

# F92 Series

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



### FEATURES

- Compliant to the RoHS3 directive 2015/863/EU
- SMD J-Lead
- Low Profile Case Sizes
- 100% Surge Current Tested

### APPLICATIONS

- Handheld Electronics
- USB Accessories

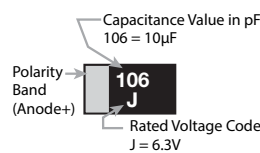
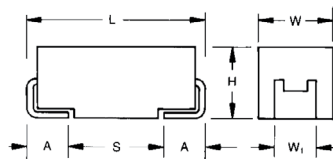


### CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	EIA Metric	L ± 0.20 (0.008)	W ± 0.20 (0.008) -0.10 (0.004)	H Max.	W <sub>1</sub> ± 0.20 (0.008)	A ± 0.30 (0.012) -0.20 (0.008)	S Min.
P	0805	2012-12	2.05 (0.081)	1.30 (0.051)	1.20 (0.047)	1.00 ± 0.10 (0.039 ± 0.004)	0.50 (0.020)	0.85 (0.033)
A	1206	3216-12	3.20 (0.126)	1.60 (0.063)	1.20 (0.047)	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
B	1210	3528-12	3.50 (0.138)	2.80 (0.110)	1.20 (0.047)	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)

W<sub>1</sub> dimension applies to the termination width for a dimensional area only

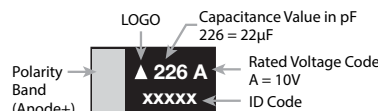
### MARKING P CASE



4V	G	16V	C	35V	V
6.3V	J	20V	D		
10V	A	25V	E		

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

### A, B CASE



### HOW TO ORDER

<b>F92</b> Type	<b>0J</b> Rated Voltage	<b>106</b> Capacitance Code pF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow)	<b>M</b> Tolerance K = ±10% M = ±20%	<b>P</b> Case Size See table above	 Packaging See Tape & Reel Packaging Section
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### 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	<b>P Case</b>	<b>A, B Case</b>
	+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

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### 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	P	A	A
1.5	155			P		A			E
2.2	225		P	P	A/P	B	A/B	B	J
3.3	335	P	P	A/P	A				N
4.7	475	P	P	A/P	A/B		B		S
6.8	685	P	P	P	B				w
10	106	P	A/P	A/P <sup>(M)</sup>	B				a
15	156	P	P <sup>(M)</sup>	A					e
22	226	A	A/P <sup>(M)</sup>						J
33	336		B						n
47	476	B	B						s
68	686								w
100	107	A <sup>(M)</sup> /B							A

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

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

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

### RATINGS & PART NUMBER REFERENCE

Part Number	Case Size	Capacitance (μF)	Rated Voltage (V)	DCL (μA)	DF @ 120Hz (%)	ESR @ 100kHz (Ω)	100kHz RMS Current (mA)				*1 ΔC/C (%)	MSL
							25°C	60°C	85°C	125°C		
4 Volt												
F920G335#PA	P	3.3	4	0.5	8	12.0	50	—	45	20	*	1
F920G475#PA	P	4.7	4	0.5	8	6.0	71	—	64	28	*	1
F920G685#PA	P	6.8	4	0.5	10	6.0	71	—	64	28	*	1
F920G106#PA	P	10	4	0.5	10	6.0	71	—	64	28	*	1
F920G156#PA	P	15	4	0.6	10	5.0	77	—	70	31	*	1
F920G226#AA	A	22	4	0.9	12	2.8	146	—	132	59	*	1
F920G476#BA	B	47	4	1.9	12	1.7	210	—	189	84	*	1
F920G107MAA	A	100	4	4.0	30	2.8	146	—	132	59	±15	1
F920G107#BA	B	100	4	4.0	18	1.3	240	—	216	96	*	1
6.3 Volt												
F920J225#PA	P	2.2	6.3	0.5	8	12.0	50	—	45	20	*	1
F920J335#PA	P	3.3	6.3	0.5	8	12.0	50	—	45	20	*	1
F920J475#PA	P	4.7	6.3	0.5	8	6.0	71	—	64	28	*	1
F920J685#PA	P	6.8	6.3	0.5	10	6.0	71	—	64	28	*	1
F920J106#AA	A	10	6.3	0.6	8	4.0	122	—	110	49	*	1
F920J106#PA	P	10	6.3	0.6	10	6.0	71	—	64	28	*	1
F920J156MPA	P	15	6.3	0.9	10	6.0	71	—	64	28	*	1
F920J226#AA	A	22	6.3	1.4	12	2.8	146	—	132	59	*	1
F920J226MPA	P	22	6.3	1.4	20	5.0	77	—	70	31	*	1
F920J336#BA	B	33	6.3	2.1	12	1.7	210	—	189	84	*	1
F920J476#BA	B	47	6.3	3.0	12	1.7	210	—	189	84	*	3
10 Volt												
F921A105#PA	P	1	10	0.5	8	12.0	50	—	45	20	*	1
F921A155#PA	P	1.5	10	0.5	8	12.0	50	—	45	20	*	1
F921A225#PA	P	2.2	10	0.5	8	12.0	50	—	45	20	*	1
F921A335#AA	A	3.3	10	0.5	6	7.0	93	—	83	37	*	1
F921A335#PA	P	3.3	10	0.5	8	12.0	50	—	45	20	*	1
F921A475#AA	A	4.7	10	0.5	6	4.0	122	—	110	49	*	1
F921A475#PA	P	4.7	10	0.5	8	6.0	71	—	64	28	*	1
F921A685#PA	P	6.8	10	0.7	8	6.0	71	—	64	28	*	1
F921A106#AA	A	10	10	1.0	8	4.0	122	—	110	49	*	1
F921A106MPA	P	10	10	1.0	14	6.0	71	—	64	28	*	1
F921A156#AA	A	15	10	1.5	8	4.0	122	—	110	49	*	1
16 Volt												
F921C474#PA	P	0.47	16	0.5	8	20.0	39	—	35	15	*	1
F921C684#PA	P	0.68	16	0.5	8	12.0	50	—	45	20	*	1

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### RATINGS & PART NUMBER REFERENCE

Part Number	Case Size	Capacitance (μF)	Rated Voltage (V)	DCL (μA)	DF @ 120Hz (%)	ESR @ 100kHz (Ω)	100kHz RMS Current (mA)				*1 ΔC/C (%)	MSL
							25°C	60°C	85°C	125°C		
F921C105#PA	P	1	16	0.5	8	12.0	50	—	45	20	*	1
F921C225#AA	A	2.2	16	0.5	6	7.0	93	—	83	37	*	1
F921C225#PA	P	2.2	16	0.5	8	12.0	50	—	45	20	*	1
F921C335#AA	A	3.3	16	0.5	6	7.0	93	—	83	37	*	1
F921C475#AA	A	4.7	16	0.8	6	7.0	93	—	83	37	*	1
F921C475#BA	B	4.7	16	0.8	6	3.0	158	—	142	63	*	1
F921C685#BA	B	6.8	16	1.1	6	3.0	158	—	142	63	*	1
F921C106#BA	B	10	16	1.6	6	2.0	194	—	174	77	*	1
20 Volt												
F921D474#AA	A	0.47	20	0.5	4	10.0	77	—	70	31	*	1
F921D474#PA	P	0.47	20	0.5	8	20.0	39	—	35	15	*	1
F921D684#AA	A	0.68	20	0.5	4	10.0	77	—	70	31	*	1
F921D105#AA	A	1	20	0.5	4	10.0	77	—	70	31	*	1
F921D105#PA	P	1	20	0.5	8	20.0	39	—	35	15	*	1
F921D155#AA	A	1.5	20	0.5	6	7.4	90	—	81	36	*	1
F921D225#BA	B	2.2	20	0.5	6	6	115	—	104	46	*	1
25 Volt												
F921E105#PA	P	1	25	0.5	8	20.0	39	—	35	15	*	1
F921E225#AA	A	2.2	25	0.6	8	10.0	77	—	70	31	±15	1
F921E225#BA	B	2.2	25	0.6	6	4.0	137	—	123	55	*	1
F921E475#BA	B	4.7	25	1.2	6	3.0	158	—	142	63	*	1
35 Volt												
F921V224#AA	A	0.22	35	0.5	4	10.0	77	—	70	31	*	1
F921V334#AA	A	0.33	35	0.5	4	10.0	77	—	70	31	*	1
F921V474#AA	A	0.47	35	0.5	4	10.0	77	—	70	31	*	1
F921V105#AA	A	1	35	0.5	6	10.0	77	—	70	31	*	1
F921V225#BA	B	2.2	35	0.8	6	4.0	137	—	123	55	±10	1

\*1: ΔC/C Marked “\*”

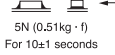
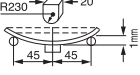
Item	P Case (%)	A, B Case (%)
Damp Heat	±20	±10
Temperature cycles	±10	±5
Resistance soldering heat	±10	±5
Surge	±10	±5
Endurance	±10	±10

#: “M” for ±20% tolerance, “K” for ± 10% tolerance. When you need K tolerance for the part numbers which have M tolerance only, please contact to your local KYOCERA AVX sales office.  
Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

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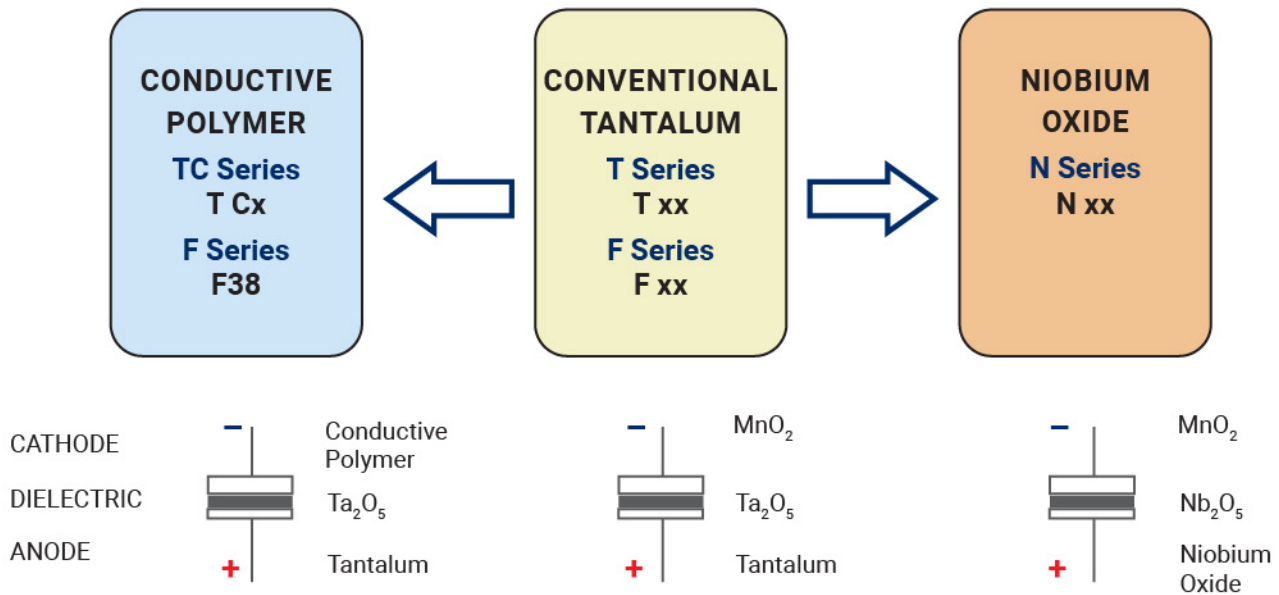
### QUALIFICATION TABLE

TEST	F92 series (Temperature range -55°C to +125°C)	
	Condition	
Damp Heat (Steady State)	<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 the table above (*1)	Refer to the table above (*1)
	Dissipation Factor ..... 150% or less than the initial specified value	Initial specified value or less
Temperature Cycles	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 the table above (*1)	Refer to the table above (*1)
	Dissipation Factor ..... 150% or less than the initial specified value	Initial specified value or less
Resistance to Soldering Heat	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 the table above (*1)	Refer to the table above (*1)
	Dissipation Factor ..... 150% or less than the initial specified value	Initial specified value or less
Surge	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 the table above (*1)	Refer to the table above (*1)
	Dissipation Factor ..... 150% or less than the initial specified value	Initial specified value or less
Endurance	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 the table above (*1)	Refer to the table above (*1)
	Dissipation Factor ..... 150% or less than the initial specified value	Initial specified value or less
Shear Test	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.	
Terminal Strength	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.	

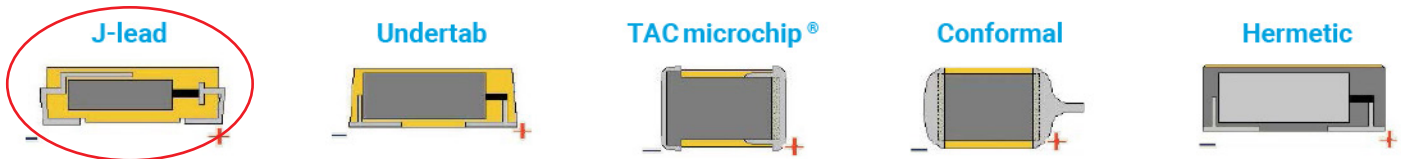
# F92 Series

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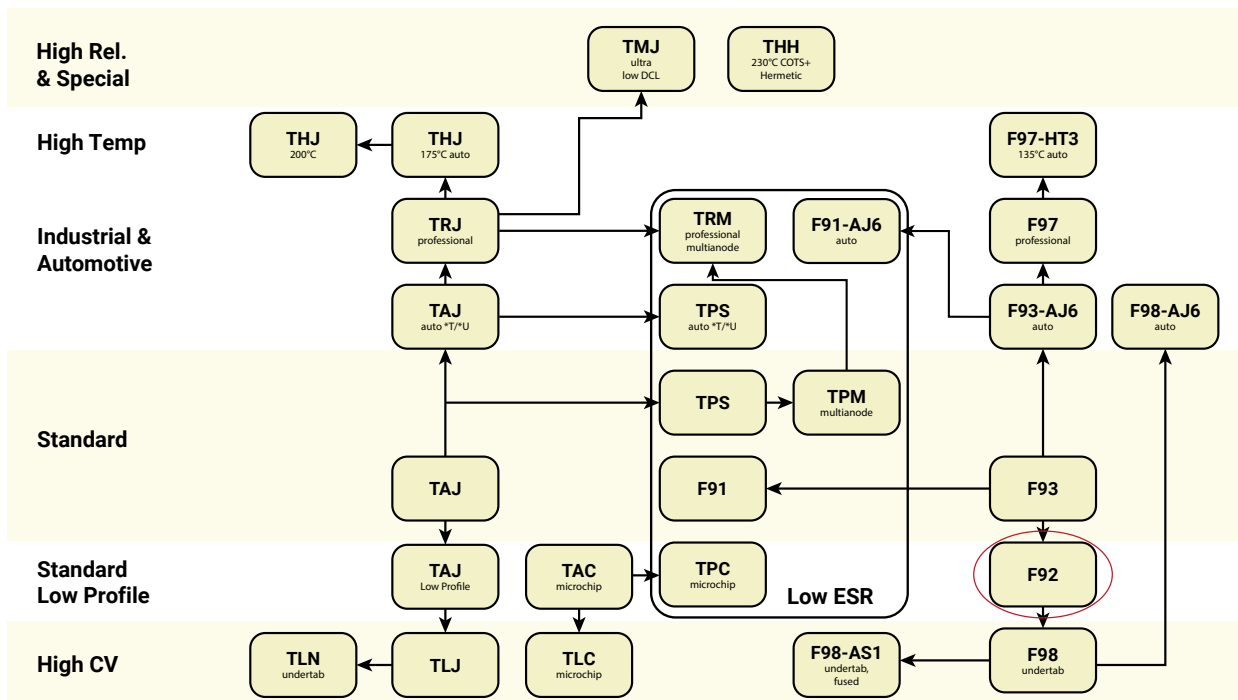
### SOLID ELECTROLYTIC CAPACITOR ROADMAP



### FIVE CAPACITOR CONSTRUCTION STYLES



### SERIES LINE UP: CONVENTIONAL SMD $MnO_2$



# Mouser Electronics

Authorized Distributor

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## KYOCERA AVX:

<a href="#">F920E476MBA</a>	<a href="#">F920J106MPA</a>	<a href="#">F921D225MBA</a>	<a href="#">F921C474MPA</a>	<a href="#">F920J156MPA</a>	<a href="#">F920J106MAA</a>	<a href="#">F921V104MAA</a>
<a href="#">F921A335MPA</a>	<a href="#">F921E225MBA</a>	<a href="#">F920G476MBA</a>	<a href="#">F921C684MPA</a>	<a href="#">F921E475MAA</a>	<a href="#">F921E684MBA</a>	<a href="#">F921A156MAA</a>
<a href="#">F920G106MPA</a>	<a href="#">F920J225MPA</a>	<a href="#">F920J685MPA</a>	<a href="#">F921V105MAA</a>	<a href="#">F921A685MPA</a>	<a href="#">F920G107MBA</a>	<a href="#">F920J107MBA</a>
<a href="#">F921D334MPA</a>	<a href="#">F921A476MBA</a>	<a href="#">F920J475MPA</a>	<a href="#">F920J476MAA</a>	<a href="#">F921A685MAA</a>	<a href="#">F921A106MPA</a>	<a href="#">F921A335MAA</a>
<a href="#">F920G225MPA</a>	<a href="#">F921D155MAA</a>	<a href="#">F920G335MPA</a>	<a href="#">F921A225MAA</a>	<a href="#">F921V225MBA</a>	<a href="#">F920J336MAA</a>	<a href="#">F921C106MAA</a>
<a href="#">F921A105MPA</a>	<a href="#">F921C685MBA</a>	<a href="#">F920G157MBA</a>	<a href="#">F921D474MAA</a>	<a href="#">F921V335MBA</a>	<a href="#">F921V334MAA</a>	<a href="#">F920G475MAA</a>
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<a href="#">F920G475MPA</a>	<a href="#">F921A155MPA</a>	<a href="#">F921E105MPA</a>	<a href="#">F921C475MAA</a>	<a href="#">F921D106MBA</a>	<a href="#">F920J336MBA</a>	<a href="#">F920J105MPA</a>
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<a href="#">F921A226MAA</a>	<a href="#">F920G156MPA</a>	<a href="#">F921D105MAA</a>	<a href="#">F921A106MBA</a>	<a href="#">F921C105MAA</a>	<a href="#">F920E686MBA</a>	<a href="#">F921E105MBA</a>
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<a href="#">F920G686MAA</a>	<a href="#">F921V154MAA</a>					