

PF series

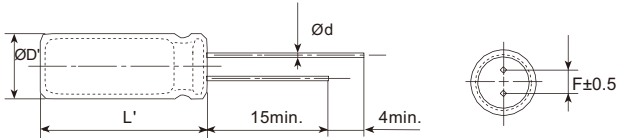


- Endurance: 3,000~5,000 hours at 105°C
- Long life time
- Recommended Applications: System Board, Display Card, Small Charger and intelligent TV
- **RoHS Compliant and lead-free**

SPECIFICATIONS

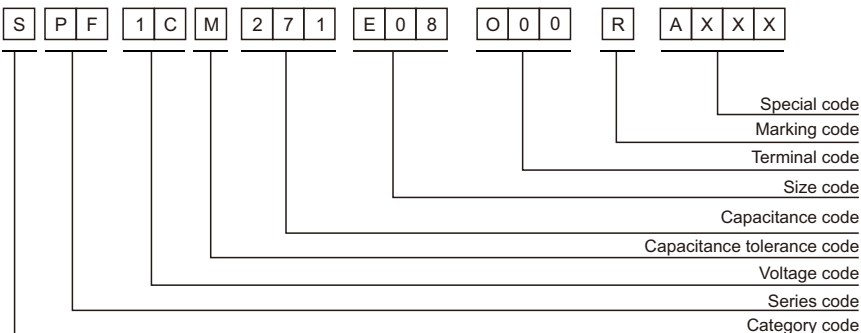
Items	Characteristics	
Category Temperature Range	-55~+105°C	
Rated Working Voltage Range	6.3~125 V _{dc}	
Nominal Capacitance Range	4.7~5600μF	
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)	
DC Leakage Current	I ≤ 0.2CV or 500μA, whichever is greater. Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)	
Dissipation Factor (tanδ)	Rated Voltage (V _{dc})	
	Dissipation Factor (Max.)	
ESR(100kHz, 20°C)	Value in characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C) ≤ 1.25 Z(-55°C)/Z(+20°C) ≤ 1.25	
Endurance	After applying rated voltage for 3,000 ~ 5,000 hours at 105°C, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	≤ ±20% of the initial value
	Dissipation Factor	≤ 150% of the initial specified value
	ESR	≤ 150% of the initial specified value
	Leakage Current	≤ The initial specified value
Humidity Test	After subjecting to 90~95%RH for 2,000 hours at 60°C without voltage applied, the capacitors shall meet the specified values for the Endurance characteristics listed above.	
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	≤ ±20% of the initial value
	Dissipation Factor	≤ 150% of the initial specified value
	ESR	≤ 150% of the initial specified value
	Leakage Current	≤ The initial specified value

DIMENSIONS [mm]



øD	5	5.5	6.3	8	10
ød	0.5	0.5	0.5	0.6	0.6
F	2.0	2.5	2.5	3.5	5.0
øD'	øD-0.1~+0.5	øD-0.3~+0.3	øD-0.1~+0.5		
L'	L+1.0max.			L-0.5~+1	

PART NUMBERING SYSTEM



PF series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦDxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mArms/105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
6.3	220	5×7	22	3100	500	SPF0JM221D07000RAXXX
	270	5×7	22	3400	500	SPF0JM271D07000RAXXX
	330	5×8	22	3600	500	SPF0JM331D08000RAXXX
	330	6.3×5	27	2800	500	SPF0JM331E05000RAXXX
	330	6.3×8	16	3600	500	SPF0JM331E08000RAXXX
	390	5×9	22	3600	500	SPF0JM391D09000RAXXX
	470	5×10	22	3800	592	SPF0JM471D10000RAXXX
	470	5.5×9	22	3600	592	SPF0JM471B09000RAXXX
	470	6.3×8	16	3900	592	SPF0JM471E08000RAXXX
	560	5.5×9	22	3800	706	SPF0JM561B09000RAXXX
	560	6.3×8	22	4300	706	SPF0JM561E08000RAXXX
	680	5.5×9	22	4300	857	SPF0JM681B09000RAXXX
	680	6.3×9	22	4500	857	SPF0JM681E09000RAXXX
	680	8×9	22	4100	857	SPF0JM681F09000RAXXX
	820	6.3×9	22	4500	1033	SPF0JM821E09000RAXXX
	1000	6.3×10	11	4600	1260	SPF0JM102E10000RAXXX
	1000	8×9	13	4300	1260	SPF0JM102F09000RAXXX
	1000	8×11	11	4600	1260	SPF0JM102F11000RAXXX
	1200	8×11	11	4700	1512	SPF0JM122F11000RAXXX
	1500	8×11	11	4800	1890	SPF0JM152F11000RAXXX
	1500	10×12	11	4900	1890	SPF0JM152G12000RAXXX
	1800	10×10	11	5000	2268	SPF0JM182G10000RAXXX
	2200	8×14	11	5100	2772	SPF0JM222F14000RAXXX
	2200	10×12	11	5200	2772	SPF0JM222G12000RAXXX
3300	10×14	11	5300	4158	SPF0JM332G14000RAXXX	
4700	10×17	11	5400	5000	SPF0JM472G17000RAXXX	
5600	10×18	11	5600	5000	SPF0JM562G18000RAXXX	
6.8	220	5×7	22	2900	500	SPF0CM221D07000RAXXX
	270	5×7	22	3200	500	SPF0CM271D07000RAXXX
	330	5×8	22	3400	500	SPF0CM331D08000RAXXX
	390	5×9	22	3500	530	SPF0CM391D09000RAXXX
	470	5×9	22	3600	639	SPF0CM471D09000RAXXX
	470	6.3×7	22	3300	639	SPF0CM471E07000RAXXX
	560	6.3×8	22	4000	762	SPF0CM561E08000RAXXX
	680	6.3×9	22	4300	925	SPF0CM681E09000RAXXX
	820	6.3×9	22	4400	1115	SPF0CM821E09000RAXXX
	1000	6.3×11	13	4600	1360	SPF0CM102E11000RAXXX
	1000	8×11	11	4600	1360	SPF0CM102F11000RAXXX
7	220	5×7	22	2800	500	SPF0QM221D07000RAXXX
	270	5×8	22	3000	500	SPF0QM271D08000RAXXX
	330	5×9	22	3200	500	SPF0QM331D09000RAXXX
	470	5.5×9	22	3200	658	SPF0QM471B09000RAXXX
	470	6.3×8	22	3400	658	SPF0QM471E08000RAXXX
	560	6.3×8	22	3600	784	SPF0QM561E08000RAXXX
	680	6.3×9	13	3700	952	SPF0QM681E09000RAXXX
	820	6.3×10	13	4000	1148	SPF0QM821E10000RAXXX
	820	8×9	13	4100	1148	SPF0QM821F09000RAXXX
7.5	220	5×7	22	2700	500	SPF0AM221D07000RAXXX
	270	5×8	22	2900	500	SPF0AM271D08000RAXXX
	330	5×9	22	3100	500	SPF0AM331D09000RAXXX
	470	5.5×9	22	3100	705	SPF0AM471B09000RAXXX
	470	6.3×7	28	2800	705	SPF0AM471E07000RAXXX
	500	5.5×9	22	3200	750	SPF0AM501B09000RAXXX
	560	6.3×8	22	3500	840	SPF0AM561E08000RAXXX
	680	6.3×9	13	3600	1020	SPF0AM681E09000RAXXX
	820	6.3×10	13	3900	1230	SPF0AM821E10000RAXXX
	820	8×9	13	4000	1230	SPF0AM821F09000RAXXX
	1200	8×11	13	4300	1800	SPF0AM122F11000RAXXX
10	47	5×7	38	1900	500	SPF1AM470D07000RAXXX
	56	5×7	38	2000	500	SPF1AM560D07000RAXXX
	68	5×7	38	2000	500	SPF1AM680D07000RAXXX
	82	5×7	38	2100	500	SPF1AM820D07000RAXXX
	100	5×7	38	2100	500	SPF1AM101D07000RAXXX
	120	5×7	22	2200	500	SPF1AM121D07000RAXXX
	150	5×7	22	2200	500	SPF1AM151D07000RAXXX
	220	5×9	22	2500	500	SPF1AM221D09000RAXXX
	220	6.3×8	16	2800	500	SPF1AM221E08000RAXXX
	270	6.3×8	22	2700	540	SPF1AM271E08000RAXXX
	330	6.3×8	22	2900	660	SPF1AM331E08000RAXXX
	330	8×9	16	3000	660	SPF1AM331F09000RAXXX
	390	6.3×8	22	3000	780	SPF1AM391E08000RAXXX
	470	5.5×9	22	3000	940	SPF1AM471B09000RAXXX
	470	6.3×8	22	3100	940	SPF1AM471E08000RAXXX
	470	8×9	16	3100	940	SPF1AM471F09000RAXXX

Conductive Polymer Radial Type

PF series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦDxL(mm)	ESR (mΩ,20°C,100kHz)(max.)	Rated ripple current (mA rms/105°C,100kHz)	Leakage Current (μA)(max.)	Part Number
10	560	6.3×10	14	3200	1120	SPF1AM561E10000RAXXX
	560	8×9	16	3200	1120	SPF1AM561F09000RAXXX
	680	8×11	13	3500	1360	SPF1AM681F11000RAXXX
	820	8×11	13	3600	1640	SPF1AM821F11000RAXXX
	1000	8×11	13	3700	2000	SPF1AM102F11000RAXXX
	1000	10×12	11	4700	2000	SPF1AM102G12000RAXXX
	1200	8×12	11	4000	2400	SPF1AM122F12000RAXXX
	1200	10×12	11	4900	2400	SPF1AM122G12000RAXXX
	1500	10×12	11	4900	3000	SPF1AM152G12000RAXXX
	1800	10×13	11	5200	3600	SPF1AM182G13000RAXXX
	2200	10×15	11	5400	4400	SPF1AM222G15000RAXXX
3300	10×18	11	5500	5000	SPF1AM332G18000RAXXX	
12	330	5.5×9	22	2700	792	SPF1TM331B09000RAXXX
	470	5.5×9	22	2800	1128	SPF1TM471B09000RAXXX
	470	6.3×9	22	3100	1128	SPF1TM471E09000RAXXX
	680	6.3×11	17	3200	1632	SPF1TM681E11000RAXXX
	820	8×11	13	3400	1968	SPF1TM821F11000RAXXX
	1000	8×12	13	3600	2400	SPF1TM102F12000RAXXX
	1200	8×14	13	3900	2880	SPF1TM122F14000RAXXX
	1500	8×16	13	4300	3600	SPF1TM152F16000RAXXX
16	47	5×7	22	1800	500	SPF1CM470D07000RAXXX
	56	5×7	22	1800	500	SPF1CM560D07000RAXXX
	68	5×7	22	1900	500	SPF1CM680D07000RAXXX
	82	5×8	22	1900	500	SPF1CM820D08000RAXXX
	100	5×7	22	2000	500	SPF1CM101D07000RAXXX
	100	6.3×5	27	1800	500	SPF1CM101E05000RAXXX
	120	5×8	22	2100	500	SPF1CM121D08000RAXXX
	150	5×8	22	2100	500	SPF1CM151D08000RAXXX
	180	5×8	22	2200	576	SPF1CM181D08000RAXXX
	180	6.3×7	17	2200	576	SPF1CM181E07000RAXXX
	220	5×10	22	2300	704	SPF1CM221D10000RAXXX
	220	6.3×8	22	2400	704	SPF1CM221E08000RAXXX
	220	6.3×10	16	2600	704	SPF1CM221E10000RAXXX
	270	5.5×9	22	2400	864	SPF1CM271B09000RAXXX
	270	6.3×8	22	2500	864	SPF1CM271E08000RAXXX
	270	8×9	22	2600	864	SPF1CM271F09000RAXXX
	330	5.5×9	22	2600	1056	SPF1CM331B09000RAXXX
	330	6.3×9	22	2600	1056	SPF1CM331E09000RAXXX
	470	6.3×11	16	2800	1504	SPF1CM471E11000RAXXX
	470	8×11	16	4100	1504	SPF1CM471F11000RAXXX
	560	8×11	16	2800	1792	SPF1CM561F11000RAXXX
	560	8×13	16	2800	1792	SPF1CM561F13000RAXXX
	680	8×11	16	3000	2176	SPF1CM681F11000RAXXX
	680	10×12	13	3200	2176	SPF1CM681G12000RAXXX
	820	8×13	12	3100	2624	SPF1CM821F13000RAXXX
	820	10×12	13	3400	2624	SPF1CM821G12000RAXXX
	1000	8×14	13	3200	3200	SPF1CM102F14000RAXXX
	1000	10×12	13	3600	3200	SPF1CM102G12000RAXXX
	1200	10×12	13	3700	3840	SPF1CM122G12000RAXXX
	1200	10×15	13	3800	3840	SPF1CM122G15000RAXXX
	1500	10×18	13	4900	4800	SPF1CM152G18000RAXXX
1800	10×14	13	4800	5000	SPF1CM182G14000RAXXX	
2200	10×15	13	4900	5000	SPF1CM222G15000RAXXX	
2200	10×17	13	5200	5000	SPF1CM222G17000RAXXX	
20	33	5×8	44	1700	500	SPF1DM330D08000RAXXX
	39	5×8	44	1700	500	SPF1DM390D08000RAXXX
	47	5×8	44	1900	500	SPF1DM470D08000RAXXX
	56	5×9	44	1900	500	SPF1DM560D09000RAXXX
	68	6.3×8	33	1900	500	SPF1DM680E08000RAXXX
	82	6.3×8	33	1900	500	SPF1DM820E08000RAXXX
	100	6.3×8	33	1900	500	SPF1DM101E08000RAXXX
	120	6.3×8	33	2000	500	SPF1DM121E08000RAXXX
	150	6.3×10	22	2100	600	SPF1DM151E10000RAXXX
	220	8×9	33	2200	880	SPF1DM221F09000RAXXX
	220	8×11	22	2200	880	SPF1DM221F11000RAXXX
	270	8×11	22	2400	1080	SPF1DM271F11000RAXXX
	330	8×11	22	2500	1320	SPF1DM331F11000RAXXX
	470	10×12	22	2600	1880	SPF1DM471G12000RAXXX
	680	10×12	22	2700	2720	SPF1DM681G12000RAXXX
	680	10×15	22	2900	2720	SPF1DM681G15000RAXXX
	820	10×18	22	3000	3280	SPF1DM821G18000RAXXX
	1000	10×18	22	3500	4000	SPF1DM102G18000RAXXX

PF series

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size ΦDxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms/105°C, 100kHz)	Leakage Current (µA)(max.)	Part Number
25	33	5×9	66	1600	500	SPF1EM330D09000RAXXX
	39	5×8	66	1700	500	SPF1EM390D08000RAXXX
	47	5×9	66	1700	500	SPF1EM470D09000RAXXX
	56	5×9	66	1800	500	SPF1EM560D09000RAXXX
	82	6.3×7	33	1900	500	SPF1EM820E07000RAXXX
	100	6.3×8	33	2200	500	SPF1EM101E08000RAXXX
	100	8×11	22	2700	500	SPF1EM101F11000RAXXX
	120	6.3×8	33	2200	600	SPF1EM121E08000RAXXX
	150	6.3×10	22	2500	750	SPF1EM151E10000RAXXX
	180	8×9	33	2200	900	SPF1EM181F09000RAXXX
	220	8×11	22	2700	1100	SPF1EM221F11000RAXXX
	270	8×11	22	2700	1350	SPF1EM271F11000RAXXX
	330	8×11	22	2700	1650	SPF1EM331F11000RAXXX
	330	10×12	22	2500	1650	SPF1EM331G12000RAXXX
	470	8×11	22	2700	2350	SPF1EM471F11000RAXXX
	470	10×12	22	3600	2350	SPF1EM471G12000RAXXX
	680	10×15	22	3800	3400	SPF1EM681G15000RAXXX
	820	8×16	22	3200	4100	SPF1EM821F16000RAXXX
820	10×18	22	4000	4100	SPF1EM821G18000RAXXX	
1000	10×18	22	4000	5000	SPF1EM102G18000RAXXX	
35	4.7	5×8	66	1500	500	SPF1VM4R7D08000RAXXX
	10	5×8	66	1600	500	SPF1VM100D08000RAXXX
	15	5×8	66	1600	500	SPF1VM150D08000RAXXX
	22	5×9	110	1700	500	SPF1VM220D09000RAXXX
	33	5×9	55	1800	500	SPF1VM330D09000RAXXX
	39	5×9	55	1800	500	SPF1VM390D09000RAXXX
	47	6.3×7	55	1800	500	SPF1VM470E07000RAXXX
	56	6.3×7	55	1900	500	SPF1VM560E07000RAXXX
	68	6.3×7	55	1900	500	SPF1VM680E07000RAXXX
	82	6.3×7	55	2000	574	SPF1VM820E07000RAXXX
	100	6.3×8	55	2100	700	SPF1VM101E08000RAXXX
	100	8×11	44	2300	700	SPF1VM101F11000RAXXX
	120	6.3×10	44	2200	840	SPF1VM121E10000RAXXX
	150	6.3×10	44	2200	1050	SPF1VM151E10000RAXXX
	220	8×11	44	2500	1540	SPF1VM221F11000RAXXX
	220	10×12	33	2600	1540	SPF1VM221G12000RAXXX
	270	10×12	33	2700	1890	SPF1VM271G12000RAXXX
	330	10×12	33	2700	2310	SPF1VM331G12000RAXXX
470	10×13	22	2800	3290	SPF1VM471G13000RAXXX	
680	10×16	22	3000	4760	SPF1VM681G16000RAXXX	
820	10×18	22	3100	5000	SPF1VM821G18000RAXXX	
1000	10×18	22	3300	5000	SPF1VM102G18000RAXXX	
50	4.7	5×8	66	1300	500	SPF1HM4R7D08000RAXXX
	10	5×8	77	1400	500	SPF1HM100D08000RAXXX
	10	6.3×7	38	1600	500	SPF1HM100E07000RAXXX
	15	5×8	77	1400	500	SPF1HM150D08000RAXXX
	22	6.3×7	44	1700	500	SPF1HM220E07000RAXXX
	33	6.3×7	44	1800	500	SPF1HM330E07000RAXXX
	47	6.3×8	38	1800	500	SPF1HM470E08000RAXXX
	56	6.3×8	38	1900	560	SPF1HM560E08000RAXXX
	68	6.3×10	33	1900	680	SPF1HM680E10000RAXXX
	100	8×11	33	2000	1000	SPF1HM101F11000RAXXX
	120	8×11	33	2100	1200	SPF1HM121F11000RAXXX
	150	10×12	33	2200	1500	SPF1HM151G12000RAXXX
	220	10×12	33	2400	2200	SPF1HM221G12000RAXXX
	270	10×13	22	2600	2700	SPF1HM271G13000RAXXX
	330	10×15	22	2700	3300	SPF1HM331G15000RAXXX
	440	10×18	22	2700	4400	SPF1HM441G18000RAXXX
	470	10×18	22	2800	4700	SPF1HM471G18000RAXXX
	63	4.7	6.3×8	66	1400	500
6.8		6.3×8	66	1400	500	SPF1JM6R8E08000RAXXX
10		6.3×5	66	1400	500	SPF1JM100E05000RAXXX
33		6.3×8	33	1500	500	SPF1JM330E08000RAXXX
39		6.3×8	33	1500	500	SPF1JM390E08000RAXXX
47		6.3×9	33	1700	592	SPF1JM470E09000RAXXX
56		8×9	33	1600	706	SPF1JM560F09000RAXXX
68		8×11	33	1800	857	SPF1JM680F11000RAXXX
82		8×11	33	1800	1033	SPF1JM820F11000RAXXX
100		10×12	33	1900	1260	SPF1JM101G12000RAXXX
150		10×12	33	2200	1890	SPF1JM151G12000RAXXX
220		10×15	22	2300	2772	SPF1JM221G15000RAXXX
270		10×17	22	2500	3402	SPF1JM271G17000RAXXX
330		10×18	22	2600	4158	SPF1JM331G18000RAXXX

Conductive Polymer Radial Type

PF series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦDxL(mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA _{rms} /105°C, 100kHz)	Leakage Current (μA)(max.)	Part Number
80	4.7	6.3×8	66	1300	500	SPF1BM4R7E08O00RAXXX
	6.8	6.3×8	66	1300	500	SPF1BM6R8E08O00RAXXX
	22	6.3×10	66	1400	500	SPF1BM220E10O00RAXXX
	33	8×11	38	1500	528	SPF1BM330F11O00RAXXX
	47	10×12	38	1600	752	SPF1BM470G12O00RAXXX
	68	10×12	38	1700	1088	SPF1BM680G12O00RAXXX
	100	10×14	38	1800	1600	SPF1BM101G14O00RAXXX
100	4.7	6.3×8	132	1200	500	SPF1KM4R7E08O00RAXXX
	6.8	6.3×8	132	1300	500	SPF1KM6R8E08O00RAXXX
	10	6.3×10	55	1300	500	SPF1KM100E10O00RAXXX
	10	8×11	55	1300	500	SPF1KM100F11O00RAXXX
	15	8×11	55	1300	500	SPF1KM150F11O00RAXXX
	22	10×12	38	1400	500	SPF1KM220G12O00RAXXX
	33	10×14	38	1400	660	SPF1KM330G14O00RAXXX
	47	10×16	38	1600	940	SPF1KM470G16O00RAXXX
125	33	10×14	38	1400	825	SPF2IM330G14O00RAXXX
	47	10×16	38	1400	1175	SPF2IM470G16O00RAXXX

※ Specifications subject to change without notice.