

CF series Chip Type, Standard



Upgrade



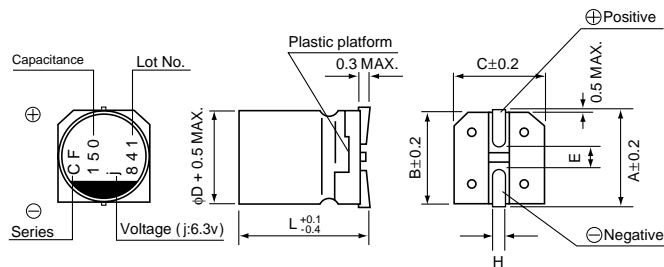
- Ultra Low ESR, High ripple current.
- Load life of 2000 hours at 105°C.
- SMD type : Lead free reflow soldering condition at 260°C peak correspondence.
- Adapted to the RoHS directive (2002/95/EC).

Specifications

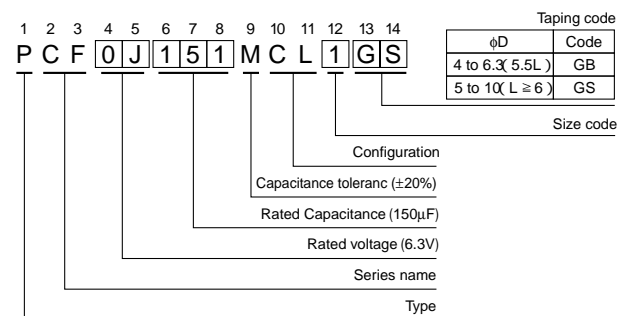
Item	Performance Characteristics		
Category Temperature Range	-55 to +105°C		
Rated Voltage Range	2.5 to 25V		
Rated Capacitance Range	3.3 to 1500μF		
Capacitance Tolerance	±20% at 120Hz, 20°C		
tan δ	Not more than value of Standard ratings at 120Hz, 20°C		
ESR (※ 1)	Not more than value of Standard ratings at 100kHz, 20°C		
Leakage Current (※ 2)	Not more than value of Standard ratings. After 2 minutes' application of rated voltage. 20°C		
Characteristics of Temperature Impedance Ratio	Z+105°C / Z+20°C ≤ 1.25 (100kHz) Z-55°C / Z+20°C ≤ 1.25		
Endurance	After 2000 hours' application of rated voltage at 105°C, capacitors meet the specified value for life characteristics listed at right.	Capacitance change	Within ± 20% of initial value (※ 3)
		tan δ	150% or less of the initial specified value
		ESR (※ 1)	150% or less of the initial specified value
		Leakage current (※ 2)	Initial specified value or less
Damp Heat	After 1000 hours' application of rated voltage at 60°C 90%RH, capacitors meet the specified value for life characteristics listed at right.	Capacitance change	Within ± 20% of initial value (※ 3)
		tan δ	150% or less of the initial specified value
		ESR (※ 1)	150% or less of the initial specified value
		Leakage current (※ 2)	Initial specified value or less
Resistance to Soldering Heat	To comply with recommended conditions for reflow soldering. Pre-heating shall be done at 150 to 200°C and for 60 to 180 sec. The duration for over +230°C temperature at capacitor surface shall not exceed 60 seconds. In the case of peak temp, less than 250°C, reflow soldering shall be within two times. In the case of peak temp, less than 260°C, reflow soldering shall be once. Measurement for solder temperature profile shall be made at the capacitor top and the terminal.	Capacitance change	Within ± 10% of initial value (※ 3)
		tan δ	130% or less of the initial specified value
		ESR (※ 1)	130% or less of the initial specified value
		Leakage current (※ 2)	Initial specified value or less
Marking	Navy blue print on the case top		

- ※ 1 ESR measurements should be made at a point on the terminal nearest where the terminals protrude through the plastic platform.
- ※ 2 Conditioning : If there is doubt about the measured result, measurement should be made again after the rated voltage is applied for 120 minutes at the temperature of 105°C.
- ※ 3 Initial value : The value before test of examination of resistance to soldering.

Dimensions



Type numbering system (Example : 6.3V 150μF)



Size	φ4 × 5.5L	φ5 × 6L	φ6.3 × 5.5L	φ6.3 × 6L	φ8 × 7L	φ8 × 12L	φ10 × 8L	φ10 × 10L	φ10 × 12.7L
φD	4.0	5.0	6.3	6.3	8.0	8.0	10.0	10.0	10.0
L	5.4	5.9	5.4	5.9	6.9	11.9	7.9	9.9	12.6
A	5.0	6.0	7.3	7.3	9.0	9.0	11.0	11.0	11.0
B	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	10.3
C	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	10.3
E	1.0	1.6	2.1	2.1	3.2	3.2	4.6	4.6	4.6
H	0.5 to 0.8	0.5 to 0.8	0.5 to 0.8	0.5 to 0.8	0.8 to 1.1	0.8 to 1.1	0.8 to 1.1	0.8 to 1.1	0.8 to 1.1

● Dimension table in next page.

Voltage

V	2.5	4	6.3	10	16	20	25
Code	e	g	j	A	C	D	E

CF series

■Standard ratings

Rated Voltage (V)(code)	Surge Voltage (V)	Rated Capacitance (μF)	Case Size φD × L (mm)	tan δ	Leakage Current (μA)	ESR (mΩ) (at 100kHz 20°C)	Rated ripple (mArms)	Part Number
2.5 (0E)	2.8	100	6.3 × 6	0.12	100	22	2600	PCF0E101MCL1GS
		220	■ 6.3 × 5.5	0.12	110	20	2800	PCF0E221MCL4GB
		220	6.3 × 6	0.12	110	20	2800	PCF0E221MCL1GS
		470	8 × 7	0.12	235	20	3300	PCF0E471MCL1GS
		820	10 × 8	0.12	410	17	4400	PCF0E821MCL1GS
		1500	10 × 10	0.12	750	13	4700	PCF0E152MCL1GS
		1500	● 10 × 12.7	0.12	750	12	5440	PCF0E152MCL9GS
4 (0G)	4.6	33	4 × 5.5	0.12	100	200	700	PCF0G330MCL1GB
		100	■ 6.3 × 5.5	0.12	100	22	2600	PCF0G101MCL4GB
		100	6.3 × 6	0.12	80	22	2600	PCF0G101MCL1GS
		150	■ 6.3 × 5.5	0.12	120	22	2800	PCF0G151MCL4GB
		150	▲ 5 × 6	0.12	300	30	2000	PCF0G151MCL6GS
		150	6.3 × 6	0.12	120	22	2800	PCF0G151MCL1GS
		220	8 × 7	0.12	176	21	3200	PCF0G221MCL1GS
		330	8 × 7	0.12	264	21	3400	PCF0G331MCL1GS
		470	10 × 8	0.12	376	17	4200	PCF0G471MCL1GS
		560	■ 8 × 12	0.12	448	13	4520	PCF0G561MCL4GS
		680	10 × 8	0.12	544	17	4400	PCF0G681MCL1GS
		820	10 × 10	0.12	656	13	4800	PCF0G821MCL1GS
		1200	10 × 12.7	0.12	960	10	5500	PCF0G122MCL1GS
6.3 (0J)	7.2	22	4 × 5.5	0.12	100	200	700	PCF0J220MCL1GB
		47	5 × 6	0.12	148	35	1600	PCF0J470MCL1GS
		82	■ 6.3 × 5.5	0.12	103	23	2600	PCF0J820MCL4GB
		82	6.3 × 6	0.12	103	23	2600	PCF0J820MCL1GS
		100	■ 6.3 × 5.5	0.12	126	23	2800	PCF0J101MCL4GB
		100	▲ 5 × 6	0.12	315	25	2200	PCF0J101MCL6GS
		100	6.3 × 6	0.12	126	23	2800	PCF0J101MCL1GS
		120	6.3 × 6	0.12	151	23	3000	PCF0J121MCL1GS
		150	8 × 7	0.12	189	22	3200	PCF0J151MCL1GS
		220	8 × 7	0.12	277	22	3400	PCF0J221MCL1GS
		330	10 × 8	0.12	416	18	4200	PCF0J331MCL1GS
		470	■ 8 × 12	0.12	592	12	5300	PCF0J471MCL4GS
		470	▲ 10 × 8	0.12	592	18	4300	PCF0J471MCL6GS
		470	10 × 10	0.12	592	16	4600	PCF0J471MCL1GS
680	10 × 10	0.12	856	14	5000	PCF0J681MCL1GS		
820	10 × 12.7	0.12	1033	10	5800	PCF0J821MCL1GS		
10 (1A)	11.5	4.7	4 × 5.5	0.12	100	240	670	PCF1A4R7MCL1GB
		6.8	4 × 5.5	0.12	100	240	670	PCF1A6R8MCL1GB
		10	4 × 5.5	0.12	100	220	700	PCF1A100MCL1GB
		15	4 × 5.5	0.12	100	200	700	PCF1A150MCL1GB
		33	5 × 6	0.12	165	35	1500	PCF1A330MCL1GS
		47	▲ 5 × 6	0.12	235	26	2600	PCF1A470MCL6GS
		47	6.3 × 6	0.12	94	26	2600	PCF1A470MCL1GS
		56	■ 6.3 × 5.5	0.12	112	25	2500	PCF1A560MCL4GB
		56	6.3 × 6	0.12	112	25	2500	PCF1A560MCL1GS
		120	8 × 7	0.12	240	23	3000	PCF1A121MCL1GS
		150	▲ 8 × 7	0.12	300	23	3200	PCF1A151MCL6GS
		150	10 × 8	0.12	300	21	3300	PCF1A151MCL1GS
		270	■ 8 × 12	0.12	540	13	4500	PCF1A271MCL4GS
		270	10 × 8	0.12	540	20	3600	PCF1A271MCL1GS
		330	■ 8 × 12	0.12	660	14	4000	PCF1A331MCL4GS
		330	10 × 8	0.12	660	20	3700	PCF1A331MCL1GS
		470	10 × 10	0.12	940	16	4600	PCF1A471MCL1GS
		560	10 × 10	0.12	1120	15	4800	PCF1A561MCL1GS
560	● 10 × 12.7	0.12	1120	13	5230	PCF1A561MCL9GS		

■ Standard ratings

Rated Voltage (V)(code)	Surge Voltage (V)	Rated Capacitance (μF)	Case Size φD × L (mm)	tan δ	Leakage Current (μA)	ESR (mΩ) (at 100kHz 20°C)	Rated ripple (mA _{rms})	Part Number
16 (1C)	18.4	3.3	4 × 5.5	0.12	100	260	660	PCF1C3R3MCL1GB
		22	5 × 6	0.12	176	45	1210	PCF1C220MCL1GS
		33	6.3 × 6	0.12	106	31	2400	PCF1C330MCL1GS
		39	■ 6.3 × 5.5	0.12	124	31	2400	PCF1C390MCL4GB
		39	6.3 × 6	0.12	124	31	2400	PCF1C390MCL1GS
		56	8 × 7	0.12	179	30	2900	PCF1C560MCL1GS
		82	10 × 10	0.12	262	28	3200	PCF1C820MCL1GS
		100	10 × 8	0.12	320	27	3300	PCF1C101MCL1GS
		150	10 × 8	0.12	480	25	3500	PCF1C151MCL1GS
		180	■ 8 × 12	0.12	576	16	4400	PCF1C181MCL4GS
		180	10 × 8	0.12	576	25	3600	PCF1C181MCL1GS
		220	10 × 10	0.12	704	20	3900	PCF1C221MCL1GS
330	10 × 12.7	0.12	1056	14	5000	PCF1C331MCL1GS		
20 (1D)	23	10	5 × 6	0.12	100	120	900	PCF1D100MCL1GS
		22	■ 6.3 × 5.5	0.12	100	50	1700	PCF1D220MCL4GB
		22	6.3 × 6	0.12	88	50	1700	PCF1D220MCL1GS
		39	8 × 7	0.12	156	45	2000	PCF1D390MCL1GS
		47	8 × 7	0.12	188	45	2000	PCF1D470MCL1GS
		56	10 × 8	0.12	224	40	2400	PCF1D560MCL1GS
		68	10 × 8	0.12	272	40	2600	PCF1D680MCL1GS
		82	10 × 8	0.12	328	40	2600	PCF1D820MCL1GS
		100	8 × 12	0.12	400	22	3200	PCF1D101MCL1GS
		120	10 × 10	0.12	480	35	2800	PCF1D121MCL1GS
150	10 × 12.7	0.12	600	20	3900	PCF1D151MCL1GS		
25 (1E)	28.7	6.8	6.3 × 6	0.12	85	80	1200	PCF1E6R8MCL1GS
		10	8 × 7	0.12	125	60	1600	PCF1E100MCL1GS
		22	10 × 8	0.12	275	50	2200	PCF1E220MCL1GS
		33	8 × 12	0.12	412	30	2800	PCF1E330MCL1GS
		47	■ 8 × 12	0.12	587	30	3000	PCF1E470MCL4GS
		47	10 × 10	0.12	587	45	2400	PCF1E470MCL1GS
		56	10 × 12.7	0.12	700	28	3200	PCF1E560MCL1GS

Rated Ripple (mA_{rms}) at 105°C 100kHz

- Taping specifications are given in page 23.
- Recommended land size, soldering by reflow are given in page 18, 19.
- Please refer to page 3 for the minimum order quantity.

- No marked, [1] will be put at 12th digit of type numbering system.
 ■ : In this case, [4] will be put at 12th digit of type numbering system.
 ▲ : In this case, [6] will be put at 12th digit of type numbering system.
 ● : In this case, [9] will be put at 12th digit of type numbering system.