TLN PulseCap™ Series
High Capacitance Tantalum Solid Electrolytic Chip Capacitors
Undertab Series

FEATURES
- Large case size for maximum capacitance
- 3x reflow 260°C compatible
- Low profile solution
- Consumer applications (e.g. PCMCIA/USB wireless express cards etc.)
- CV range: 1000-3300μF / 4-10V
- 2 case sizes available

APPLICATIONS
- Data transfer modems
- SSD backup circuits

CASE DIMENSIONS: millimeters (inches)

<table>
<thead>
<tr>
<th>Code</th>
<th>EIA Code</th>
<th>EIA Metric</th>
<th>L±0.20 (0.008)</th>
<th>W+0.20 (0.008) -0.10 (0.004)</th>
<th>H max.</th>
<th>W±0.10 (0.004)</th>
<th>W±0.10 (0.004)</th>
<th>A±0.10 (0.004)</th>
<th>A±0.10 (0.004)</th>
<th>S Min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>2924</td>
<td>7361-20</td>
<td>7.30 (0.287)</td>
<td>6.10 (0.240)</td>
<td>2.00 (0.079)</td>
<td>4.75 (0.187)</td>
<td>4.75 (0.187)</td>
<td>2.00 (0.079)</td>
<td>3.20 (0.126)</td>
<td>2.10 (0.083)</td>
</tr>
<tr>
<td>6</td>
<td>5831</td>
<td>14878-20</td>
<td>14.80 (0.583)</td>
<td>7.80 (0.307)</td>
<td>2.00 (0.079)</td>
<td>5.50 (0.217)</td>
<td>5.50 (0.217)</td>
<td>2.45 (0.096)</td>
<td>2.45 (0.096)</td>
<td>9.90 (0.390)</td>
</tr>
</tbody>
</table>

MARKING

4, 6 CASE

HOW TO ORDER

TLN 6 228 M 006 R 0055

TECHNICAL SPECIFICATIONS

Technical Data:
All technical data relate to an ambient temperature of +25°C

Capacitance Range: 1000 μF to 3300 μF
Capacitance Tolerance: ±20%
Leakage Current DCL: 0.01CV
Rated Voltage (Vr): -55°C ≤ +40°C: 4 6.3 10
Category Voltage (Vc) at 85°C: 2 3.2 5
Category Voltage (Vc) at 125°C: 0.8 1.3 2
Temperature Range: -55°C to +125°C with category voltage
Reliability: 0.2% per 1000 hours at 85°C, 0.5xVr with 0.1Ω/V series impedance with 60% confidence level
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CAPACITANCE AND RATED VOLTAGE RANGE
(FIGURE DENOTES CASE SIZE)

<table>
<thead>
<tr>
<th>Capacitance (μF)</th>
<th>Code</th>
<th>Voltage Rating DC (V) to 85°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>680</td>
<td>687</td>
<td>4V (G)</td>
</tr>
<tr>
<td>1000</td>
<td>108</td>
<td>6.3V (J)</td>
</tr>
<tr>
<td>1500</td>
<td>158</td>
<td>4(100)/6(55)</td>
</tr>
<tr>
<td>2200</td>
<td>228</td>
<td>6(55)</td>
</tr>
<tr>
<td>3300</td>
<td>338</td>
<td>6(55)</td>
</tr>
</tbody>
</table>

Released ratings (ESR ratings in mOhms in parentheses)
Note: Voltage ratings are minimum values. AVX reserves the right to supply
higher voltage ratings in the same case size, to the same reliability standards.

RATINGS & PART NUMBER REFERENCE

<table>
<thead>
<tr>
<th>AVX Part No.</th>
<th>Case Size</th>
<th>Capacitance (μF)</th>
<th>Rated Voltage (V)</th>
<th>Rated Temperature (°C)</th>
<th>Category Voltage (V)</th>
<th>Category Temperature (°C)</th>
<th>DCL Max. (μA)</th>
<th>ESR Max @ 100kHz (mΩ)</th>
<th>100kHz RMS Current (mA)</th>
<th>25ºC</th>
<th>85ºC</th>
<th>125ºC</th>
<th>MSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLN6338M004#0055</td>
<td>6</td>
<td>3300</td>
<td>4</td>
<td>40</td>
<td>0.8</td>
<td>125</td>
<td>132</td>
<td>55</td>
<td>2045</td>
<td>1840</td>
<td>818</td>
<td>3</td>
<td></td>
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<tr>
<td>TLN4158M006#0100</td>
<td>4</td>
<td>1500</td>
<td>6.3</td>
<td>40</td>
<td>1.3</td>
<td>125</td>
<td>90</td>
<td>100</td>
<td>1285</td>
<td>1156</td>
<td>514</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>TLN6228M006#0055</td>
<td>6</td>
<td>2200</td>
<td>6.3</td>
<td>40</td>
<td>1.3</td>
<td>125</td>
<td>132</td>
<td>55</td>
<td>2045</td>
<td>1840</td>
<td>818</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>TLN4108M010#0100</td>
<td>4</td>
<td>1000</td>
<td>10</td>
<td>40</td>
<td>2</td>
<td>125</td>
<td>100</td>
<td>100</td>
<td>1285</td>
<td>1156</td>
<td>514</td>
<td>3</td>
<td></td>
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<td>1000</td>
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<td>40</td>
<td>2</td>
<td>125</td>
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<td>1500</td>
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<td>55</td>
<td>2045</td>
<td>1840</td>
<td>818</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.
All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts.
DCL is measured at rated voltage after 5 minutes.
ESR allowed to move up to 1.25 times catalogue limit post mounting
DCL allowed to move up to 2.00 times catalogue limit post mounting
For typical weight and composition see page 274.

NOTE: AVX reserves the right to supply higher voltage ratings or tighter tolerance part in the same case size, to the same reliability standards.
# TLN PulseCap™ Series

**High Capacitance Tantalum Solid Electrolytic Chip Capacitors**

**Undertab Series**

## QUALIFICATION TABLE

<table>
<thead>
<tr>
<th>TEST</th>
<th>TLN PulseCap™ series (Temperature range -55°C to +125°C)</th>
<th>Characteristics</th>
</tr>
</thead>
</table>
| **Endurance** | Apply rated voltage (Ur) at 40°C and / or category voltage (Uc) at 85°C for 2000 hours through a circuit impedance of ≤0.10Ω/V. Stabilize at room temperature for 1-2 hours before measuring. | Visual examination no visible damage  
DCL 2 x initial limit  
ΔC/C within ±5/-30% of initial value  
ESR 1.25 x initial limit |
| **Humidity**  | Store at 65°C and 90-95% relative humidity for 500 hours, with no applied voltage. Stabilize at room temperature and humidity for 1-2 hours before measuring. | Visual examination no visible damage  
DCL 2 x initial limit  
ΔC/C within ±10% of initial value  
ESR 1.25 x initial limit |
| **Temperature Stability** |  
| Step | Temperature°C | Duration(min) | +20°C | -55°C | +20°C | +85°C | +125°C | +20°C |  
| 1    | +20           | 15            |       |       |       |       |       |       |  
| 2    | -55           | 15            |       |       |       |       |       |       |  
| 3    | +20           | 15            |       |       |       |       |       |       |  
| 4    | +85           | 15            |       |       |       |       |       |       |  
| 5    | +125          | 15            |       |       |       |       |       |       |  
| 6    | +20           | 15            |       |       |       |       |       |       |  
| **Surge Voltage** |  
| Step | Temperature°C | Duration(min) | DCL 2 x IL* n/a 2 x IL* 20 x IL* 25 x IL* 2 x IL*  
ΔC/C n/a +5/-20% ±10% +20/-0% +25/-0% ±10%  
ESR 1.25 x IL* 2.5 x IL* 1.25 x IL* 1.25 x IL* 1.25 x IL*  
| **Mechanical Shock** | MIL-STD-202, Method 213, Condition C  
| Step | Temperature°C | Duration(min) | DCL initial limit  
ΔC/C within ±5% of initial value  
DF initial limit  
ESR initial limit  
| **Vibration** | MIL-STD-202, Method 204, Condition D  
| Step | Temperature°C | Duration(min) | DCL initial limit  
ΔC/C within ±5% of initial value  
DF initial limit  
ESR initial limit  

*Initial Limit

## Voltage vs Temperature Rating

![Voltage vs Temperature Rating Graph](image-url)

- Rated range
- Recommended derating
TLN PulseCap™ Series
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AVX SOLID ELECTROLYTIC CAPACITOR ROADMAP

**CONDUCTIVE POLYMER**
- **TC Series**
  - T_{Cx}
- **F Series**
  - F_{3x}

**CONVENTIONAL TANTALUM**
- **T series**
  - T_{xx}
- **F Series**
  - F_{xx}

**NIOBIUM OXIDE**
- **N Series**
  - N_{xx}

**CATHODE**
- conductive polymer
- MnO_{2}

**DIELECTRIC**
- Ta_{2}O_{5}
- Ta_{2}O_{5}

**ANODE**
- Tantalum
- Tantalum
- Nb_{2}O_{5}

**Niobium Oxide**

Five Capacitor Construction Styles

<table>
<thead>
<tr>
<th>J-lead</th>
<th>Undertab</th>
<th>TACmicrochip®</th>
<th>Conformal</th>
<th>Hermetic</th>
</tr>
</thead>
</table>

SERIES LINE UP: CONVENTIONAL SMD MnO_{2}

- **Industrial & Automotive**
  - **THJ** 200°C
  - **TMJ** professional (low DCL)
  - **THH** 230°C Hermetic
  - **TRJ** professional
  - **TRM** low DCL multilayer
  - **F91-AJ6** auto
  - **F97-HT3** 135°C auto
  - **F9H** 150°C auto
  - **F93-AJ6** auto
  - **F93-BE** Low DCL

- **Standard**
  - **TAJ** auto +T/+U
  - **TPS** auto +T/+U
  - **TPM** multilayer
  - **F91**
  - **F93**

- **Standard Low Profile**
  - **TAJ** Low profile
  - **TAC** microchip
  - **TPC** microchip
  - **Low ESR**
  - **F92**
  - **F98-AS1 undertab fused**
  - **F98 undertab**

- **High CV**
  - **TLN undertab**
  - **TLJ**
  - **TLC** microchip
  - **F98 undertab**