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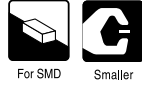
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# SOLID TANTALUM ELECTROLYTIC CAPACITORS

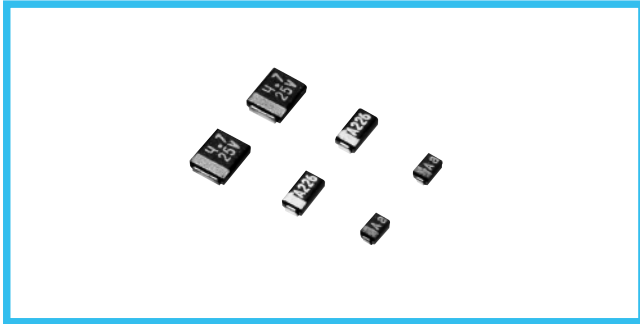


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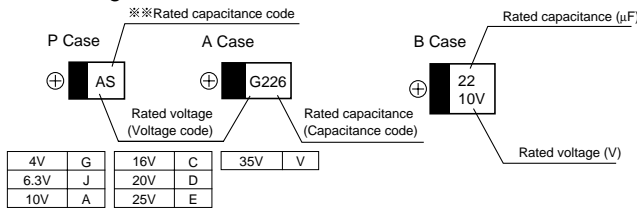
Resin-molded Chip,  
Compact Series



- Compliant to the RoHS directive (2002/95/EC).



### Marking



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

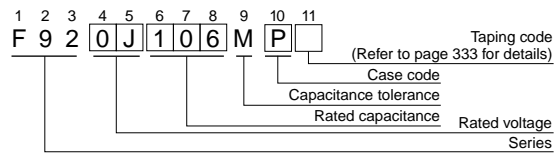
### Specifications

Item	Performance Characteristics	
	P Case	A · B Case
Category	P Case	
Temperature Range	-55 to +125°C (Rated temperature : +85°C)	
Capacitance Tolerance	±20% (at 120Hz)	
Dissipation Factor (120Hz)	Refer to Next Page	
ESR (100kHz)	Refer to Next Page	
Leakage Current	<ul style="list-style-type: none"> <li>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.</li> <li>After 1 minute's application of rated voltage, leakage current at 85°C is not more than 0.1CV or 5µA, whichever is greater.</li> <li>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.</li> </ul>	
Capacitance Change by Temperature	+20% Max. (at +125°C) +15% Max. (at +85°C) -15% Max. (at -55°C)	+15% Max. (at +125°C) +10% Max. (at +85°C) -10% Max. (at -55°C)
Damp Heat (Steady State)	At 40°C 90 to 95% R.H. 500 hours (No voltage applied)	
	Capacitance Change... Refer to next page (*1) Dissipation Factor...150% or less than the initial specified value Leakage Current... Initial specified value or less	Refer to next page (*1) Initial specified value or less Initial specified value or less
Temperature Cycles	-55°C / +125°C 30 minutes each 5 cycles	
	Capacitance Change... Refer to next page (*1) Dissipation Factor...150% or less than the initial specified value Leakage Current... Initial specified value or less	Refer to next page (*1) Initial specified value or less Initial specified value or less

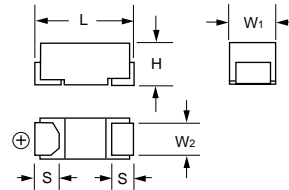
### Standard Ratings

Cap. (µF)	V								Capacitance code
	4	6.3	10	16	20	25	35	1V	
0.22	224							A	J
0.33	334							A	N
0.47	474				P	P · A		A	S
0.68	684				P	A			W
1	105			P	P	P · A	P · A	A	A
1.5	155			P	P	A			E
2.2	225		P	P	P · A	(P) · A	A · B	B	J
3.3	335	P	P	P · A	A			B	N
4.7	475	P	P	P · A	(P) · A · B	A · B	A · B		S
6.8	685	P	P	P · A	B				w
10	106	P · A	P · A	P · A	A · B	B			a
15	156	P	P · A	A					e
22	226	P · A	P · A	A · B	B				J
33	336	P · A	A · B	B					n
47	476	(P) · A · B	A · B	B					s
68	686	A · B							
100	107	A · B	(A) · B						
150	157	B							
220	227	(B)							

### Type numbering system (Example: 6.3V 10µF)



### Drawing



### Dimensions

Case code	L	W <sub>1</sub>	W <sub>2</sub>	H	S
P	2.0 ± 0.2	1.25 ± 0.1	0.9 ± 0.1	1.1 ± 0.1	0.5 ± 0.2
A	3.2 ± 0.2	1.6 ± 0.2	1.2 ± 0.1	1.1 ± 0.1	0.8 ± 0.2
B	3.4 ± 0.2	2.8 ± 0.2	2.3 ± 0.1	1.1 ± 0.1	0.8 ± 0.2

Resistance to Soldering Heat	10 seconds reflow at 260°C, 5 seconds immersion at 260°C	Capacitance Change... Refer to next page (*1) Dissipation Factor...150% of less than the initial specified value Leakage Current... Initial specified value or less	Refer to next page (*1) Initial specified value or less
Surge*	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 table below.	Capacitance Change... Refer to next page (*1) Dissipation Factor...150% or less than the initial specified value Leakage Current... Initial specified value or less	Refer to next page (*1) Initial specified value or less
Endurance*	After 2000hours' 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 table below.	Capacitance Change... Refer to next page (*1) Dissipation Factor...150% or less than the initial specified value Leakage Current... Initial specified value or less	After 2000hours' 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 table below. Capacitance Change... Refer to next page (*1) Dissipation Factor... Initial specified value or less Leakage Current... Initial specified value or less
Shear Test	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.		

\* As for the surge and derated voltage at 125°C, refer to page 332 for details.

( ) The series in parentheses are being developed. Please contact to your local Nichicon sales office when these series are being designed in your application.

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### Standard Ratings

Rated Volt	Rated Capacitance (μF)	Case code	Part Number	Leakage Current (μA)	Dissipation Factor (%@120Hz)	ESR (Ω@100kHz)	*1 ΔC/C (%)	
4V	3.3	P	F920G335MPA	0.5	8	12.0	*	
	4.7	P	F920G475MPA	0.5	8	6.0	*	
	6.8	P	F920G685MPA	0.5	10	6.0	*	
	10	P	F920G106MPA	0.5	10	6.0	*	
	10	A	F920G106MAA	0.5	8	4.0	*	
	15	P	F920G156MPA	0.6	10	5.0	*	
	22	P	F920G226MPA	0.9	20	5.0	*	
	22	A	F920G226MAA	0.9	12	2.8	*	
	33	P	F920G336MPA	1.3	20	4.0	*	
	33	A	F920G336MAA	1.3	12	2.8	*	
	47	A	F920G476MAA	1.9	18	2.8	*	
	47	B	F920G476MBA	1.9	12	1.7	*	
	68	A	F920G686MAA	2.7	25	2.8	±15	
	68	B	F920G686MBA	2.7	18	1.5	*	
	100	A	F920G107MAA	4.0	30	2.8	±15	
	100	B	F920G107MBA	4.0	18	1.3	*	
	150	B	F920G157MBA	6.0	25	1.3	±15	
	6.3V	2.2	P	F920J225MPA	0.5	8	12.0	*
3.3		P	F920J335MPA	0.5	8	12.0	*	
4.7		P	F920J475MPA	0.5	8	6.0	*	
6.8		P	F920J685MPA	0.5	10	6.0	*	
10		P	F920J106MPA	0.6	10	6.0	*	
10		A	F920J106MAA	0.6	8	4.0	*	
15		P	F920J156MPA	0.9	10	6.0	*	
15		A	F920J156MAA	0.9	8	4.0	*	
22		P	F920J226MPA	1.4	20	5.0	*	
22		A	F920J226MAA	1.4	12	2.8	*	
33		A	F920J336MAA	2.1	12	2.8	*	
33		B	F920J336MBA	2.1	12	1.7	*	
47		A	F920J476MAA	3.0	18	2.8	±15	
47		B	F920J476MBA	3.0	12	1.7	*	
100		B	F920J107MBA	6.3	20	1.3	±15	
10V		1	P	F921A105MPA	0.5	8	12.0	*
		1.5	P	F921A155MPA	0.5	8	12.0	*
		2.2	P	F921A225MPA	0.5	8	12.0	*
	3.3	P	F921A335MPA	0.5	8	12.0	*	
	3.3	A	F921A335MAA	0.5	6	7.0	*	
	4.7	P	F921A475MPA	0.5	8	6.0	*	
	4.7	A	F921A475MAA	0.5	6	4.0	*	
	6.8	P	F921A685MPA	0.7	8	6.0	*	
	6.8	A	F921A685MAA	0.7	6	4.0	*	
	10	P	F921A106MPA	1.0	14	6.0	*	
	10	A	F921A106MAA	1.0	8	4.0	*	
	15	A	F921A156MAA	1.5	8	4.0	*	
	22	A	F921A226MAA	2.2	14	4.0	±15	
	22	B	F921A226MBA	2.2	8	1.9	*	
	33	B	F921A336MBA	3.3	12	1.9	*	
	47	B	F921A476MBA	4.7	18	1.9	±15	
	16V	0.47	P	F921C474MPA	0.5	8	20.0	*
		0.68	P	F921C684MPA	0.5	8	12.0	*
1		P	F921C105MPA	0.5	8	12.0	*	
1.5		P	F921C155MPA	0.5	8	12.0	*	
2.2		P	F921C225MPA	0.5	8	12.0	*	
2.2		A	F921C225MAA	0.5	6	7.0	*	
3.3		A	F921C335MAA	0.5	6	7.0	*	
4.7		A	F921C475MAA	0.8	6	7.0	*	
4.7		B	F921C475MBA	0.8	6	3.0	*	
6.8		B	F921C685MBA	1.1	6	3.0	*	
10		A	F921C106MAA	1.6	8	7.0	±15	
10		B	F921C106MBA	1.6	6	2.0	*	
22		B	F921C226MBA	3.5	12	2.0	±15	

Rated Volt	Rated Capacitance (μF)	Case code	Part Number	Leakage Current (μA)	Dissipation Factor (%@120Hz)	ESR (Ω@100kHz)	*1 ΔC/C (%)
20V	0.47	P	F921D474MPA	0.5	8	20.0	*
	0.47	A	F921D474MAA	0.5	4	10.0	*
	0.68	A	F921D684MAA	0.5	4	10.0	*
	1	P	F921D105MPA	0.5	8	20.0	*
	1	A	F921D105MAA	0.5	4	10.0	*
	1.5	A	F921D155MAA	0.5	6	7.4	*
	2.2	A	F921D225MAA	0.5	6	7.0	*
	4.7	A	F921D475MAA	0.9	10	7.0	±10
	4.7	B	F921D475MBA	0.9	6	3.0	*
	10	B	F921D106MBA	2.0	8	3.0	±10
25V	1	P	F921E105MPA	0.5	8	20.0	*
	1	A	F921E105MAA	0.5	6	10.0	*
	2.2	A	F921E225MAA	0.6	8	10.0	±15
	2.2	B	F921E225MBA	0.6	6	4.0	*
	4.7	A	F921E475MAA	1.2	10	7.0	±10
	4.7	B	F921E475MBA	1.2	6	3.0	*
35V	0.22	A	F921V224MAA	0.5	4	10.0	*
	0.33	A	F921V334MAA	0.5	4	10.0	*
	0.47	A	F921V474MAA	0.5	4	10.0	*
	1	A	F921V105MAA	0.5	6	10.0	*
	2.2	B	F921V225MBA	0.8	6	4.0	±10
	3.3	B	F921V335MBA	1.2	10	4.0	±10

\*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 Nichicon sales office when these series are being designed in your application.