

Type TDL Solid Tantalum Capacitors

Dipped, Radial Leaded, Solid Tantalum Capacitors



The Type TDL, like the Type TDC, is a low cost alternative to molded solid tantalum capacitors, and is constructed in a tough, radial dipped flame retardant plastic case. It assures the user that it is a top performer with such attributes as low DCL, Low ESR, low impedance and a great value with low in-place cost. The 0.10" and 0.20" lead spacings of the TDL are what distinguishes it from the Type TDC.

Highlights

- ◆ Tough plastic case
- ◆ Low DCL
- ◆ Low ESR and impedance
- ◆ Low cost
- ◆ Temperature stable
- ◆ UL94VO flammability rating
- ◆ Resistant to shock and vibration

Specifications

Capacitance Range: 0.10 μ F to 330 μ F

Voltage Range: 6 WVdc to 50 WVdc at 85 °C

Tolerance: \pm 10%, \pm 20% (\pm 5% by Special Order)

Operating Temperature Range: -55 °C to +125 °C (with proper derating)

DC Leakage: +25 °C - See ratings limit
+85 °C - 10 x Ratings limit
+125 °C - 12.5 x Ratings limit

Capacitance Change Maximum: -10% @ -55 °C
+10% @ +85 °C
+12% @ +125 °C

Reverse Voltage (Non-continuous): 15% of rated voltage @ 25 °C
5% of rated voltage @ 85 °C
1% of rated voltage @ 125 °C

Reel Packaging:

| Case Code | Quantity Per Reel |
|-----------|-------------------|
| A | 1,500 |
| B | 1,500 |
| C | 1,500 |
| D | 1,000 |
| E | 1,000 |
| F | 1,000 |

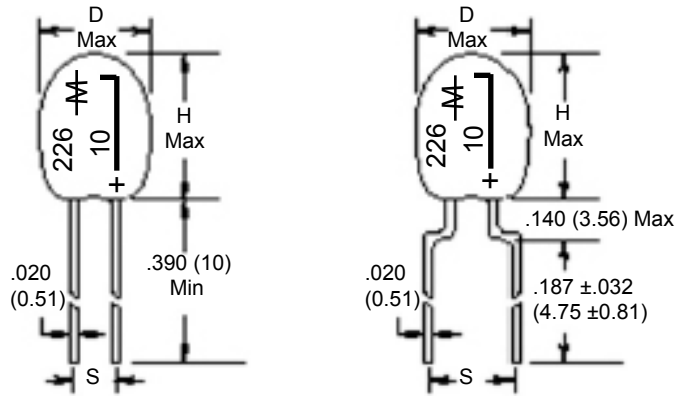
RoHS Compliant:



Complies with the EU Directive 2002/95/EC requirement restricting the use of Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr(VI)), PolyBrominated Biphenyls (PBB) and PolyBrominated Diphenyl Ethers (PBDE).

Type TDL Solid Tantalum Capacitors

Capacitor Outline Drawing



Lead Form Codes S1, M1

Lead Form Code M2

| Dimensions - Inches (Millimeters) | | | | | |
|-----------------------------------|--------------|--------------|------------------------|------|-------------------|
| Case Code | D (Max.) | H (Max.) | Leads | | Quantity Per Reel |
| | | | S | Code | |
| A | 0180 (4.57) | .280 (7.11) | .100 (2.54) (Standard) | S1 | 1,500 |
| | | | .200 (5.08) (Special) | M2 | |
| B | 200 (5.08) | .300 (7.62) | .100 (2.54) (Standard) | S1 | 1,500 |
| | | | .200 (5.08) (Special) | M2 | |
| C | .260 (6.60) | .360 (9.14) | .100 (2.54) (Standard) | S1 | 1,500 |
| | | | .200 (5.08) (Special) | M2 | |
| D | .340 (8.64) | .400 (10.16) | .100 (2.54) (Standard) | S1 | 1,000 |
| | | | .200 (5.08) (Special) | M2 | |
| E | .400 (10.16) | .560 (14.22) | .200 (5.08) (Standard) | M1 | 1,000 |
| F | .440 (11.18) | .680 (17.27) | .200 (5.08) (Standard) | M1 | 1,000 |

Listed Catalog Numbers reflect standard lead forms as indicated below.

M2 lead form and lead lengths of .500 (12.7) minimum are available by special order.

Ratings

| Cap (µF) | Catalog Part Number | Case Code | Lead Spacing (S) | Max. DCL @ +25°C (µA) | Max. DF @ +25°C 120 Hz (%) |
|---|---------------------|-----------|------------------|-----------------------|----------------------------|
| 6.3 WVdc; 8 Vdc Surge @ 85 °C 4 WVdc; 5 Vdc Surge @ 125 °C | | | | | |
| 3.3 | TDL335*006S1A | A | 0.1 | 0.5 | 5 |
| 3.9 | TDL395*006S1A | A | 0.1 | 0.5 | 5 |
| 4.7 | TDL475*006S1A | A | 0.1 | 0.5 | 5 |
| 5.6 | TDL565*006S1A | A | 0.1 | 0.5 | 5 |
| 6.8 | TDL685*006S1A | A | 0.1 | 0.5 | 5 |
| 8.2 | TDL825*006S1B | B | 0.1 | 0.5 | 6 |
| 10 | TDL106*006S1B | B | 0.1 | 0.5 | 6 |
| 12 | TDL126*006S1B | B | 0.1 | 0.6 | 6 |
| 15 | TDL156*006S1B | B | 0.1 | 0.7 | 6 |
| 18 | TDL186*006S1B | B | 0.1 | 0.9 | 6 |
| 22 | TDL226*006S1C | C | 0.1 | 1.1 | 6 |
| 27 | TDL276*006S1C | C | 0.1 | 1.3 | 6 |
| 33 | TDL336*006S1C | C | 0.1 | 1.6 | 6 |
| 39 | TDL396*006S1C | C | 0.1 | 1.9 | 6 |
| 47 | TDL476*006S1D | D | 0.1 | 2.3 | 6 |
| 56 | TDL566*006S1D | D | 0.1 | 2.7 | 6 |
| 68 | TDL686*006S1D | D | 0.1 | 3.3 | 6 |
| 82 | TDL826*006S1D | D | 0.1 | 3.9 | 8 |
| 100 | TDL107*006S1D | D | 0.1 | 4.8 | 8 |
| 120 | TDL127*006M1D | D | 0.2 | 5.8 | 8 |
| 150 | TDL157*006M1E | E | 0.2 | 7.2 | 8 |
| 180 | TDL187*006M1E | E | 0.2 | 8.6 | 8 |
| 220 | TDL227*006M1E | E | 0.2 | 10 | 8 |
| 270 | TDL277*006M1E | E | 0.2 | 10 | 8 |
| 330 | TDL337*006M1F | F | 0.2 | 10 | 8 |

| Cap (µF) | Catalog Part Number | Case Code | Lead Spacing (S) | Max. DCL @ +25°C (µA) | Max. DF @ +25°C 120 Hz (%) |
|---|---------------------|-----------|------------------|-----------------------|----------------------------|
| 10 WVdc; 13 Vdc Surge @ 85 °C 7 WVdc; 9 Vdc Surge @ 125 °C | | | | | |
| 2.2 | TDL225*010S1A | A | 0.1 | 0.5 | 5 |
| 2.7 | TDL275*010S1A | A | 0.1 | 0.5 | 5 |
| 3.3 | TDL335*010S1A | A | 0.1 | 0.5 | 5 |
| 3.9 | TDL395*010S1A | A | 0.1 | 0.5 | 5 |
| 4.7 | TDL475*010S1A | A | 0.1 | 0.5 | 5 |
| 5.6 | TDL565*010S1A | A | 0.1 | 0.5 | 5 |
| 6.8 | TDL685*010S1B | B | 0.1 | 0.5 | 5 |
| 8.2 | TDL825*010S1B | B | 0.1 | 0.7 | 6 |
| 10 | TDL106*010S1B | B | 0.1 | 0.8 | 6 |
| 12 | TDL126*010S1C | C | 0.1 | 1.0 | 6 |
| 15 | TDL156*010S1C | C | 0.1 | 1.2 | 6 |
| 18 | TDL186*010S1C | C | 0.1 | 1.4 | 6 |
| 22 | TDL226*010S1C | C | 0.1 | 1.8 | 6 |
| 27 | TDL276*010S1C | C | 0.1 | 2.2 | 6 |
| 33 | TDL336*010S1D | D | 0.1 | 2.6 | 6 |
| 39 | TDL396*010S1D | D | 0.1 | 3.1 | 6 |
| 47 | TDL476*010S1D | D | 0.1 | 3.8 | 6 |
| 56 | TDL566*010S1D | D | 0.1 | 4.5 | 6 |
| 68 | TDL686*010S1D | D | 0.1 | 5.4 | 6 |
| 82 | TDL826*010M1E | E | 0.2 | 6.6 | 8 |
| 100 | TDL107*010M1E | E | 0.2 | 8.0 | 8 |
| 120 | TDL127*010M1E | E | 0.2 | 9.6 | 8 |
| 150 | TDL157*010M1E | E | 0.2 | 10.0 | 8 |
| 180 | TDL187*010M1E | E | 0.2 | 10.0 | 8 |
| 220 | TDL227*010M1F | F | 0.2 | 10.0 | 8 |

* Indicates capacitance tolerance: K = ±10%, M = ±20%, (J = ±5%, Special Order)

CDE reserves the right to substitute a tighter tolerance, higher voltage capacitor within the same case size.

Type TDL Solid Tantalum Capacitors

Ratings

| Cap (μ F) | Catalog Part Number | Case Code | Lead Spacing (S) | Max. DCL @ +25°C (μ A) | Max. DF @ +25°C 120 Hz (%) |
|---------------------------------------|------------------------|--------------|------------------------|--------------------------------------|-------------------------------------|
| 16 WVdc; 20 Vdc Surge @ 85 °C | | | | | |
| 10 WVdc; 12 Vdc Surge @ 125 °C | | | | | |
| 1.5 | TDL155*016S1A | A | 0.1 | 0.5 | 5 |
| 1.8 | TDL185*016S1A | A | 0.1 | 0.5 | 5 |
| 2.2 | TDL225*016S1A | A | 0.1 | 0.5 | 5 |
| 2.7 | TDL275*016S1A | A | 0.1 | 0.5 | 5 |
| 3.3 | TDL335*016S1A | A | 0.1 | 0.5 | 5 |
| 3.9 | TDL395*016S1B | B | 0.1 | 0.5 | 5 |
| 4.7 | TDL475*016S1B | B | 0.1 | 0.6 | 5 |
| 5.6 | TDL565*016S1B | B | 0.1 | 0.7 | 5 |
| 6.8 | TDL685*016S1B | B | 0.1 | 0.9 | 5 |
| 8.2 | TDL825*016S1C | C | 0.1 | 1.0 | 6 |
| 10 | TDL106*016S1C | C | 0.1 | 1.3 | 6 |
| 12 | TDL126*016S1C | C | 0.1 | 1.5 | 6 |
| 15 | TDL156*016S1C | C | 0.1 | 1.8 | 6 |
| 18 | TDL186*016S1C | C | 0.1 | 2.2 | 6 |
| 22 | TDL226*016S1D | D | 0.1 | 2.6 | 6 |
| 27 | TDL276*016S1D | D | 0.1 | 3.2 | 6 |
| 33 | TDL336*016S1D | D | 0.1 | 4.0 | 6 |
| 39 | TDL396*016M1E | E | 0.2 | 4.7 | 6 |
| 47 | TDL476*016M1E | E | 0.2 | 5.6 | 6 |
| 56 | TDL566*016M1E | E | 0.2 | 6.8 | 6 |
| 68 | TDL686*016M1E | E | 0.2 | 8.2 | 6 |
| 82 | TDL826*016M1E | E | 0.2 | 9.8 | 8 |
| 100 | TDL107*016M1F | F | 0.2 | 10 | 8 |
| 120 | TDL127*016M1F | F | 0.2 | 10 | 8 |
| 150 | TDL157*016M1F | F | 0.2 | 10 | 8 |
| 20 WVdc; 26 Vdc Surge @ 85 °C | | | | | |
| 13 WVdc; 16 Vdc Surge @ 125 °C | | | | | |
| 1.5 | TDL155*020S1A | A | 0.1 | 0.5 | 5 |
| 1.8 | TDL185*020S1A | A | 0.1 | 0.5 | 5 |
| 2.2 | TDL225*020S1A | A | 0.1 | 0.5 | 5 |
| 2.7 | TDL275*020S1A | A | 0.1 | 0.5 | 5 |
| 3.3 | TDL335*020S1A | A | 0.1 | 0.5 | 5 |
| 3.9 | TDL395*020S1B | B | 0.1 | 0.6 | 5 |
| 4.7 | TDL475*020S1B | B | 0.1 | 0.8 | 5 |
| 5.6 | TDL565*020S1B | B | 0.1 | 0.9 | 5 |
| 6.8 | TDL685*020S1B | B | 0.1 | 1.1 | 5 |
| 8.2 | TDL825*020S1B | B | 0.1 | 1.3 | 6 |

| Cap (μ F) | Catalog Part Number | Case Code | Lead Spacing (S) | Max. DCL @ +25°C (μ A) | Max. DF @ +25°C 120 Hz (%) |
|---|------------------------|--------------|------------------------|--------------------------------------|-------------------------------------|
| 20 WVdc; 26 Vdc Surge @ 85 °C | | | | | |
| 13 WVdc; 16 Vdc Surge @ 125 °C | | | | | |
| 1.5 | TDL155*020S1A | A | 0.1 | 0.5 | 5 |
| 1.8 | TDL185*020S1A | A | 0.1 | 0.5 | 5 |
| 2.2 | TDL225*020S1A | A | 0.1 | 0.5 | 5 |
| 2.7 | TDL275*020S1A | A | 0.1 | 0.5 | 5 |
| 3.3 | TDL335*020S1A | A | 0.1 | 0.5 | 5 |
| 3.9 | TDL395*020S1B | B | 0.1 | 0.6 | 5 |
| 4.7 | TDL475*020S1B | B | 0.1 | 0.8 | 5 |
| 5.6 | TDL565*020S1B | B | 0.1 | 0.9 | 5 |
| 6.8 | TDL685*020S1B | B | 0.1 | 1.1 | 5 |
| 8.2 | TDL825*020S1B | B | 0.1 | 1.3 | 6 |
| 10 | TDL106*020S1C | C | 0.1 | 1.6 | 6 |
| 12 | TDL126*020S1C | C | 0.1 | 1.9 | 6 |
| 15 | TDL156*020S1C | C | 0.1 | 2.4 | 6 |
| 18 | TDL186*020S1C | C | 0.1 | 2.9 | 6 |
| 22 | TDL226*020S1C | C | 0.1 | 3.5 | 6 |
| 27 | TDL276*020M1E | E | 0.2 | 4.3 | 6 |
| 33 | TDL336*020M1E | E | 0.2 | 5.3 | 6 |
| 39 | TDL396*020M1E | E | 0.2 | 6.2 | 6 |
| 47 | TDL476*020M1E | E | 0.2 | 7.5 | 6 |
| 56 | TDL566*020M1E | E | 0.2 | 9 | 6 |
| 68 | TDL686*020M1E | E | 0.2 | 10 | 6 |
| 82 | TDL826*020M1F | F | 0.2 | 10 | 8 |
| 100 | TDL107*020M1F | F | 0.2 | 10 | 8 |
| 25 WVdc; 32 Vdc Surge @ 85 °C | | | | | |
| 16.5 WVdc; 21.5 Vdc Surge @ 125 °C | | | | | |
| 1.0 | TDL105*025S1A | A | 0.1 | 0.5 | 3 |
| 1.2 | TDL125*025S1A | A | 0.1 | 0.5 | 5 |
| 1.5 | TDL155*025S1A | A | 0.1 | 0.5 | 5 |
| 1.8 | TDL185*025S1A | A | 0.1 | 0.5 | 5 |
| 2.2 | TDL225*025S1B | B | 0.1 | 0.5 | 5 |
| 2.7 | TDL275*025S1B | B | 0.1 | 0.5 | 5 |
| 3.3 | TDL335*025S1B | B | 0.1 | 0.7 | 5 |
| 3.9 | TDL395*025S1B | B | 0.1 | 0.8 | 5 |
| 4.7 | TDL475*025S1C | C | 0.1 | 0.9 | 5 |
| 5.6 | TDL565*025S1C | C | 0.1 | 1.1 | 5 |
| 6.8 | TDL685*025S1C | C | 0.1 | 1.4 | 5 |
| 8.2 | TDL825*025S1C | C | 0.1 | 1.6 | 6 |

* Indicates capacitance tolerance: K = $\pm 10\%$, M = $\pm 20\%$, (J = $\pm 5\%$, Special Order)

CDE reserves the right to substitute a tighter tolerance, higher voltage capacitor within the same case size.

Type TDL Solid Tantalum Capacitors

Ratings

| Cap (μ F) | Catalog Part Number | Case Code | Lead Spacing (S) | Max. DCL @ +25°C (μ A) | Max. DF @ +25°C 120 Hz (%) |
|---|------------------------|--------------|------------------------|--------------------------------------|-------------------------------------|
| 25 WVdc; 32 Vdc Surge @ 85 °C | | | | | |
| 16.5 WVdc; 21.5 Vdc Surge @ 125 °C | | | | | |
| 10 | TDL106*025S1C | C | 0.1 | 2.0 | 6 |
| 12 | TDL126*025S1C | C | 0.1 | 2.4 | 6 |
| 15 | TDL156*025S1D | D | 0.1 | 3.0 | 6 |
| 18 | TDL186*025S1D | D | 0.1 | 3.6 | 6 |
| 22 | TDL226*025S1D | D | 0.1 | 4.4 | 6 |
| 27 | TDL276*025M1E | E | 0.2 | 5.4 | 6 |
| 33 | TDL336*025M1E | E | 0.2 | 6.6 | 6 |
| 39 | TDL396*025M1E | E | 0.2 | 7.8 | 6 |
| 47 | TDL476*025M1E | E | 0.2 | 9.4 | 6 |
| 56 | TDL566*025M1E | E | 0.2 | 10.0 | 6 |
| 68 | TDL686*025M1E | F | 0.2 | 10.0 | 6 |
| 35 WVdc; 46 Vdc Surge @ 85 °C | | | | | |
| 23 WVdc; 28 Vdc Surge @ 125 °C | | | | | |
| .10 | TDL104*035S1A | A | 0.1 | 0.5 | 3 |
| .12 | TDL124*035S1A | A | 0.1 | 0.5 | 3 |
| .15 | TDL154*035S1A | A | 0.1 | 0.5 | 3 |
| .18 | TDL184*035S1A | A | 0.1 | 0.5 | 3 |
| .22 | TDL224*035S1A | A | 0.1 | 0.5 | 3 |
| .27 | TDL274*035S1A | A | 0.1 | 0.5 | 3 |
| .33 | TDL334*035S1A | A | 0.1 | 0.5 | 3 |
| .39 | TDL394*035S1A | A | 0.1 | 0.5 | 3 |
| .47 | TDL474*035S1A | A | 0.1 | 0.5 | 3 |
| .56 | TDL564*035S1A | A | 0.1 | 0.5 | 3 |
| .68 | TDL684*035S1A | A | 0.1 | 0.5 | 3 |
| .82 | TDL824*035S1A | A | 0.1 | 0.5 | 3 |
| 1.0 | TDL105*035S1B | B | 0.1 | 0.5 | 3 |
| 1.2 | TDL125*035S1B | B | 0.1 | 0.5 | 5 |
| 1.5 | TDL155*035S1B | B | 0.1 | 0.5 | 5 |
| 1.8 | TDL185*035S1B | B | 0.1 | 0.5 | 5 |
| 2.2 | TDL225*035S1C | C | 0.1 | 0.6 | 5 |
| 2.7 | TDL275*035S1C | C | 0.1 | 0.7 | 5 |
| 3.3 | TDL335*035S1C | C | 0.1 | 0.9 | 5 |
| 3.9 | TDL395*035S1C | C | 0.1 | 1.0 | 5 |
| 4.7 | TDL475*035S1D | D | 0.1 | 1.3 | 5 |
| 5.6 | TDL565*035S1D | D | 0.1 | 1.6 | 5 |
| 6.8 | TDL685*035S1D | D | 0.1 | 1.9 | 5 |
| 8.2 | TDL825*035S1D | D | 0.1 | 2.3 | 6 |
| 10 | TDL106*035S1D | D | 0.1 | 2.8 | 6 |
| 12 | TDL126*035M1E | E | 0.2 | 3.4 | 6 |
| 15 | TDL156*035M1E | E | 0.2 | 4.2 | 6 |

| Cap (μ F) | Catalog Part Number | Case Code | Lead Spacing (S) | Max. DCL @ +25°C (μ A) | Max. DF @ +25°C 120 Hz (%) |
|---------------------------------------|------------------------|--------------|------------------------|--------------------------------------|-------------------------------------|
| 35 WVdc; 46 Vdc Surge @ 85 °C | | | | | |
| 23 WVdc; 28 Vdc Surge @ 125 °C | | | | | |
| 18 | TDL186*035M1E | E | 0.2 | 5.0 | 6 |
| 22 | TDL226*035M1E | E | 0.2 | 6.2 | 6 |
| 27 | TDL276*035M1E | E | 0.2 | 7.6 | 6 |
| 33 | TDL336*035M1F | F | 0.2 | 9.2 | 6 |
| 39 | TDL396*035M1F | F | 0.2 | 10.0 | 6 |
| 47 | TDL476*035M1F | F | 0.2 | 10.0 | 6 |
| 50 WVdc; 65 Vdc Surge @ 85 °C | | | | | |
| 33 WVdc; 40 Vdc Surge @ 125 °C | | | | | |
| .10 | TDL104*050S1A | A | 0.1 | 0.5 | 3 |
| .12 | TDL124*050S1A | A | 0.1 | 0.5 | 3 |
| .15 | TDL154*050S1A | A | 0.1 | 0.5 | 3 |
| .18 | TDL184*050S1A | A | 0.1 | 0.5 | 3 |
| .22 | TDL224*050S1A | A | 0.1 | 0.5 | 3 |
| .27 | TDL274*050S1A | A | 0.1 | 0.5 | 3 |
| .33 | TDL334*050S1A | A | 0.1 | 0.5 | 3 |
| .39 | TDL394*050S1A | A | 0.1 | 0.5 | 3 |
| .47 | TDL474*050S1B | B | 0.1 | 0.5 | 3 |
| .56 | TDL564*050S1B | B | 0.1 | 0.5 | 3 |
| .68 | TDL684*050S1B | B | 0.1 | 0.5 | 3 |
| .82 | TDL824*050S1B | B | 0.1 | 0.5 | 3 |
| 1.0 | TDL105*050S1C | C | 0.1 | 0.5 | 3 |
| 1.2 | TDL125*050S1C | C | 0.1 | 0.5 | 5 |
| 1.5 | TDL155*050S1C | C | 0.1 | 0.6 | 5 |
| 1.8 | TDL185*050S1C | C | 0.1 | 0.7 | 5 |
| 2.2 | TDL225*050S1D | D | 0.1 | 0.9 | 5 |
| 2.7 | TDL275*050S1D | D | 0.1 | 1.1 | 5 |
| 3.3 | TDL335*050S1D | D | 0.1 | 1.3 | 5 |
| 3.9 | TDL395*050S1D | D | 0.1 | 1.6 | 5 |
| 4.7 | TDL475*050S1D | D | 0.1 | 1.9 | 5 |
| 5.6 | TDL565*050S1D | D | 0.1 | 2.2 | 5 |
| 6.8 | TDL685*050M1F | F | 0.2 | 2.7 | 5 |
| 8.2 | TDL825*050M1F | F | 0.2 | 3.3 | 6 |
| 10 | TDL106*050M1F | F | 0.2 | 4.0 | 6 |
| 12 | TDL126*050M1F | F | 0.2 | 4.8 | 6 |
| 15 | TDL156*050M1F | F | 0.2 | 6.0 | 6 |
| 18 | TDL186*050M1F | F | 0.2 | 7.2 | 6 |
| 22 | TDL226*050M1F | F | 0.2 | 8.8 | 6 |

* Indicates capacitance tolerance: K = $\pm 10\%$, M = $\pm 20\%$, (J = $\pm 5\%$, Special Order)

Type TDL Solid Tantalum Capacitors

Part Numbering System

| TDL | 106 | M | 050 | M | 1 | F | -F |
|--------|--------------------|---------------|---------------|--------------------|---------------------------|-----------|--------------------------|
| Series | Capacitance | Tolerance | Voltage | Lead Spacing | Lead Length | Case Code | RoHS Compliant |
| TDL | 104 = 0.10 μ F | J = \pm 5% | 006 = 6.3 Vdc | S = .100 | 1 = Straight .390 Long | A | Compliant |
| | 105 = 1.0 μ F | K = \pm 10% | 010 = 10 Vdc | M = .200 | | B | |
| | 225 = 2.2 μ F | M = \pm 20% | 015 = 15 dc | T = Tape & Reel | 2 = Straight .187 Long | C | Blank = Not Compliant |
| | 186 = 18 μ F | | 020 = 20 Vdc | | | D | |
| | 107 = 100 μ F | | 025 = 25 Vdc | | | E | |
| | | | 035 = 35 Vdc | | | F | |
| | | | 050 = 50 Vdc | | | | |

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