

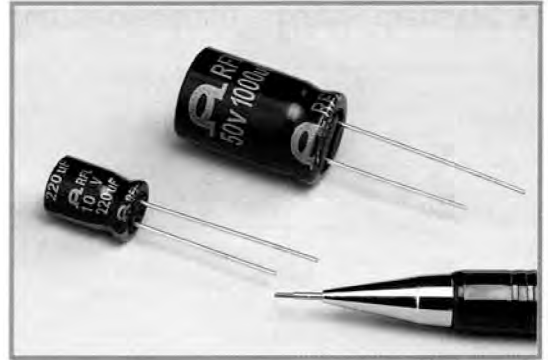


RFL SERIES

Low Z, Long Life(8000 hours)

Features

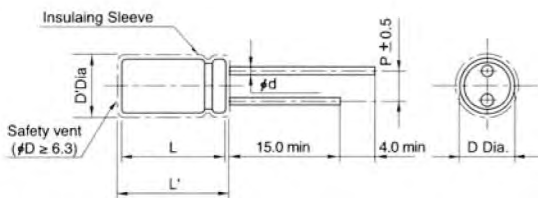
- Miniature, Radial, Long life
- Extremely low Impedance at high frequency
- For switching mode power supply
- Load life of 2000~8000 hours at 105°C



Specifications

Item	Performance Characteristics						
Operating temperature range	-55°C ~ +105°C						
Rated working voltage range	6.3V ~ 50V						
Nominal capacitance range	22μF ~ 15000μF, ±20% (at 20°C, 120Hz)						
D.C Leakage current(at 20°C)	The following specifications shall be satisfied when the rated voltage is applied for the required time. $I \leq 0.03CV$ or $4\mu A$ (2 min), Whichever is greater Where I =Leakage current(μA) C=Nominal capacitance(μF) V=Rated voltage(V)						
Tan δ(max., at 20°C, 120Hz)	W.V(V)	6.3	10	16	25	35	50
	Tan δ	0.22	0.19	0.16	0.14	0.12	0.10
When capacitance is over 1000μF, Tan δ shall be added 0.02 to the listed value with increase of every each 1000μF							
Characteristics at low temperature(max.) (impedance ratio at 120Hz)	W.V(V)	6.3	10	16	25	35	50
	Z-55°C/Z20°C	4	4	3	3	3	2
Load life	After applying rated working voltage for 5000 hours (φ 5, φ 6.3 : 2000 hours, φ 8 : 3000 hours, φ 10 : 5000 hours, φ 12.5 : 7000 hours, φ 16, φ 18 : 8000 hours) at +105°C and then being stabilized at +20°C, capacitors shall meet following limits.						
	Capacitance change	Within ± 20% of the initial measured value					
	Tan δ	≤ 200% of the initial specified value					
	Leakage current	≤ The initial specified value					
Shelf life	After storage for 1000 hours at +105°C with no voltage applied and then being stabilized at +20°C, capacitors shall meet following limits.						
	Capacitance change	Within ± 20% of the initial measure value					
	Tan δ	≤ 150% of the initial specified value					
	Leakage current	≤ The initial specified value					

Dimensions



Standard lead style

φD	5.0	6.3	8.0	10.0	12.5	16.0	18.0
P	2.0	2.5	3.5	5.0		7.5	
φd	0.5			0.6		0.8	

D'=[D +0.5] Max.

L'=[L+1.0] Max. at D≤8.0

L'=[L+1.5]Max. at D≥10.0

Ripple current coefficient

Frequency

Cap(μF)	Freq(Hz)	50	120	1K	10K	100K
22 < Cap ≤ 330		0.55	0.65	0.85	0.90	1.0
330 < Cap ≤ 1000		0.70	0.75	0.90	0.95	1.0
1000 < Cap ≤ 2200		0.75	0.80	0.90	0.95	1.0
2200 < Cap		0.80	0.85	0.95	0.98	1.0

Temperature

Temperature	≤ 70°C	85°C	105°C
Factor	1.65	1.4	1.0

RFL SERIES

Standard Ratings [Dimensions, Impedance, Ripple Current]

 ϕ D x L(mm)

Cap(μ F)	W.V(V)	6.3(0J)			10(1A)			16(1C)		
		SIZE	Z	I _r	SIZE	Z	I _r	SIZE	Z	I _r
47							5 x 11	0.50	175	
68							6.3 x 11	0.35	235	
100					5 x 11	0.50	175	6.3 x 11	0.25	290
220					6.3 x 11	0.25	290	8 x 11.5	0.18	400
330					8 x 11.5	0.18	400	8 x 11.5	0.12	555
470					8 x 11.5	0.12	555	10 x 12.5	0.090	760
680					10 x 12.5	0.090	760	10 x 16	0.068	1050
1000	10 x 12.5	0.090	760	10 x 16	0.068	1050	10 x 20	0.052	1220	
1500	10 x 20	0.052	1220	12.5 x 20	0.045	1440	12.5 x 20	0.038	1660	
2200	12.5 x 20	0.045	1440	12.5 x 20	0.038	1660	12.5 x 25	0.030	1950	
3300	12.5 x 20	0.038	1660	12.5 x 25	0.030	1950	16 x 25	0.022	2510	
4700	12.5 x 25	0.030	1950	16 x 25	0.022	2510	16 x 31.5	0.019	3010	
6800	16 x 25	0.022	2560	16 x 31.5	0.019	3010	16 x 35.5	0.018	3680	
10000	16 x 35.5	0.017	3150	18 x 35.5	0.016	3680	18 x 40	0.015	3800	
12000	18 x 31.5	0.018	3330	18 x 40	0.015	3800				
15000	18 x 35.5	0.016	3680							

Cap(μ F)	W.V(V)	25(1E)			35(1V)			50(1H)		
		SIZE	Z	I _r	SIZE	Z	I _r	SIZE	Z	I _r
22							5 x 11	0.50	175	
33					5 x 11	0.50	175	6.3 x 11	0.35	235
47	5 x 11	0.50	175	6.3 x 11	0.35	235	6.3 x 11	0.45	260	
68	6.3 x 11	0.35	235	8 x 11.5	0.25	330	8 x 11.5	0.31	360	
100	6.3 x 11	0.25	290	8 x 11.5	0.18	400	8 x 11.5	0.22	485	
220	8 x 11.5	0.12	555	10 x 12.5	0.090	760	10 x 20	0.088	1050	
330	10 x 12.5	0.090	760	10 x 16	0.068	1050	12.5 x 20	0.073	1250	
470	10 x 16	0.068	1050	10 x 20	0.052	1220	12.5 x 25	0.064	1550	
680	10 x 20	0.052	1220	12.5 x 20	0.038	1660	16 x 25	0.048	1840	
1000	12.5 x 20	0.038	1660	12.5 x 25	0.030	1950	16 x 31.5	0.034	2240	
1500	12.5 x 25	0.030	1950	16 x 25	0.022	2510	16 x 35.5	0.025	2800	
2200	16 x 25	0.022	2510	16 x 31.5	0.019	3010	18 x 35.5	0.023	3100	
3300	16 x 31.5	0.019	3010	18 x 35.5	0.016	3680				
4700	18 x 35.5	0.016	3680							

I_r: Maximum permissible ripple current[mA(rms) at 105°C, 100KHz]Z: Max. Impedance[Ω at 20°C, 100KHz]

ORDERING INFORMATION for Leaded Type



Daewoo Components Corp.

Through-Hole Part Numbering System Example:

RM = Leaded Radial 85°C Miniature Series, **102** = 1000µF, **M** =20% Tolerance, **1E** 25 Volts, **B** = Bulk,
1020 = Case size (Dia x H) = 10.0 x 20.0mm, **E** = 5.0mm



(1) Series

See Quick Guide on page 2
Example: RSS, RM, RMU,...

(2) Capacitance Value Code

Capacitance expressed in micro Farads (µF)
First two digits are significant figures
Third digit denotes the number of zeros
Use R for decimal point for values less than 10µF

Examples:

CODE	Capacitance
R10	0.1 µF
R68	0.68 µF
1R0	1.0 µF
100	10 µF
680	68 µF
471	470 µF
102	1000 µF
103	10000 µF

(3) Capacitance Tolerance Code

CODE	Cap. Tol.	CODE	Cap. Tol.
J	±5%	V	-10% ~ +20%
K	±10%	Q	-10% ~ +30%
M	±20%	T	-10% ~ +50%
R	+20%, -0%		

(4) Rated Voltage Code

CODE	Voltage	CODE	Voltage
0G	4.0V	2C	160V
0J	6.3V	2S	180V
1A	10V	2D	200V
1C	16V	2E	250V
1E	25V	2F	315V
1V	35V	2V	350V
1H	50V	2G	400V
1J	63V	2W	450V
1K	80V	3Z	1000V
2A	100V		

(5) Packaging Form & Lead Style Code (see page 7, 8, 9 for details)

	Code	Packaging Form & Lead Style
Bulk	B	Bulk: Standard Package
	L	Bulk: 4 -8ø Long Leads Formed to 5 mm Pitch
Snap-In	1	10-13ø Snap-in Cut 5.0mm
	2	16-13ø Snap-in Cut 5.0mm
	3	10-13ø Snap-in Cut 4.5mm
	4	16-18ø Snap-in Cut 4.5mm
	5	4-8ø Snap-in Cut 7.5mm
Form	F	4-8ø Forming Cut 6.5mm
	G	4-8ø Forming Cut 10.0mm
Straight Cut	C	4-18ø Straight Cut 4.0mm
	6	4-18ø Straight Cut 3.1mm
	7	4-18ø Straight Cut 5.0mm
	8	4-18ø Straight Cut 6.35mm
Ammo Tape (+) Leading	A	4-8ø Straight Ammo Detail Ranges: 4-6.3ø; F=2.5mm 8ø; F=3.5mm
		4-8ø Form Tape & Ammo 5mm Pitch
		10ø Straight Ammo Tape 5mm Pitch
		13ø Straight Ammo Tape 5mm Pitch
		16-18ø Straight Ammo Tape 5mm Pitch
Tape & Reel (+) Leading	T	4-8ø Straight Ammo Detail Ranges: 4-6.3ø; F=2.5mm 8ø; F=3.5mm
		4-13ø Form Tape & Reel 5mm Pitch
		10-13ø Straight Reel Tape 5mm Pitch

NOTE: Standard Pack Anode(+) Lead Leading FEEDS OFF FIRST
Special Option Cathode(-) Lead Leading available upon request
Standard Packages: B = Bulk, A = Ammo, T = Tape & Reel

(6) Example Dimension Code (Diameter x Height in mm)

Size Code	Diameter	Height	Size Code	Diameter	Height
0405	4	5	1320	13	20
0407	4	7	1631	16	31.5
0505	5	5	1835	18	35.5
0507	5	7	2240	22	40
0607	6.3	7	2545	25	45
0511	5	11	3035	30	35
0605	6	5	3500	35	100
0611	6.3	11	3501	35	110
0805	8	5	5102	51	120
0811	8	11	6303	63.5	130
1012	10	12.5	7604	76	140
1220	12.5	20	8904	89	140

(7) Lead Spacing Code (LS)

Code	X	A	B	C	D	E	J	F
LS	1.0	1.5	2.0	2.5	3.5	5.0	7.0	7.5
Code	K	M	G	P	H	Q	R	S
LS	8.0	10.0	10.5	12.0	12.5	12.8	15.0	16.0
Code	T	U	V	W	Y	Z		
LS	20.0	21.7	28.3	30.0	31.6	32		