

# F9H Series



## High Temperature 150°C, 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



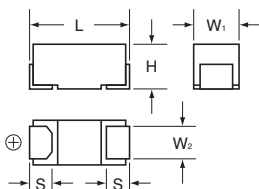
### APPLICATIONS

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

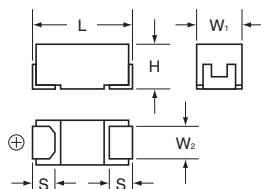
### CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	EIA Metric	L	W <sub>1</sub>	W <sub>2</sub>	H	S
A	1206	3216-18	3.20 ± 0.20 (0.126 ± 0.008)	1.60 ± 0.20 (0.063 ± 0.008)	1.20 ± 0.10 (0.047 ± 0.004)	1.60 ± 0.20 (0.063 ± 0.008)	0.80 ± 0.20 (0.031 ± 0.008)
B	1210	3528-21	3.50 ± 0.20 (0.138 ± 0.008)	2.80 ± 0.20 (0.110 ± 0.008)	2.20 ± 0.10 (0.087 ± 0.004)	1.90 ± 0.20 (0.075 ± 0.008)	0.80 ± 0.20 (0.031 ± 0.008)
C	2312	6032-27	6.00 ± 0.20 (0.236 ± 0.008)	3.20 ± 0.20 (0.126 ± 0.008)	2.20 ± 0.10 (0.087 ± 0.004)	2.50 ± 0.20 (0.098 ± 0.008)	1.30 ± 0.20 (0.051 ± 0.008)

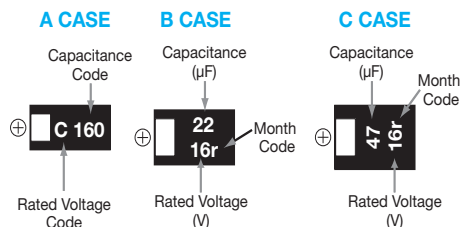
#### A, B CASE



#### C CASE



### MARKING



### HOW TO ORDER

<b>F9H</b>	<b>1C</b>	<b>106</b>	<b>M</b>	<b>A</b>	
Type	Rated Voltage	Capacitance Code	Tolerance	Case Size	Packaging
		pF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow)	K = ±10% M = ±20%	See table above	See Tape & Reel Packaging Section

### 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

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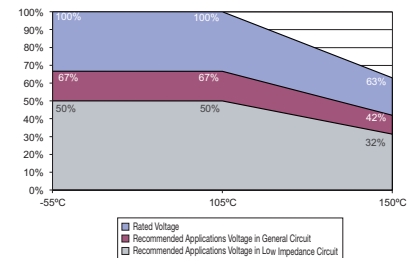
### CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage	
µF	Code	10V (1A)	16V (1C)
10	106		A
15	156	A	
22	226		B
33	336		
47	476		C

Released ratings

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

Voltage vs Temperature Rating



### RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (μF)	Rated Voltage (V)	Leakage Current (μA)	DF @ 120Hz (%)	ESR @ 100kHz (Ω)	100kHz RMS Current (mA)			*1 ΔC/C (%)	MSL
							25°C	105°C	150°C		
10 Volt											
F9H1A156#AA	A	15	10	1.5	10	3.0	158	142	63	*	3
16 Volt											
F9H1C106#AA	A	10	16	1.6	8	3.5	146	132	59	*	3
F9H1C226#BA	B	22	16	3.5	8	1.9	212	190	85	*	3
F9H1C476#CC	C	47	16	7.5	10	1.1	316	285	126	*	3

\*1: ΔC/C Marked "\*"

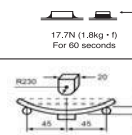
Item	All Case (%)
Damp Heat	±10
Temperature cycles	±5
Resistance soldering heat	±5
Surge	±5
Endurance	±10
Load Humidity	±10

#: "M" for ±20% tolerance, "K" for ± 10% tolerance.

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

### QUALIFICATION TABLE

TEST	F9H series (Temperature range -55°C to +150°C)	
	Condition	
<b>Damp Heat (Steady State)</b>	At 85°C, 85% R.H., 1000 hours (No voltage applied) Capacitance Change ..... Refer to page 118 (*1) Dissipation Factor ..... Initial specified value or less Leakage Current ..... 125% or less than the initial specified value	
<b>Load Humidity</b>	After 1000 hour's application of rated voltage in series with a 33Ω resistor at 85°C, 85% R.H., capacitors meet the characteristics requirements table below. Capacitance Change ..... Refer to page 118 (*1) Dissipation Factor ..... 120% or less than the initial specified value Leakage Current ..... 200% of less than the initial specified value	
<b>Temperature Cycles</b>	At -55°C / +150°C, 30 minutes each, 1000 cycles Capacitance Change ..... Refer to page 118 (*1) Dissipation Factor ..... Initial specified value or less Leakage Current ..... Initial specified value or less	
<b>Resistance to Soldering Heat</b>	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 Leakage Current ..... Initial specified value or less	
<b>Solderability</b>	After immersing capacitors completely into a solder pot at 245°C for 2 to 3 seconds, more than 3/4 of their electrode area shall remain covered with new solder.	
<b>Surge</b>	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. Capacitance Change ..... Refer to page 118 (*1) Dissipation Factor ..... Initial specified value or less Leakage Current ..... Initial specified value or less	
<b>Endurance</b>	After 2000 hours' application of rated voltage in series with a 3Ω resistor at 105°C, or derated voltage in series with a 3Ω resistor at 150°C, capacitors shall meet the characteristic requirements in the table above. Capacitance Change ..... Refer to page 118 (*1) Dissipation Factor ..... Initial specified value or less Leakage Current ..... Initial specified value or less	
<b>Shear Test</b>	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..	
<b>Terminal Strength</b>	Keeping a capacitor surface-mounted on a substrate upside down and supporting the substrate at both of the opposite bottom points 45mm apart from the center of capacitor, the pressure strength is applied with a specified jig at the center of the substrate so that substrate may bend by 1mm as illustrated. Then, there shall be found no remarkable abnormality on the capacitor terminals.	
<b>Failure Rate</b>	0.5% per 1000 hours at 105°C, V <sub>R</sub> with 0.1Ω/V series impedance, 60% confidence level.	

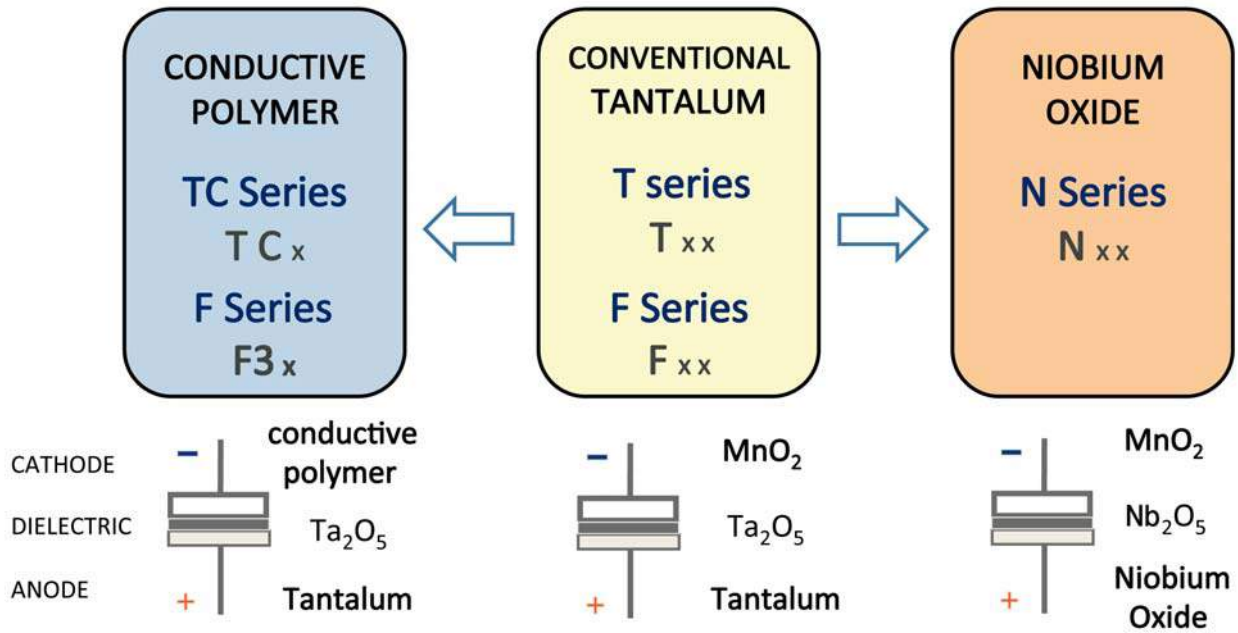


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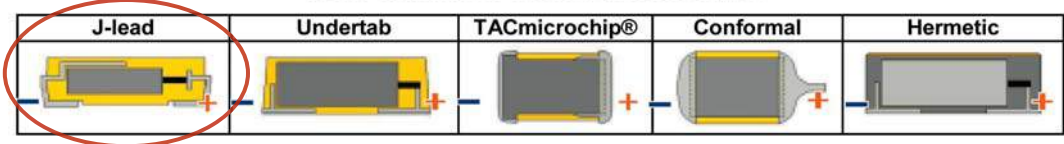
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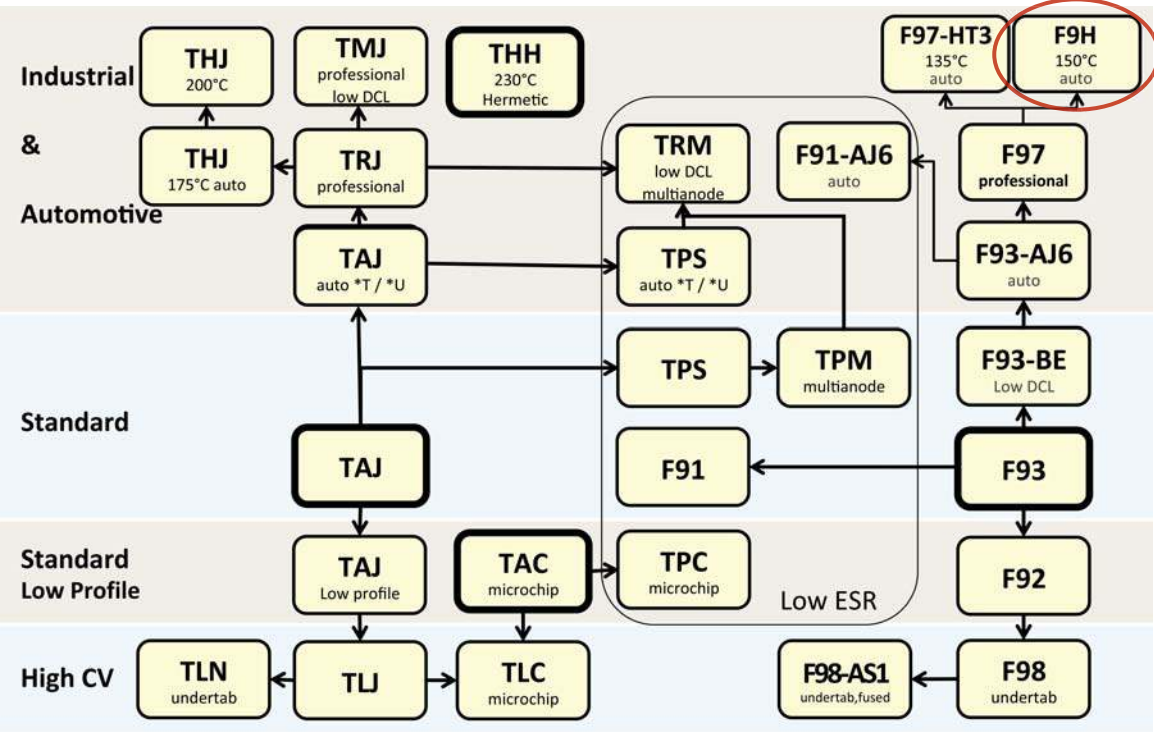
## AVX SOLID ELECTROLYTIC CAPACITOR ROADMAP



### Five Capacitor Construction Styles



### SERIES LINE UP: CONVENTIONAL SMD MnO<sub>2</sub>



# Mouser Electronics

Authorized Distributor

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[F9H1C226MBA](#)