | A         | 150D104(1)060A(2)(3)(4) | 0.5                                 | 4.0                                   |  |
| 0.12   | A         | 150D124(1)060A(2)(3)(4) | 0.5                                 | 4.0                                   |  |
| 0.15   | A         | 150D154(1)060A(2)(3)(4) | 0.5                                 | 4.0                                   |  |
| 0.18   | A         | 150D184(1)060A(2)(3)(4) | 0.5                                 | 4.0                                   |  |
| 0.22   | A         | 150D224(1)060A(2)(3)(4) | 0.5                                 | 4.0                                   |  |
| 0.27   | A         | 150D274(1)060A(2)(3)(4) | 0.5                                 | 4.0                                   |  |
| 0.33   | A         | 150D334(1)060A(2)(3)(4) | 0.5                                 | 4.0                                   |  |
| 0.39   | A         | 150D394(1)060A(2)(3)(4) | 0.5                                 | 4.0                                   |  |
| 0.47   | A         | 150D474(1)060A(2)(3)(4) | 0.5                                 | 4.0                                   |  |
| 0.56   | A         | 150D564(1)060A(2)(3)(4) | 0.5                                 | 4.0                                   |  |
| 0.68   | A         | 150D684(1)060A(2)(3)(4) | 0.5                                 | 4.0                                   |  |
| 1.0  | B         | 150D105(1)060B(2)(3)(4) | 0.5                                 | 4.0                                   |  |
| 2.2  | B         | 150D225(1)060B(2)(3)(4) | 1.0                                 | 4.0                                   |  |
| 4.7  | R         | 150D475(1)060R(2)(3)(4) | 3.0                                 | 6.0                                   |  |
| 5.6  | R         | 150D565(1)060R(2)(3)(4) | 3.0                                 | 6.0                                   |  |
| 6.8  | R         | 150D685(1)060R(2)(3)(4) | 4.0                                 | 6.0                                   |  |
| 8.2  | R         | 150D825(1)060R(2)(3)(4) | 5.0                                 | 6.0                                   |  |
| 10   | R         | 150D106(1)060R(2)(3)(4) | 6.0                                 | 6.0                                   |  |
| 12   | S         | 150D126(1)060S(2)(3)(4) | 6.0                                 | 6.0                                   |  |
| 15   | S         | 150D156(1)060S(2)(3)(4) | 9.0                                 | 6.0                                   |  |
| 18   | S         | 150D186(1)060S(2)(3)(4) | 10.0                                | 6.0                                   |  |
| 22   | S         | 150D226(1)060S(2)(3)(4) | 12.0                                | 6.0                                   |  |
| <b>75 V<sub>DC</sub> AT +85 °C, SURGE = 98 V; 50 V<sub>DC</sub> AT +125 °C, SURGE = 64 V</b> |           |                         |                                     |                                       |  |
| 0.033  | A         | 150D333(1)075A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.039  | A         | 150D393(1)075A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.047  | A         | 150D473(1)075A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.056  | A         | 150D563(1)075A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.068  | A         | 150D683(1)075A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.082  | A         | 150D823(1)075A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.10   | A         | 150D104(1)075A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.12   | A         | 150D124(1)075A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.15   | A         | 150D154(1)075A(2)(3)(4) | 0.5                                 | 2                                     |  |

**Note**

- Part number definitions:
  - For 10 % tolerance specify "X9"; for 20 % specify "X0"; for 5 % "X5" (special order)
  - Style number: 0 = no sleeve, 2 = insulated sleeve
  - Packaging options: B = bulk, T = tape and reel, G = ammo pack
  - Termination: E3 = 100 % tin, blank = SnPb





| STANDARD RATINGS   |           |                         |                                     |                                       |  |
|--|-----------|-------------------------|-------------------------------------|---------------------------------------|--|
| CAPACITANCE<br>( $\mu$ F)  | CASE CODE | PART NUMBER             | MAX. DCL<br>AT +25 °C<br>( $\mu$ A) | MAX. DF<br>AT +25 °C<br>120 Hz<br>(%) |  |
| <b>75 V<sub>DC</sub> AT +85 °C, SURGE = 98 V; 50 V<sub>DC</sub> AT +125 °C, SURGE = 64 V</b>   |           |                         |                                     |                                       |  |
| 0.18   | A         | 150D184(1)075A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.22   | A         | 150D224(1)075A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.27   | A         | 150D274(1)075A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.33   | A         | 150D334(1)075A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.39   | A         | 150D394(1)075A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.47   | A         | 150D474(1)075A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.56   | A         | 150D564(1)075A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.68   | A         | 150D684(1)075A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.82   | B         | 150D824(1)075B(2)(3)(4) | 0.5                                 | 2                                     |  |
| 1.0  | B         | 150D105(1)075B(2)(3)(4) | 0.5                                 | 2                                     |  |
| 1.2  | B         | 150D125(1)075B(2)(3)(4) | 0.5                                 | 4                                     |  |
| 1.5  | B         | 150D155(1)075B(2)(3)(4) | 1.0                                 | 4                                     |  |
| 1.8  | B         | 150D185(1)075B(2)(3)(4) | 1.0                                 | 4                                     |  |
| 2.2  | B         | 150D225(1)075B(2)(3)(4) | 1.0                                 | 4                                     |  |
| 2.7  | B         | 150D275(1)075B(2)(3)(4) | 1.0                                 | 4                                     |  |
| 3.3  | B         | 150D335(1)075B(2)(3)(4) | 2.0                                 | 4                                     |  |
| 3.9  | B         | 150D395(1)075B(2)(3)(4) | 2.0                                 | 4                                     |  |
| 4.7  | R         | 150D475(1)075R(2)(3)(4) | 4.0                                 | 4                                     |  |
| 5.6  | R         | 150D565(1)075R(2)(3)(4) | 4.0                                 | 4                                     |  |
| 6.8  | R         | 150D685(1)075R(2)(3)(4) | 6.0                                 | 4                                     |  |
| 8.2  | R         | 150D825(1)075R(2)(3)(4) | 6.0                                 | 4                                     |  |
| 10   | R         | 150D106(1)075R(2)(3)(4) | 8.0                                 | 4                                     |  |
| 12   | S         | 150D126(1)075S(2)(3)(4) | 10.0                                | 4                                     |  |
| 15   | S         | 150D156(1)075S(2)(3)(4) | 12.0                                | 4                                     |  |
| <b>100 V<sub>DC</sub> AT +85 °C, SURGE = 130 V; 67 V<sub>DC</sub> AT +125 °C, SURGE = 86 V</b> |           |                         |                                     |                                       |  |
| 0.033  | A         | 150D333(1)100A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.039  | A         | 150D393(1)100A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.047  | A         | 150D473(1)100A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.056  | A         | 150D563(1)100A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.068  | A         | 150D683(1)100A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.082  | A         | 150D823(1)100A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.10   | A         | 150D104(1)100A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.12   | A         | 150D124(1)100A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.15   | A         | 150D154(1)100A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.18   | A         | 150D184(1)100A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.22   | A         | 150D224(1)100A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.27   | A         | 150D274(1)100A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.33   | A         | 150D334(1)100A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.39   | A         | 150D394(1)100A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.47   | A         | 150D474(1)100A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.56   | A         | 150D564(1)100A(2)(3)(4) | 0.5                                 | 2                                     |  |
| 0.68   | B         | 150D684(1)100B(2)(3)(4) | 0.5                                 | 2                                     |  |

**Note**

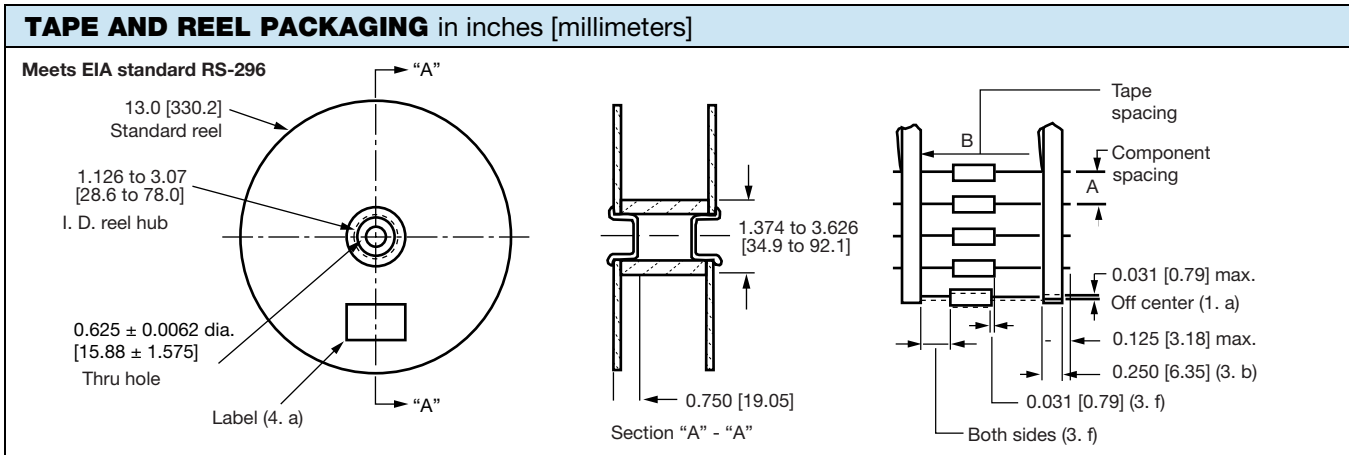
- Part number definitions:
  - (1) For 10 % tolerance specify "X9"; for 20 % specify "X0"; for 5 % "X5" (special order)
  - (2) Style number: 0 = no sleeve, 2 = insulated sleeve
  - (3) Packaging options: B = bulk, T = tape and reel, G = ammo pack
  - (4) Termination: E3 = 100 % tin, blank = SnPb



| STANDARD RATINGS   |           |                         |                                     |                                       |  |
|--|-----------|-------------------------|-------------------------------------|---------------------------------------|--|
| CAPACITANCE<br>( $\mu$ F)  | CASE CODE | PART NUMBER             | MAX. DCL<br>AT +25 °C<br>( $\mu$ A) | MAX. DF<br>AT +25 °C<br>120 Hz<br>(%) |  |
| <b>100 V<sub>DC</sub> AT +85 °C, SURGE = 130 V; 67 V<sub>DC</sub> AT +125 °C, SURGE = 86 V</b> |           |                         |                                     |                                       |  |
| 0.82   | B         | 150D824(1)100B(2)(3)(4) | 0.5                                 | 2                                     |  |
| 1.0  | B         | 150D105(1)100B(2)(3)(4) | 0.5                                 | 2                                     |  |
| 1.2  | B         | 150D125(1)100B(2)(3)(4) | 0.5                                 | 3                                     |  |
| 1.5  | B         | 150D155(1)100B(2)(3)(4) | 0.6                                 | 3                                     |  |
| 1.8  | B         | 150D185(1)100B(2)(3)(4) | 0.6                                 | 3                                     |  |
| 2.2  | B         | 150D225(1)100B(2)(3)(4) | 0.6                                 | 3                                     |  |
| 2.7  | B         | 150D275(1)100B(2)(3)(4) | 0.6                                 | 3                                     |  |
| 3.3  | R         | 150D335(1)100R(2)(3)(4) | 2.5                                 | 3                                     |  |
| 3.9  | R         | 150D395(1)100R(2)(3)(4) | 3.0                                 | 3                                     |  |
| 4.7  | R         | 150D475(1)100R(2)(3)(4) | 4.0                                 | 3                                     |  |
| 5.6  | R         | 150D565(1)100R(2)(3)(4) | 4.0                                 | 3                                     |  |
| 6.8  | R         | 150D685(1)100R(2)(3)(4) | 6.0                                 | 3                                     |  |
| 8.2  | S         | 150D825(1)100S(2)(3)(4) | 6.0                                 | 3                                     |  |
| 10   | S         | 150D106(1)100S(2)(3)(4) | 6.0                                 | 3                                     |  |
| <b>125 V<sub>DC</sub> AT +85 °C, SURGE = 140 V; 82 V<sub>DC</sub> AT +125 °C, SURGE = 94 V</b> |           |                         |                                     |                                       |  |
| 0.027  | A         | 150D273(1)125A(2)(3)(4) | 1.0                                 | 2                                     |  |
| 0.033  | A         | 150D333(1)125A(2)(3)(4) | 1.0                                 | 2                                     |  |
| 0.039  | A         | 150D393(1)125A(2)(3)(4) | 1.0                                 | 2                                     |  |
| 0.047  | A         | 150D473(1)125A(2)(3)(4) | 1.0                                 | 2                                     |  |
| 0.056  | A         | 150D563(1)125A(2)(3)(4) | 1.0                                 | 2                                     |  |
| 0.068  | A         | 150D683(1)125A(2)(3)(4) | 1.0                                 | 2                                     |  |
| 0.082  | A         | 150D823(1)125A(2)(3)(4) | 1.0                                 | 2                                     |  |
| 0.10   | A         | 150D104(1)125A(2)(3)(4) | 1.0                                 | 2                                     |  |
| 0.12   | A         | 150D124(1)125A(2)(3)(4) | 1.0                                 | 2                                     |  |
| 0.15   | A         | 150D154(1)125A(2)(3)(4) | 1.0                                 | 2                                     |  |
| 0.18   | A         | 150D184(1)125A(2)(3)(4) | 1.0                                 | 2                                     |  |
| 0.22   | A         | 150D224(1)125A(2)(3)(4) | 1.0                                 | 2                                     |  |
| 0.27   | A         | 150D274(1)125A(2)(3)(4) | 1.0                                 | 2                                     |  |
| 0.33   | A         | 150D334(1)125A(2)(3)(4) | 1.0                                 | 2                                     |  |
| 0.39   | A         | 150D394(1)125A(2)(3)(4) | 1.5                                 | 2                                     |  |
| 0.47   | A         | 150D474(1)125A(2)(3)(4) | 1.5                                 | 2                                     |  |
| 0.56   | B         | 150D564(1)125B(2)(3)(4) | 1.6                                 | 2                                     |  |
| 0.68   | B         | 150D684(1)125B(2)(3)(4) | 1.8                                 | 2                                     |  |
| 0.82   | B         | 150D824(1)125B(2)(3)(4) | 2.0                                 | 2                                     |  |
| 1.0  | B         | 150D105(1)125B(2)(3)(4) | 2.0                                 | 2                                     |  |
| 1.2  | B         | 150D125(1)125B(2)(3)(4) | 2.0                                 | 3                                     |  |
| 1.5  | B         | 150D155(1)125B(2)(3)(4) | 2.0                                 | 3                                     |  |
| 1.8  | B         | 150D185(1)125B(2)(3)(4) | 2.0                                 | 3                                     |  |
| 2.2  | B         | 150D225(1)125B(2)(3)(4) | 2.0                                 | 3                                     |  |

**Note**

- Part number definitions:
  - For 10 % tolerance specify "X9"; for 20 % specify "X0"; for 5 % "X5" (special order)
  - Style number: 0 = no sleeve, 2 = insulated sleeve
  - Packaging options: B = bulk, T = tape and reel, G = ammo pack
  - Termination: E3 = 100 % tin, blank = SnPb



| <b>STANDARD PACKAGING QUANTITY AND DIMENSIONS</b> in inches [millimeters] |                                 |                                 |                |                           |               |
|---|---------------------------------|---------------------------------|----------------|---------------------------|---------------|
| CASE CODE   | COMPONENT SPACING A             | TAPE AND REEL                   |                | AMMO PACK                 |               |
|   |                                 | TAPE SPACING B                  | UNITS PER REEL | TAPE SPACING B            | UNITS PER BOX |
| A   | 0.200 ± 0.015<br>[5.08 ± 0.38]  | 2.500 ± 0.062<br>[63.5 ± 1.57]  | 1000           | 2.063 ± 0.073<br>[53 ± 2] | 500           |
| B   | 0.200 ± 0.015<br>[5.08 ± 0.38]  | 2.500 ± 0.062<br>[63.5 ± 1.57]  | 1000           | 2.063 ± 0.073<br>[53 ± 2] | 500           |
| R   | 0.400 ± 0.015<br>[10.16 ± 0.38] | 2.875 ± 0.062<br>[73.03 ± 1.57] | 500            | 2.063 ± 0.073<br>[53 ± 2] | 250           |
| S   | 0.400 ± 0.015<br>[10.16 ± 0.38] | 2.875 ± 0.062<br>[73.03 ± 1.57] | 500            | 2.063 ± 0.073<br>[53 ± 2] | 250           |

### 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 lb or 60 lb. Kraft paper must be wound between layer of components as far as necessary for component protection. Width of paper to be 0.062" to 0.250" [1.57 mm to 6.35 mm] less than the "C" dimension of the reel. 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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