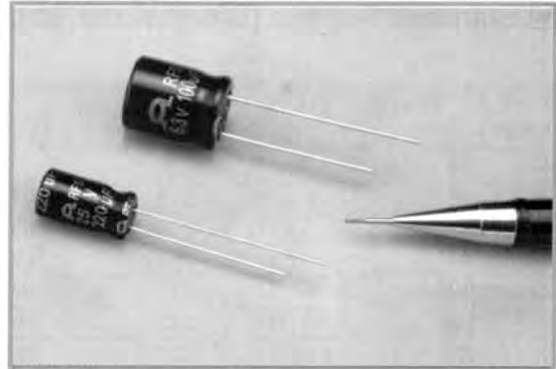


RFS SERIES

Low Z, Low ESR, Super-miniature, Radial Leads

■ Features

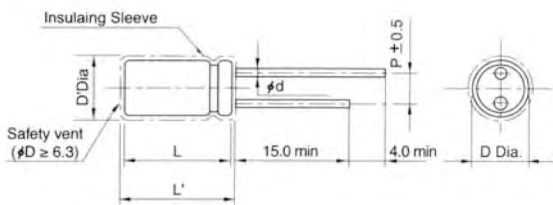
- Super-miniature (Smaller than RF)
- Low Impedance at high frequency
- For switching mode power supply
- Load life of 2000 hours at 105°C



■ Specifications

Item	Performance Characteristics									
Operating temperature range	-55°C ~ +105°C									
Rated working voltage range	6.3V ~ 100V									
Nominal capacitance range	0.47 μF ~ 15000 μF, ±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. $I \leq 0.01CV$ or $2\mu A$ (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	63	100	
	Tan δ	0.24	0.20	0.16	0.14	0.12	0.10	0.09	0.08	
When capacitance is over 1000 μF, Tan δ shall be added 0.02 to the listed value with increase of every each 1000 μF										
Characteristics at low temperature (max.) (impedance ratio at 120Hz)	W.V(V)	6.3~16		25~35		50	63~100			
	Z -55°C/+20°C	3		2		2	2			
Load life	After applying rated working voltage for 2000 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 measured value								
	Tan δ	≤ 200% of the initial specified value								
	Leakage current	≤ 200% of 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	400	1K	10K	50-100K
Cap ≤ 4.7	0.34	0.46	0.54	0.70	0.83	1.0
4.7 < Cap ≤ 47	0.45	0.57	0.68	0.80	0.87	1.0
47 < Cap ≤ 330	0.55	0.70	0.76	0.88	0.90	1.0
330 < Cap ≤ 1000	0.67	0.78	0.88	0.90	0.92	1.0
1000 < Cap	0.82	0.84	0.90	0.94	0.97	1.0

• Temperature

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



RFS SERIES

Standard Ratings [Dimensions, Impedance, Ripple Current]

φ D x L(mm)

Cap(μF)	W.V(V)	6.3(0J)			10(1A)			16(1C)			25(1E)		
		SIZE	Z	I _r	SIZE	Z	I _r	SIZE	Z	I _r	SIZE	Z	I _r
4.7											5 x 11	0.78	180
10								5 x 11	0.78	180	5 x 11	0.75	180
22		5 x 11	0.78	180	5 x 11	0.78	180	5 x 11	0.75	180	5 x 11	0.72	180
33		5 x 11	0.78	180	5 x 11	0.75	180	5 x 11	0.72	180	5 x 11	0.65	180
47		5 x 11	0.78	180	5 x 11	0.72	180	5 x 11	0.65	180	5 x 11	0.50	180
100		5 x 11	0.78	180	5 x 11	0.65	180	5 x 11	0.50	180	6.3 x 11	0.33	280
150		5 x 11	0.45	230	5 x 11	0.60	200	6.3 x 11	0.33	220	6.3 x 11	0.18	380
220		6.3 x 11	0.33	280	6.3 x 11	0.33	280	6.3 x 11	0.20	280	8 x 11.5	0.16	450
330		6.3 x 11	0.33	280	6.3 x 11	0.18	450	8 x 11.5	0.17	470	8 x 11.5	0.12	600
470		6.3 x 11	0.20	450	8 x 11.5	0.18	580	8 x 11.5	0.12	600	10 x 12.5	0.091	800
680		8 x 11.5	0.12	660	8 x 11.5	0.12	660	10 x 12.5	0.091	850	10 x 16	0.069	1100
1000		10 x 12.5	0.12	660	10 x 12.5	0.10	850	10 x 16	0.069	1100	10 x 20	0.065	1400
1500		10 x 16	0.07	1100	10 x 16	0.069	1100	10 x 20	0.065	1400	12.5 x 20	0.045	1900
2200		10 x 20	0.065	1400	10 x 20	0.065	1400	12.5 x 20	0.049	1700	12.5 x 25	0.040	2100
3300		12.5 x 20	0.065	1600	12.5 x 20	0.038	1700	12.5 x 25	0.039	2100	16 x 31.5	0.028	2600
4700		12.5 x 20	0.058	1800	12.5 x 25	0.032	2100	16 x 25	0.028	2600	16 x 35.5	0.026	3000
6800		16 x 25	0.033	2200	16 x 25	0.030	2600	16 x 31.5	0.026	3000	18 x 35.5	0.024	3600
10000		16 x 31.5	0.029	2600	16 x 35.5	0.023	3000	18 x 35.5	0.023	3600			
15000		18 x 35.5	0.026	3000	18 x 35.5	0.023	3500						

Cap(μF)	W.V(V)	35(1V)			50(1H)			63(1J)			100(2A)		
		SIZE	Z	I _r	SIZE	Z	I _r	SIZE	Z	I _r	SIZE	Z	I _r
0.47					5 x 11	6.50	25						
1.0					5 x 11	4.55	40						
2.2					5 x 11	3.90	55				5 x 11	3.00	44
3.3					5 x 11	3.38	65				5 x 11	3.00	58
4.7		5 x 11	0.78	180	5 x 11	2.99	90	5 x 11	3.00	68	5 x 11	3.00	74
10		5 x 11	0.75	180	5 x 11	1.82	120	5 x 11	1.20	110	6.3 x 11	1.00	130
22		5 x 11	0.72	180	5 x 11	1.56	150	6.3 x 11	0.70	180	8 x 11.5	0.60	230
33		5 x 11	0.65	180	6.3 x 11	0.56	250	6.3 x 11	0.50	220	8 x 11.5	0.40	300
47		5 x 11	0.60	220	6.3 x 11	0.50	270	6.3 x 11	0.45	300	10 x 12.5	0.30	420
100		6.3 x 11	0.18	350	8 x 11.5	0.31	340	10 x 12.5	0.25	390	10 x 20	0.20	580
150		8 x 11.5	0.18	450	10 x 12.5	0.22	490	10 x 16	0.15	440	12.5 x 20	0.15	710
220		8 x 11.5	0.15	600	10 x 16	0.16	650	10 x 20	0.12	700	12.5 x 25	0.10	890
330		10 x 12.5	0.091	850	10 x 20	0.13	810	12.5 x 20	0.08	980	16 x 25	0.080	1080
470		10 x 16	0.069	1100	12.5 x 20	0.11	1100	12.5 x 20	0.055	1200	16 x 31.5	0.065	1310
680		10 x 20	0.065	1400	12.5 x 20	0.095	1200	16 x 25	0.048	1300	18 x 35.5	0.050	1410
1000		12.5 x 20	0.049	1700	16 x 25	0.056	1600	16 x 31.5	0.042	1400			
1500		16 x 25	0.033	2100	16 x 31.5	0.049	2000	18 x 35.5	0.035	1750			
2200		16 x 31.5	0.028	2600	18 x 35.5	0.044	2300						
3300		16 x 35.5	0.026	3000									
4700		18 x 35.5	0.026	3600									

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

Low Z

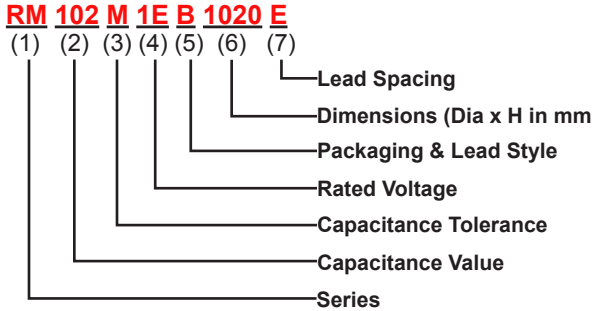
ORDERING INFORMATION for Leaded Type



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		