F9H Series
High Temperature 150ºC, Improved Reliability J-Lead

FEATURES
• Compliant to the RoHS2 directive 2011/65/EU
• Compliant to AEC-Q200
• Improved reliability - FR=0.5%/1000hrs
• SMD J-lead

APPLICATIONS
• Automotive electronics (Engine ECU, Transmission ECU, ISG, Head lamp)
• Industrial equipment

CASE DIMENSIONS: millimeters (inches)

<table>
<thead>
<tr>
<th>Code</th>
<th>EIA Code</th>
<th>EIA Metric</th>
<th>L</th>
<th>W1</th>
<th>W2</th>
<th>H</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1206</td>
<td>3216-18</td>
<td>3.20 ± 0.20</td>
<td>1.60 ± 0.20</td>
<td>1.20 ± 0.10</td>
<td>1.60 ± 0.20</td>
<td>0.80 ± 0.20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.126 ± 0.008)</td>
<td>(0.063 ± 0.008)</td>
<td>(0.047 ± 0.004)</td>
<td>(0.063 ± 0.008)</td>
<td>(0.031 ± 0.008)</td>
</tr>
<tr>
<td>B</td>
<td>1210</td>
<td>3528-21</td>
<td>3.50 ± 0.20</td>
<td>2.80 ± 0.20</td>
<td>2.20 ± 0.10</td>
<td>1.90 ± 0.20</td>
<td>0.80 ± 0.20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.138 ± 0.008)</td>
<td>(0.110 ± 0.008)</td>
<td>(0.087 ± 0.004)</td>
<td>(0.075 ± 0.008)</td>
<td>(0.031 ± 0.008)</td>
</tr>
<tr>
<td>C</td>
<td>2312</td>
<td>6032-27</td>
<td>6.00 ± 0.20</td>
<td>3.20 ± 0.20</td>
<td>2.20 ± 0.10</td>
<td>2.50 ± 0.20</td>
<td>1.30 ± 0.20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.236 ± 0.008)</td>
<td>(0.126 ± 0.008)</td>
<td>(0.087 ± 0.004)</td>
<td>(0.098 ± 0.008)</td>
<td>(0.051 ± 0.008)</td>
</tr>
</tbody>
</table>

A, B CASE
C CASE

HOW TO ORDER

F9H 1C 106 M A
Type Rated Voltage Capacitance Code Tolerance Case Size Packaging

MARKING

A CASE
B CASE
C CASE

TECHNICAL SPECIFICATIONS
Category Temperature Range: -55 to +150°C
Rated Temperature: +105°C
Capacitance Tolerance: ±20%, ±10% at 120Hz
Dissipation Factor: Refer to next page
ESR 100kHz: Refer to next page
Leakage Current: After 1 minute’s application of rated voltage, leakage current at 20°C is not more than 0.01CV or 0.5μA, whichever is greater.
After 1 minute’s application of rated voltage, leakage current at 105°C is not more than 0.1CV or 5μA, whichever is greater.
After 1 minute’s application of derated voltage, leakage current at 150°C is not more than 0.125CV or 6.3μA, whichever is greater.
Capacitance Change By Temperature +15% Max. at +150°C
+10% Max. at +105°C
-10% Max. at -55°C
# F9H Series

## High Temperature 150°C, Improved Reliability J-Lead

### CAPACITANCE AND RATED VOLTAGE RANGE

<table>
<thead>
<tr>
<th>Capacitance (μF)</th>
<th>Code</th>
<th>10V (1A)</th>
<th>16V (1C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>106</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>156</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>226</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>336</td>
<td></td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>476</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>

Released ratings
Please contact to your local AVX sales office when these series are being designed in your application.

### 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>Leakage Current (μA) @ 120Hz (% DF)</th>
<th>ESR @ 100kHz (Ω)</th>
<th>100kHz RMS Current (mA)</th>
<th>25°C</th>
<th>105°C</th>
<th>150°C</th>
<th>*1</th>
<th>MSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>F9HTA156#AA</td>
<td>A</td>
<td>15</td>
<td>10</td>
<td>1.5</td>
<td>8</td>
<td>1.1</td>
<td>316</td>
<td>285</td>
<td>126</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>F9HTC106#BA</td>
<td>B</td>
<td>10</td>
<td>16</td>
<td>1.6</td>
<td>3.5</td>
<td>1.9</td>
<td>212</td>
<td>190</td>
<td>85</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>F9HTC226#BA</td>
<td>B</td>
<td>22</td>
<td>16</td>
<td>3.5</td>
<td>8</td>
<td>3.5</td>
<td>146</td>
<td>132</td>
<td>59</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>F9HTC476#CC</td>
<td>C</td>
<td>47</td>
<td>16</td>
<td>7.5</td>
<td>10</td>
<td>1.1</td>
<td>316</td>
<td>285</td>
<td>126</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

*1: ΔC/C Marked “*”

### QUALIFICATION TABLE

<table>
<thead>
<tr>
<th>TEST</th>
<th>F9H series (Temperature range -55°C to +150°C) Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Damp Heat (Steady State)</td>
<td>At 85°C, 85% RH, 1000 hours (No voltage applied) Dampness Change. Refer to page 118 (*1) Dissipation Factor. Initial specified value or less</td>
</tr>
<tr>
<td></td>
<td>Leakage Current. Initial specified value or less 125% or less than the initial specified value.</td>
</tr>
<tr>
<td>Load Humidity</td>
<td>After 1000 hours’ application of rated voltage in series with a 33Ω resistor at 85°C, 85% RH, capacitors meet the characteristics requirements table below.</td>
</tr>
<tr>
<td></td>
<td>Capacitance Change. Refer to page 118 (*1) Dissipation Factor. Initial specified value or less 120% or less than the initial specified value</td>
</tr>
<tr>
<td></td>
<td>Leakage Current. Initial specified value or less 200% of less than the initial specified value.</td>
</tr>
<tr>
<td>Temperature Cycles</td>
<td>At -55°C / +150°C, 30 minutes each, 1000 cycles Capacitance Change. Refer to page 118 (*1) Dissipation Factor. Initial specified value or less</td>
</tr>
<tr>
<td></td>
<td>Leakage Current. Initial specified value or less</td>
</tr>
<tr>
<td>Resistance to Soldering Heat</td>
<td>10 seconds reflow at 260°C, 5 seconds immersion at 260°C Capacitance Change. Refer to page 118 (*1) Dissipation Factor. Initial specified value or less</td>
</tr>
<tr>
<td></td>
<td>Leakage Current. Initial specified value or less</td>
</tr>
<tr>
<td>Solderability</td>
<td>After application of surge voltage in series with a 33Ω resistor at the rate of 30 seconds ON, 30 seconds OFF, for 1000 successive test cycles at 85°C, capacitors shall meet the characteristic requirements in the table above.</td>
</tr>
<tr>
<td></td>
<td>Capacitance Change. Refer to page 118 (*1) Dissipation Factor. Initial specified value or less 120% or less than the initial specified value</td>
</tr>
<tr>
<td></td>
<td>Leakage Current. Initial specified value or less 200% of less than the initial specified value.</td>
</tr>
<tr>
<td>Surge</td>
<td>After 2000 hours’ application of rated voltage in series with a 33Ω resistor at 105°C, or derated voltage in series with a 33Ω resistor at 150°C, capacitors shall meet the characteristic requirements in the table above.</td>
</tr>
<tr>
<td></td>
<td>Capacitance Change. Refer to page 118 (*1) Dissipation Factor. Initial specified value or less 120% or less than the initial specified value</td>
</tr>
<tr>
<td></td>
<td>Leakage Current. Initial specified value or less 200% of less than the initial specified value.</td>
</tr>
<tr>
<td>Shear Test</td>
<td>After applying the pressure load of 17.7N for 60 seconds horizontally to the center of capacitor side body which has no electrode and has been soldered beforehand on a substrate, there shall be found neither exfoliation nor its sign at the terminal electrode.</td>
</tr>
<tr>
<td></td>
<td>The pressure load is calculated by the load applied on the substrate divided by the area of the terminal electrode.</td>
</tr>
<tr>
<td>Terminal Strength</td>
<td>After applying the pressure load of 17.7N for 60 seconds horizontally to the center of capacitor side body which has no electrode and has been soldered beforehand on a substrate, there shall be found neither exfoliation nor its sign at the terminal electrode.</td>
</tr>
<tr>
<td></td>
<td>The pressure load is calculated by the load applied on the substrate divided by the area of the terminal electrode.</td>
</tr>
<tr>
<td>Failure Rate</td>
<td>0.5% per 1000 hours at 105°C, V, with 0.107V series impedance, 60% confidence level.</td>
</tr>
</tbody>
</table>

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C/C Marked “*”

# Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

# Voltage vs Temperature Rating

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F9H Series
High Temperature 150°C, Improved Reliability J-Lead

AVX SOLID ELECTROLYTIC CAPACITOR ROADMAP

CONDUCTIVE POLYMER
TC Series
T C x
F Series
F3 x

CONVENTIONAL TANTALUM
T series
T xx
F Series
F xx

NIOBIUM OXIDE
N Series
N xx

CATHODE
DIELECTRIC
Tantalum
MnO₂
Ta₂O₅

ANODE
Conductive polymer
MnO₂
Nb₂O₅

Five Capacitor Construction Styles

J-lead
Undertab
TACmicrochip®
Conformal
Hermetic

SERIES LINE UP: CONVENTIONAL SMD MnO₂

Industrial
THJ 200°C
THJ professional
TRJ 175°C auto
THH 230°C Hermetic

&
Automotive
TMJ professional
TRJ professional
TAJ auto "T" / "U"

Standard

Low Profile

High CV
TLN undertab
TLJ undertab

F91-AJ6 auto
F97-HT3 auto
F99 150°C auto
F97 professional
F93-AJ6 auto
F93-BE Low DCL
F98-AS1 undertab, fused
F98 undertab

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