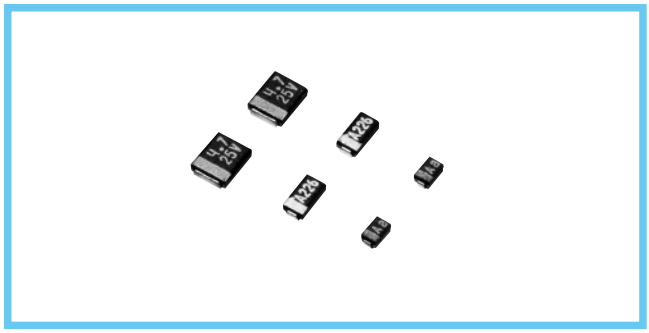
nichicon

F92

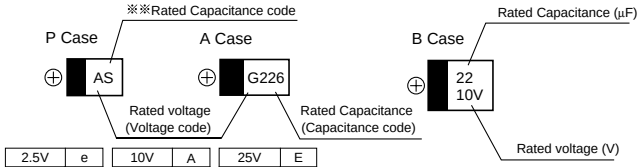
Resin-molded Chip, Compact Series

For SMD Smaller

● Adapted to the RoHS directive (2002/95/EC).



Marking



2.5V	e	10V	A	25V	E
4V	G	16V	C	35V	V
6.3V	J	20V	D		

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

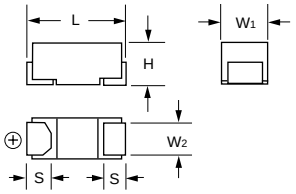
Specifications

Item	Performance Characteristics	
	P Case	A・B Case
Category 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	• 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	+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)	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 of 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% of less of 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

Type numbering system (Example: 6.3V 10μF)

1	2	3	4	5	6	7	8	9	10	11	
F	9	2	0	J	1	0	6	M	P		Taping code (Refer to page 302 for details)
											Case code
											Capacitance tolerance
											Rated Capacitance
											Rated voltage
											Series

Drawing



Dimensions

(mm)

Case code	L	W_1	W_2	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 immension at 260°C	
	Capacitance Change··· Refer to next page (＊1) Dissipation Factor···150% of less of 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
Surge*	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 meet the characteristics requirements listed below.	
	Capacitance Change··· Refer to next page (＊1) Dissipation Factor···150% or less of 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
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 meet the characteristic requirements listed below. Capacitance Change··· Refer to next page (＊1) Dissipation Factor···150% or less of 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 meet the characteristic requirements listed 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 an aluminum substrate, there shall be found neither exfoliation nor its sign at the terminal electrode.	5N (0.51kg・f) For 10 ± 1 seconds
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 the capacitor, the pressure strength is applied with a specified jig at the center of the substrate so that the substrate may bend by 1mm as illustrated. Then, there shall be found no remarkable abnormality on the capacitor terminals.	R230 20 1mm 45 45

＊As for the surge and derated voltage at 125°C, refer to page 301 for details.

Standard ratings

Cap.(μF) \ V	Code	2.5	4	6.3	10	16	20	25	35	※※ Capacitance code
		0E	0G	0J	1A	1C	1D	1E	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・B	A・B	B			a
15	156		P	P・A	A					e
22	226	P・A	P・A	P・A・B	A・B	B				J
33	336	P・A	P・A	A・B	B					n
47	476	P	(P)・A・B	A・B	B					s
68	686		A・B							
100	107	B	A・B	B						
150	157	B	B							
220	227	B	(B)							

( ) 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)	Disspation Factor (%@120Hz)	ESR (Ω@100kHz)	*1 ΔC/C (%)
2.5V	22	P	F920E226MPA	0.6	20	4.0	*
	22	A	F920E226MAA	0.6	12	2.8	*
	33	P	F920E336MPA	0.8	20	4.0	*
	33	A	F920E336MAA	0.8	12	2.8	*
	47	P	F920E476MPA	1.2	30	4.0	*
	100	B	F920E107MBA	2.5	18	1.3	*
	150	B	F920E157MBA	3.8	20	1.0	±15
	220	B	F920E227MBA	5.5	30	1.5	±15
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	*
	22	B	F920J226MBA	1.4	8	1.9	*
	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	*
	10	B	F921A106MBA	1.0	6	2.0	*
	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

Rated Volt	Rated Capacitance (μF)	Case code	Part Number	Leakage Current (μA)	Disspation Factor (%@120Hz)	ESR (Ω@100kHz)	*1 ΔC/C (%)
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
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

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

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