

# Radial Leaded Aluminum Conductive Polymer Electrolytic Capacitors

## RPF Series



### FEATURES

- Long life time, low ESR
- Endurance: 5000 hours at 105°C
- RoHS Compliance

### APPLICATIONS

- System board, graphic cards
- DC/DC Converter, game console, servers



LEAD-FREE  
LEAD-FREE COMPATIBLE  
COMPONENT



RoHS  
COMPLIANT

### HOW TO ORDER

**Product Type** Aluminum

**Series Type** R

**Case Size** See table below

**Capacitance Code** PF 0811 681

**Tolerance** M = ±20%

**Special** No Code = std

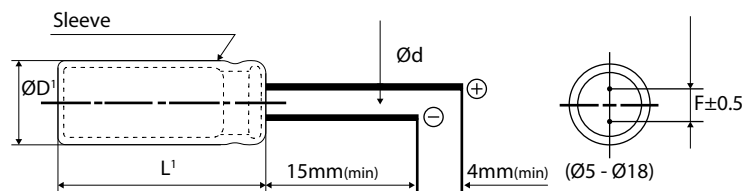
**Packaging** K = Ammo Pack  
B = Bulk Pack

**Rated DC Voltage**  
006 = 6.3Vdc 050 = 50Vdc  
010 = 10Vdc 063 = 63Vdc  
016 = 16Vdc 080 = 80Vdc  
025 = 25Vdc 100 = 100Vdc  
035 = 35Vdc

Code: R PF 0811 681 M 010 K -

### CASE DIMENSIONS millimeters (inches)

Code	D'-0.30 (0.012) +0.50 (0.020)	L'-0.50 (0.020) +1.00 (0.039)	d±0.05 (0.002)	F±0.50 (0.020)	Typical Weight (g)	Code	D'-0.30 (0.012) +0.50 (0.020)	L'-0.50 (0.020) +1.00 (0.039)	d±0.05 (0.002)	F±0.50 (0.020)	Typical Weight (g)
0507	5.00 (0.197)	7.00 (0.276)	0.50 (0.020)	2.00 (0.079)	0.28	0811	8.00 (0.315)	11.00 (0.433)	0.60 (0.024)	3.50 (0.138)	0.82
0508	5.00 (0.197)	8.00 (0.315)	0.50 (0.020)	2.00 (0.079)	0.30	0813	8.00 (0.315)	13.00 (0.512)	0.60 (0.024)	3.50 (0.138)	0.91
0509	5.00 (0.197)	9.00 (0.354)	0.50 (0.020)	2.00 (0.079)	0.34	0814	8.00 (0.315)	14.00 (0.551)	0.60 (0.024)	3.50 (0.138)	1.05
0510	5.00 (0.197)	10.00 (0.394)	0.50 (0.020)	2.00 (0.079)	0.38	0816	8.00 (0.315)	16.00 (0.630)	0.60 (0.024)	3.50 (0.138)	1.14
5509	5.50 (0.217)	9.00 (0.354)	0.50 (0.020)	2.50 (0.098)	0.38	1012	10.00 (0.394)	12.00 (0.472)	0.60 (0.024)	5.00 (0.197)	1.22
0605	6.30 (0.248)	0.50 (0.020)	0.50 (0.020)	2.50 (0.098)	0.31	1013	10.00 (0.394)	13.00 (0.512)	0.60 (0.024)	5.00 (0.197)	1.35
0607	6.30 (0.248)	7.00 (0.276)	0.50 (0.020)	2.50 (0.098)	0.37	1014	10.00 (0.394)	14.00 (0.551)	0.60 (0.024)	5.00 (0.197)	1.55
0608	6.30 (0.248)	8.00 (0.315)	0.50 (0.020)	2.50 (0.098)	0.42	1015	10.00 (0.394)	15.00 (0.591)	0.60 (0.024)	5.00 (0.197)	1.62
0609	6.30 (0.248)	9.00 (0.354)	0.50 (0.020)	2.50 (0.098)	0.45	1016	10.00 (0.394)	16.00 (0.630)	0.60 (0.024)	5.00 (0.197)	1.74
0610	6.30 (0.248)	10.00 (0.394)	0.50 (0.020)	2.50 (0.098)	0.54	1017	10.00 (0.394)	17.00 (0.669)	0.60 (0.024)	5.00 (0.197)	1.88
0611	6.30 (0.248)	11.00 (0.433)	0.50 (0.020)	2.50 (0.098)	0.58	1018	10.00 (0.394)	18.00 (0.709)	0.60 (0.024)	5.00 (0.197)	1.93
0809	8.00 (0.315)	9.00 (0.354)	0.60 (0.024)	3.50 (0.138)	0.67						



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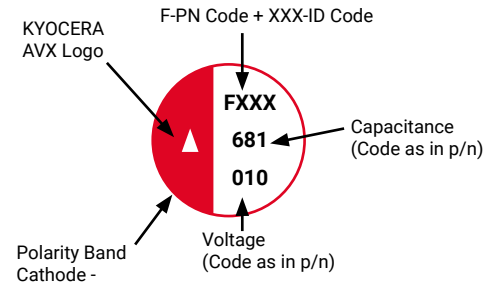


### TECHNICAL SPECIFICATIONS

<b>Category Temperature Range:</b>	-55°C to +105°C	
<b>Capacitance Range</b>	At 25°C, 120Hz	4.7µF to 3300µF
<b>Capacitance Tolerance:</b>	At 25°C, 120Hz	±20%
<b>Dissipation Factor (%)</b>	Measurement Frequency: 120Hz at 25°C	Please see the ratings and part number reference table below
<b>Leakage Current:</b>	After 2 minutes at rated working voltage at 25°C*	$I \leq 0.2CV$ or 500µA, whichever is greater

\* Note: In the case of an anomalous reading, re-measure the leakage current after following voltage treatment: Voltage treatment: DC rated voltage to be applied to the capacitors for 120 minutes at 105°C.

### MARKING



### CAPACITANCE AND RATED VOLTAGE RANGE (FIGURES DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V <sub>R</sub> )								
µF	Code	6.3V	10V	16V	25V	35V	50V	63V	80V	100V
4.7	4R7									0608
10	100					0508	0508	0605		0610
15	150									0811
22	220					0509	0607		0610	
33	330					0509	0607	0608	0811	1014
47	470					0607	0608	0609	1012	
56	560						0608	0809		
68	680					0607	0610	0811		
82	820							0811		
100	101			0605		0608 0811	0811	1012	1014	
150	151				0610			1012		
180	181				0809					
220	221	0507	0509 0608		0811	0811 1012	1012	1015		
270	271	0507		0608 0809	0811		1013	1017		
330	331	0508 0605 0608	0608	5509	0811	1012	1015	1018		
390	391	0509								
470	471	0510 0608	0608	0611	0811 1012	1013	1018			
560	561	5509 0608	0610							
680	681	5509 0609 0809	0811	1012 0811		1016				
820	821	0609	0811	0813	0816 1018	1018				
1000	102	0610 0809 0811				1018				
1200	122	0811								
1500	152	0811 1012								
2200	222	0814								
3300	332	1014								

Released ratings

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### RATINGS & PART NUMBER REFERENCE

Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	DCL Max. (µA)	DF Max. (%)	ESR Max. @100kHz (mΩ)	100kHz RMS Current (mA)
<b>6.3 Volt</b>							
RPF0507221M006*	5007	220	6.3	500	8	22	3100
RPF0507271M006*	0507	270	6.3	500	8	22	3400
RPF0508331M006*	0508	330	6.3	500	8	22	3600
RPF0605331M006*	0605	330	6.3	500	8	27	2800
RPF0608331M006*	0608	330	6.3	500	8	16	3600
RPF0509391M006*	0509	390	6.3	500	8	22	3600
RPF0510471M006*	0510	470	6.3	592	8	22	3800
RPF0608471M006*	0608	470	6.3	592	8	16	3900
RPF5509561M006*	5509	560	6.3	706	8	22	3800
RPF0608561M006*	0608	560	6.3	706	8	22	4300
RPF5509681M006*	5509	680	6.3	857	8	22	4300
RPF0609681M006*	0609	680	6.3	857	8	22	4500
RPF0809681M006*	0809	680	6.3	857	8	22	4100
RPF0609821M006*	0609	820	6.3	1033	8	22	4500
RPF0610102M006*	0610	1000	6.3	1260	8	11	4600
RPF0809102M006*	0809	1000	6.3	1260	8	13	4300
RPF0811102M006*	0811	1000	6.3	1260	8	11	4600
RPF0811122M006*	0811	1200	6.3	1512	8	11	4700
RPF0811152M006*	0811	1500	6.3	1890	8	11	4800
RPF1012152M006*	1012	1500	6.3	1890	8	11	4900
RPF0814222M006*	0814	2200	6.3	2772	8	11	5100
RPF1014332M006*	1014	3300	6.3	4158	8	11	5300
<b>10 Volt</b>							
RPF0509221M010*	0509	220	10	500	12	22	2500
RPF0608221M010*	0608	220	10	500	12	16	2800
RPF0608331M010*	0608	330	10	660	12	22	2900
RPF0608471M010*	0608	470	10	940	12	22	3100
RPF0610561M010*	0610	560	10	1120	12	14	3200
RPF0811681M010*	0811	680	10	1360	12	13	3500
RPF0811821M010*	0811	820	10	1640	12	13	3600
<b>16 Volt</b>							
RPF0605101M016*	0605	100	16	500	12	27	1800
RPF0608271M016*	0608	270	16	864	12	22	2500
RPF0809271M016*	0809	270	16	864	12	22	2600
RPF5509331M016*	5509	330	16	1056	12	22	2600
RPF1012681M016*	1012	680	16	2176	12	13	3200
RPF0813821M016*	0813	820	16	2624	12	12	3100
RPF0611471M016*	0611	470	16	1504	12	16	2800
RPF0811681M016*	0811	680	16	2176	12	16	3000
<b>25 Volt</b>							
RPF0610151M025*	0610	150	25	750	12	22	2500
RPF0809181M025*	0809	180	25	900	12	33	2200
RPF0811221M025*	0811	220	25	1100	12	22	2700
RPF0811271M025*	0811	270	25	1350	12	22	2700
RPF0811331M025*	0811	330	25	1650	12	22	2700
RPF0811471M025*	0811	470	25	2350	12	22	2700
RPF1012471M025*	1012	470	25	2350	12	22	3600
RPF0816821M025*	0816	820	25	4100	12	22	3200
RPF1018821M025*	1018	820	25	4100	12	22	4000
<b>35 Volt</b>							
RPF0508100M035*	0508	10	35	500	12	66	1600
RPF0509220M035*	0509	22	35	500	12	110	1700
RPF0509330M035*	0509	33	35	500	12	55	1800
RPF0607470M035*	0607	47	35	500	12	55	1800
RPF0607680M035*	0607	68	35	500	12	55	1900
RPF0608101M035*	0608	100	35	700	12	55	2100
RPF0811101M035*	0811	100	35	700	12	44	2300
RPF0811221M035*	0811	220	35	1540	12	44	2500
RPF1012221M035*	1012	220	35	1540	12	33	2600

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Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	DCL Max. (µA)	DF Max. (%)	ESR Max. @100kHz (mΩ)	100kHz RMS Current (mA)
RPF1012331M035*	1012	330	35	2310	12	33	2700
RPF1013471M035*	1013	470	35	3290	12	22	2800
RPF1016681M035*	1016	680	35	4760	12	22	3000
RPF1018821M035*	1018	820	35	5000	12	22	3100
RPF1018102M035*	1018	1000	35	5000	12	22	3300
<b>50 Volt</b>							
RPF0508100M050*	0508	10	50	500	12	77	1400
RPF0607220M050*	0607	22	50	500	12	44	1700
RPF0607330M050*	0607	33	50	500	12	44	1800
RPF0608470M050*	0608	47	50	500	12	38	1800
RPF0608560M050*	0608	56	50	560	12	38	1900
RPF0610680M050*	0610	68	50	680	12	33	1900
RPF0811101M050*	0811	100	50	1000	12	33	2000
RPF1012221M050*	1012	220	50	2200	12	33	2400
RPF1013271M050*	1013	270	50	2700	12	22	2600
RPF1015331M050*	1015	330	50	3300	12	22	2700
RPF1018471M050*	1018	470	50	4700	12	22	2800
<b>63 Volt</b>							
RPF0605100M063*	0605	10	63	500	12	66	1400
RPF0608330M063*	0608	33	63	500	12	33	1500
RPF0609470M063*	0609	47	63	592	12	33	1700
RPF0809560M063*	0809	56	63	706	12	33	1600
RPF0811680M063*	0811	68	63	857	12	33	1800
RPF0811820M063*	0811	82	63	1033	12	33	1800
RPF1012101M063*	1012	100	63	1260	12	33	1900
RPF1012151M063*	1012	150	63	1890	12	33	2200
RPF1015221M063*	1015	220	63	2772	12	22	2300
RPF1017271M063*	1017	270	63	3402	12	22	2500
RPF1018331M063*	1018	330	63	4158	12	22	2600
<b>80 Volt</b>							
RPF0610220M080*	0610	22	80	500	12	66	1400
RPF0811330M080*	0811	33	80	528	12	38	1500
RPF1012470M080*	1012	47	80	752	12	38	1600
RPF1014101M080*	1014	100	80	1600	12	38	1800
<b>100 Volt</b>							
RPF060847M100*	0608	4.7	100	500	15	132	1200
RPF0610100M100*	0610	10	100	500	15	55	1300
RPF0811150M100*	0811	15	100	500	15	55	1300
RPF1014330M100*	1014	33	100	600	15	38	1400

\* Used to denote packing type: "K" for Ammo Pack or "B" for Bulk.

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2 volts. DCL is measured at rated voltage after 2 minutes

## QUALIFICATION TABLE

Test	RPF Series (Temperature Range -55°C to +105°C)		
	Condition	Characteristics	
<b>Temperature Characteristics (Impedance Ratio at 100kHz)</b>	Z(+105°C)/Z(+20°C) ≤ 1.25 Z(-55°C)/Z(+20°C) ≤ 1.25		
<b>Endurance</b>	After applying rated voltage for 5000 hours at 105°C, the capacitors shall meet the following requirements.	<b>Visual examination</b>	no visible damage
		<b>ΔC/C</b>	≤ ±20% of the initial limit
		<b>DF:</b>	≤ 150% of the initial specified limit
		<b>ESR:</b>	≤ 150% of the initial specified limit
<b>DCL:</b>	≤ Initial specified limit		
<b>Humidity Test</b>	After subjecting to 90-95%RH for 2000 hours at 60°C without voltage applied, the capacitors shall meet the specified values for the Endurance characteristics listed above.		
<b>Surge Test</b>	After subjecting to 1000 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.	<b>Visual examination</b>	no visible damage
		<b>ΔC/C</b>	≤ ±20% of the initial limit
		<b>DF:</b>	≤ 150% of the initial specified limit
		<b>ESR:</b>	≤ 150% of the initial specified limit
<b>DCL:</b>	≤ Initial specified limit		

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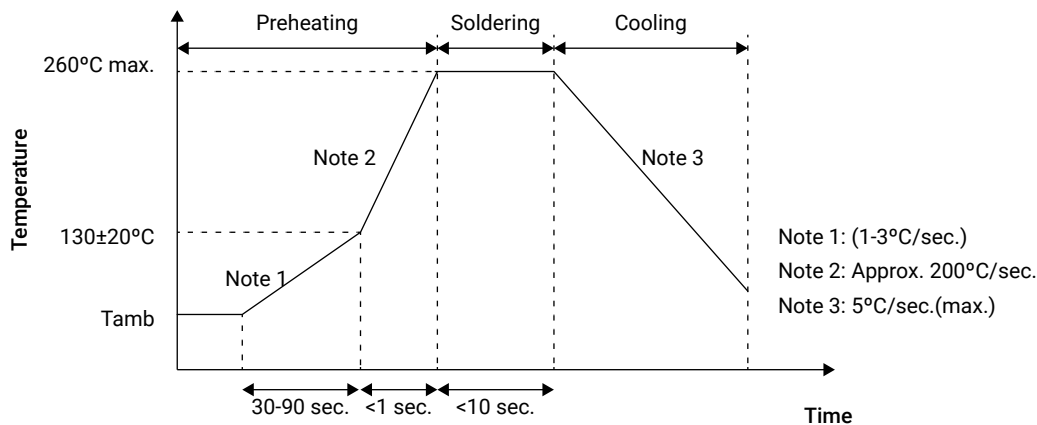
### SOLDERING

1. When soldering with a soldering iron:

- Soldering conditions (temperature and time) should be within the limits prescribed in the catalogs or the product specifications.
- If the terminal spacing of a capacitor does not fit the terminal hole spacing of the PC board, reform the terminals in a manner to minimize a mechanical stress into the body of the capacitor.
- Remove the capacitors from the PC board, after the solder is completely melted, reworking by using a soldering iron minimizes the mechanical stress to the capacitors.
- Do not touch the capacitor body with the hot tip of the soldering iron.

2. Flow Soldering:

- Do not dip the body of a capacitor into the solder bath, only dip the terminals in. The soldering must be done on the reverse side of PC board.
- Do not apply flux to any part of capacitors other than their terminals.
- Make sure the capacitors do not come into contact with any other components while soldering.
- Soldering conditions (preheat, solder temperature and dipping time) should be within the limits prescribed in the picture below.



### STORAGE

- Store with the temperature range between 5 to 35°C (If between 35 to 85°C, it should be less than three months), and the relative humidity of 75% without direct sunshine and store in the package states if possible.
- It is recommended that you open the bag just before use and use up as early as possible.
- Store the capacitors in places free from water, oil or salt water or in condensation status.
- Never store in any area filled with poisonous gases (including hydrogen sulfide, sulfurous acid, nitrous acid, chlorine and ammonia).
- Store the capacitors in places free from ozone, ultraviolet rays or radiation:  
(Radial Lead Type)  
Before unseal: within 1 year after delivery  
After opening: within 1 month

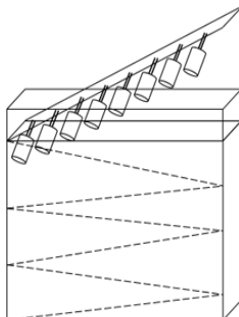
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Size Code	Bulk Pack					Ammo Pack				
	Bags	Inner Box		Carton		Quantity	Inner Box Size (LxWxH)	Inner Box Quantity	Carton Size (LxWxH)	Whole Pieces
		(LxWxH) 290*212*160		(LxWxH) 450*310*350						
	Quantity	Bags Number	Quantity / pcs	Inner Box Number	Quantity / pcs	Quantity	Inner Box Size (LxWxH)	Inner Box Quantity	Carton Size (LxWxH)	Whole Pieces
0507	1000	9	9000	4	36,000	2000	320x230x50	10	485x345x275	20,000
0508	1000	9	9000	4	36,000	2000	320x230x50	10	485x345x275	20,000
0509	1000	9	9000	4	36,000	2000	320x230x50	10	485x345x275	20,000
0510	1000	9	9000	4	36,000	2000	320x230x50	10	485x345x275	20,000
5509	1000	8	8000	4	32,000	2000	320x230x50	10	485x345x275	20,000
0605	1000	8	8000	4	40,000	2000	340x290x48	10	600x354x265	20,000
0607	1000	8	8000	4	32,000	2000	340x290x48	10	600x354x265	20,000
0608	1000	8	8000	4	32,000	2000	340x290x48	10	600x354x265	20,000
0609	1000	8	8000	4	32,000	2000	340x290x48	10	600x354x265	20,000
0610	1000	8	8000	4	32,000	2000	340x290x48	10	600x354x265	20,000
0611	1000	8	8000	4	32,000	2000	340x290x48	10	600x354x265	20,000
0809	500	8	4000	4	16,000	950	320x230x50	10	485x345x275	9500
0811	500	8	4000	4	16,000	950	320x230x50	10	485x345x275	9500
0813	500	8	4000	4	16,000	950	320x230x50	10	485x345x275	9500
0814	500	8	4000	4	16,000	950	320x230x50	10	485x345x275	9500
0816	500	8	4000	4	16,000	950	320x230x55	10	485x345x300	9500
1012	500	6	3000	4	12,000	600	320x230x50	10	485x345x275	6000
1013	500	6	3000	4	12,000	600	320x230x50	10	485x345x275	6000
1014	500	6	3000	4	12,000	600	320x230x50	10	485x345x275	6000
1015	500	6	3000	4	12,000	600	320x230x50	10	485x345x275	6000
1016	500	6	3000	4	12,000	600	320x230x55	10	485x345x300	6000
1017	500	6	3000	4	12,000	600	320x230x55	10	485x345x300	6000
1018	500	6	3000	4	12,000	600	320x230x55	10	485x345x300	6000

### AMMO PACKING



### BULK PACKING

