

# F92 Series



## Resin-Molded Chip, Low Profile J-Lead



### FEATURES

- Compliant to the RoHS2 directive 2011/65/EU
- SMD J-lead
- Low profile case sizes

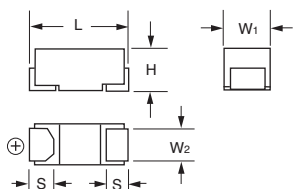
### APPLICATIONS

- Handheld electronics
- USB accessories



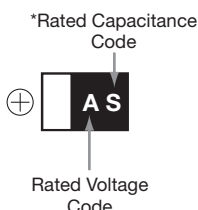
### CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	EIA Metric	L	W <sub>1</sub>	W <sub>2</sub>	H	S
A	1206	3216-12	3.20 ± 0.20 (0.126 ± 0.008)	1.60 ± 0.20 (0.063 ± 0.008)	1.20 ± 0.10 (0.047 ± 0.004)	1.10 ± 0.10 (0.043 ± 0.004)	0.80 ± 0.20 (0.031 ± 0.008)
B	1311	3428-12	3.40 ± 0.20 (0.134 ± 0.008)	2.80 ± 0.20 (0.110 ± 0.008)	2.30 ± 0.10 (0.091 ± 0.004)	1.10 ± 0.10 (0.043 ± 0.004)	0.80 ± 0.20 (0.031 ± 0.008)
P	0805	2012-12	2.00 ± 0.20 (0.079 ± 0.008)	1.25 ± 0.10 (0.049 ± 0.004)	0.90 ± 0.10 (0.035 ± 0.004)	1.10 ± 0.10 (0.043 ± 0.004)	0.50 ± 0.20 (0.020 ± 0.008)



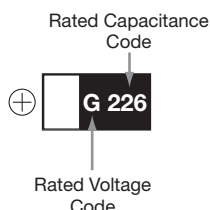
### MARKING

#### P CASE



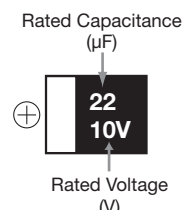
4V	G	16V	C
6.3V	J	20V	D
10V	A	25V	E

#### A CASE



35V	V
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#### B CASE



\*Capacitance code of "P" case products are as shown below.

### HOW TO ORDER

F92	0J	106	M	P		LZT
Type	Rated Voltage	Capacitance Code	Tolerance	Case Size	Packaging	Specification Suffix
		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	Rated temperature 60°C only

### TECHNICAL SPECIFICATIONS

Category Temperature Range:	-55 to +125°C								
Rated Temperature:	+85°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 85°C is not more than 0.1CV or 5μA, whichever is greater. After 1 minute's application of derated voltage, leakage current at 125°C is not more than 0.125CV or 6.3μA, whichever is greater.								
Capacitance Change By Temperature	<table> <tr> <th>P Case</th><th>A, B Case</th></tr> <tr> <td>+20% Max. at +125°C</td><td>+15% Max. at +125°C</td></tr> <tr> <td>+15% Max. at +85°C</td><td>+10% Max. at +85°C</td></tr> <tr> <td>-15% Max. at -55°C</td><td>-10% Max. at -55°C</td></tr> </table>	P Case	A, B Case	+20% Max. at +125°C	+15% Max. at +125°C	+15% Max. at +85°C	+10% Max. at +85°C	-15% Max. at -55°C	-10% Max. at -55°C
P Case	A, B Case								
+20% Max. at +125°C	+15% Max. at +125°C								
+15% Max. at +85°C	+10% Max. at +85°C								
-15% Max. at -55°C	-10% Max. at -55°C								



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

Capacitance		Rated Voltage							*Cap Code
μF	Code	4V (0G)	6.3V (0J)	10V (1A)	16V (1C)	20V (1D)	25V (1E)	35V (1V)	
0.22	224							A	J
0.33	334							A	N
0.47	474				P	A/P		A	S
0.68	684				P	A			W
1.0	105			P	P	A/P	A/P	A	A
1.5	155			P	P	A			E
2.2	225		P	P	A/P	A	A/B	B	J
3.3	335	P	P	A/P	A			B	N
4.7	475	P	P	A/P	A/B	A <sup>(M)</sup> /B	A/B		S
6.8	685	P	P	A/P	B				w
10	106	A/P	A/P	A/P <sup>(M)</sup>	A/B	B			a
15	156	P	A/P <sup>(M)</sup>	A					e
22	226	A/P <sup>(M)</sup>	A/P <sup>(M)</sup>	A/B	B				J
33	336	A/P <sup>(M)</sup>	A/B	B					n
47	476	A/B	A/B	B					s
68	686	A <sup>(M)</sup> /B							w
100	107	A <sup>(M)</sup> /B	A <sup>(M)**</sup> /B						A
150	157	B <sup>(M)</sup>							E
220	227								J

Released ratings <sup>(M tolerance only)</sup>

\*\*Rated temperature 60°C only. Please contact AVX when you need detail spec.

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

### RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (μF)	Rated Voltage (V)	DCL (μA)	DF @ 120Hz (%)	ESR @ 100kHz (Ω)	*1 ΔC/C (%)	MSL
<b>4 Volt</b>								
F920G335MPA	P	3.3	4	0.5	8	12.0	*	1
F920G475MPA	P	4.7	4	0.5	8	6.0	*	1
F920G685MPA	P	6.8	4	0.5	10	6.0	*	1
F920G106MAA	A	10	4	0.5	8	4.0	*	1
F920G106MPA	P	10	4	0.5	10	6.0	*	1
F920G156MPA	P	15	4	0.6	10	5.0	*	1
F920G226MAA	A	22	4	0.9	12	2.8	*	1
F920G226MPA	P	22	4	0.9	20	5.0	*	1
F920G336MAA	A	33	4	1.3	12	2.8	*	1
F920G336MPA	P	33	4	1.3	20	4.0	*	1
F920G476MAA	A	47	4	1.9	18	2.8	*	1
F920G476MBA	B	47	4	1.9	12	1.7	*	1
F920G686MAA	A	68	4	2.7	25	2.8	±15	1
F920G686MBA	B	68	4	2.7	18	1.5	*	1
F920G107MAA	A	100	4	4.0	30	2.8	±15	1
F920G107MBA	B	100	4	4.0	18	1.3	*	1
F920G157MBA	B	150	4	6.0	25	1.3	±15	1
<b>6.3 Volt</b>								
F920J225MPA	P	2.2	6.3	0.5	8	12.0	*	1
F920J335MPA	P	3.3	6.3	0.5	8	12.0	*	1
F920J475MPA	P	4.7	6.3	0.5	8	6.0	*	1
F920J685MPA	P	6.8	6.3	0.5	10	6.0	*	1
F920J106MAA	A	10	6.3	0.6	8	4.0	*	1
F920J106MPA	P	10	6.3	0.6	10	6.0	*	1
F920J156MAA	A	15	6.3	0.9	8	4.0	*	1
F920J156MPA	P	15	6.3	0.9	10	6.0	*	1
F920J226MAA	A	22	6.3	1.4	12	2.8	*	1
F920J226MPA	P	22	6.3	1.4	20	5.0	*	1
F920J336MAA	A	33	6.3	2.1	12	2.8	*	1
F920J336MBA	B	33	6.3	2.1	12	1.7	*	1
F920J476MAA	A	47	6.3	3.0	18	2.8	±15	1
F920J476MBA	B	47	6.3	3.0	12	1.7	*	3
F920J107MAALZT	A	100	6.3	63.0	40	3.0	±20	3
F920J107MBA	B	100	6.3	6.3	20	1.3	±15	1
<b>10 Volt</b>								
F921A105MPA	P	1	10	0.5	8	12.0	*	1
F921A155MPA	P	1.5	10	0.5	8	12.0	*	1
F921A225MPA	P	2.2	10	0.5	8	12.0	*	1
F921A335MAA	A	3.3	10	0.5	6	7.0	*	1
F921A335MPA	P	3.3	10	0.5	8	12.0	*	1
F921A475MAA	A	4.7	10	0.5	6	4.0	*	1
F921A475MPA	P	4.7	10	0.5	8	6.0	*	1
F921A685MAA	A	6.8	10	0.7	6	4.0	*	1
F921A685MPA	P	6.8	10	0.7	8	6.0	*	1
F921A106MAA	A	10	10	1.0	8	4.0	*	1

\*1: ΔC/C Marked “\*”

Item	P Case (%)	A, B Case (%)
Damp Heat	±20	±10
Temperature cycles	±10	±5
Resistance soldering heat	±10	±5
Surge	±10	±5
Endurance	±10	±10

We can consider the type of compliance to AEC-Q200.  
Please contact to your local AVX sales office  
when these series are being designed in your application.

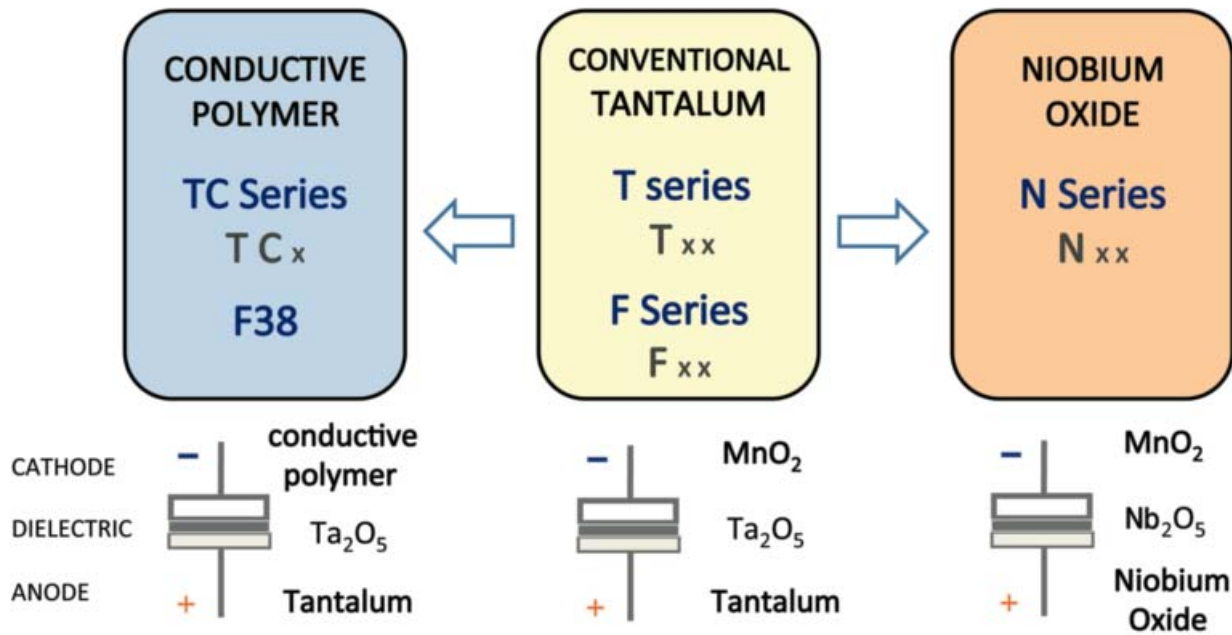
AVX Part No.	Case Size	Capacitance (μF)	Rated Voltage (V)	DCL (μA)	DF @ 120Hz (%)	ESR @ 100kHz (Ω)	*1 ΔC/C (%)	MSL
<b>16 Volt</b>								
F921A106MPA	P	10	10	1.0	14	6.0	*	1
F921A156MAA	A	15	10	1.5	8	4.0	*	1
F921A226MAA	A	22	10	2.2	14	4.0	±15	1
F921A226MBA	B	22	10	2.2	8	1.9	*	3
F921A336MBA	B	33	10	3.3	12	1.9	*	1
F921A476MBA	B	47	10	4.7	18	1.9	±15	1
<b>16 Volt</b>								
F921C474MPA	P	0.47	16	0.5	8	20.0	*	1
F921C684MPA	P	0.68	16	0.5	8	12.0	*	1
F921C105MPA	P	1	16	0.5	8	12.0	*	1
F921C155MPA	P	1.5	16	0.5	8	12.0	*	1
F921C225MAA	A	2.2	16	0.5	6	7.0	*	1
F921C225MPA	P	2.2	16	0.5	8	12.0	*	1
F921C335MAA	A	3.3	16	0.5	6	7.0	*	1
F921C475MAA	A	4.7	16	0.8	6	7.0	*	1
F921C475MBA	B	4.7	16	0.8	6	3.0	*	1
F921C685MBA	B	6.8	16	1.1	6	3.0	*	1
F921C106MAA	A	10	16	1.6	8	7.0	±15	1
F921C106MBA	B	10	16	1.6	6	2.0	*	1
F921C226MBA	B	22	16	3.5	12	2.0	±15	1
<b>20 Volt</b>								
F921D474MAA	A	0.47	20	0.5	4	10.0	*	1
F921D474MPA	P	0.47	20	0.5	8	20.0	*	1
F921D684MAA	A	0.68	20	0.5	4	10.0	*	1
F921D105MAA	A	1	20	0.5	4	10.0	*	1
F921D105MPA	P	1	20	0.5	8	20.0	*	1
F921D155MAA	A	1.5	20	0.5	6	7.4	*	1
F921D225MAA	A	2.2	20	0.5	6	7.0	*	1
F921D475MAA	A	4.7	20	0.9	10	7.0	±10	1
F921D475MBA	B	4.7	20	0.9	6	3.0	*	1
F921D106MBA	B	10	20	2.0	8	3.0	±10	1
<b>25 Volt</b>								
F921E105MAA	A	1	25	0.5	6	10.0	*	1
F921E105MPA	P	1	25	0.5	8	20.0	*	1
F921E225MAA	A	2.2	25	0.6	8	10.0	±15	1
F921E225MBA	B	2.2	25	0.6	6	4.0	*	1
F921E475MAA	A	4.7	25	1.2	10	7.0	±10	1
F921E475MBA	B	4.7	25	1.2	6	3.0	*	1
<b>35 Volt</b>								
F921V224MAA	A	0.22	35	0.5	4	10.0	*	1
F921V334MAA	A	0.33	35	0.5	4	10.0	*	1
F921V474MAA	A	0.47	35	0.5	4	10.0	*	1
F921V105MAA	A	1	35	0.5	6	10.0	*	1
F921V225MBA	B	2.2	35	0.8	6	4.0	±10	1
F921V335MBA	B	3.3	35	1.2	10	4.0	±10	1

\* In case of capacitance tolerance ± 10% type, “K” will be put at 9th digit of type numbering system  
Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

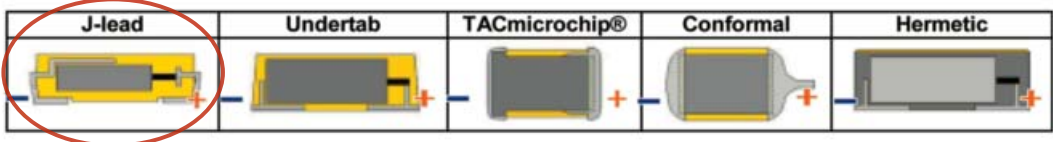
### QUALIFICATION TABLE

TEST	F92 series (Temperature range -55°C to +125°C)	
	Condition	
<b>Damp Heat (Steady State)</b>	<b>P Case</b>	<b>A, B Case</b>
	At 40°C, 90 to 95% R.H., 500 hours (No voltage applied)	
	Capacitance Change ..... Refer to page 27 (*1)	Refer to page 27 (*1)
	Dissipation Factor ..... 150% or less than the initial specified value	Initial specified value or less
<b>Temperature Cycles</b>	Leakage Current ..... Initial specified value or less	Initial specified value or less
	-55°C / +125°C, 30 minutes each, 5 cycles	
	Capacitance Change ..... Refer to page 27 (*1)	Refer to page 27 (*1)
	Dissipation Factor ..... 150% or less than the initial specified value	Initial specified value or less
<b>Resistance to Soldering Heat</b>	Leakage Current ..... Initial specified value or less	Initial specified value or less
	10 seconds reflow at 260°C, 5 seconds immersion at 260°C.	
	Capacitance Change ..... Refer to page 27 (*1)	Refer to page 27 (*1)
	Dissipation Factor ..... 150% or less than the initial specified value	Initial specified value or less
<b>Surge</b>	Leakage Current ..... Initial specified value or less	Initial specified value or less
	After application of surge voltage in series with a 33Ω (For "P" case: 1kΩ) 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 27 (*1)	Refer to page 27 (*1)
	Dissipation Factor ..... 150% or less than the initial specified value	Initial specified value or less
<b>Endurance</b>	Leakage Current ..... Initial specified value or less	Initial specified value or less
	After 2000 hours' application of rated voltage in series with a 3Ω resistor at 85°C, or derated voltage in series with a 3Ω resistor at 125°C, capacitors shall meet the characteristic requirements in the table above.	
	Capacitance Change ..... Refer to page 27 (*1)	Refer to page 27 (*1)
	Dissipation Factor ..... 150% or less than the initial specified value	Initial specified value or less
<b>Shear Test</b>	Leakage Current ..... Initial specified value or less	Initial specified value or less
	After applying the pressure load of 5N for 10±1 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 substrate so that the substrate may bend by 1mm as illustrated. Then, there shall be found no remarkable abnormality on the capacitor terminals.	

### AVX SOLID ELECTROLYTIC CAPACITOR ROADMAP



### Five Capacitor Construction Styles



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

