



## RFH SERIES

Radial Type, Through-Hole

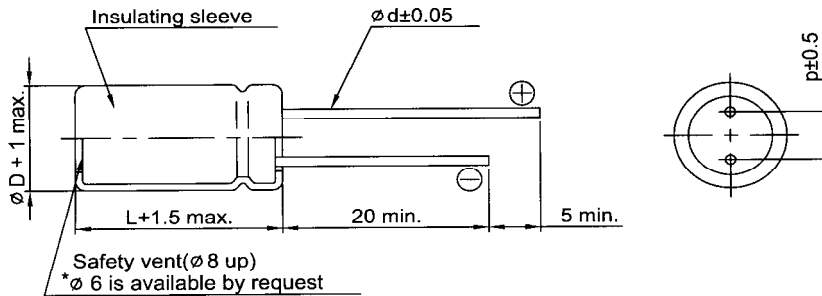
- RFH series capacitors are low length (max 25mm height) with low impedance for high frequency.
- Load life 105°C, 5000 hours assured. (2000 hours for  $D \leq 8\text{mm}$ )

### Characteristics

Voltage Range	6.3 ~ 63V							
Capacitance Range	0.47 ~ 4700uF							
Temperature Range	-55 ~ + 105°C							
Leakage Current	I=0.01CV or 3uA, whichever is greater (After 2 minutes)							
Capacitance Tolerance	□20% at 120Hz, 20°C (10% Tol. is available upon request)							
Dissipation Factor	WV	6.3	10	16	25	35	50	63
	tan δ	0.15	0.12	0.11	0.09	0.08	0.06	0.05
For capacitance > 1000uF, add 0.02 for every 1000uF. (at 20°C, 120Hz)								
Load life after application of the rated voltage with ripple current for 5000 hrs at 105°C (2000 hrs for $D \leq 8\text{mm}$ )	Leakage current	Less than initial specified value						
	Capacitance change	Within □20% of initial value						
	tan δ	200% or less of initial specified value						
Shelf life (at 105°C)	After 1000 hrs no load test the leakage current, capacitance and tan δ same as load life value.							

### Diagram of dimensions

D□	5	6.3	8	10	13	16	18
p	2.0	2.5	3.5	5.0	5.0	7.5	7.5
d□	0.5	0.5	0.5	0.6	0.6	0.8	0.8



### Multiplier for R.C. vs Temperature

Temp.(°C)	45	60	70	85	95	105
Multiplier	2.10	1.90	1.65	1.40	1.25	1.00

### Ripple Current Coefficients

Frequency (Hz)	60	120	400	1K	10K	50K - 100K
Cap.(uF) / Hz	Multiplier					
Cap. ≤ 10	0.47	0.59	0.76	0.85	0.97	1
10 < Cap. ≤ 100	0.52	0.62	0.80	0.89	0.97	1
100 < Cap. ≤ 1000	0.58	0.72	0.84	0.90	0.98	1
1000 < Cap.	0.63	0.78	0.87	0.91	0.98	1

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**Dimensions, Maximum Permissible Ripple Current & Impedance**

uF	WV	6.3			10			16			25		
		D <sub>1</sub> xL(mm)	Impedance (Ω) <sub>max</sub> 20°C 100KHz	Ripple Current mA(rms) 105°C 100KHz	D <sub>1</sub> xL(mm)	Impedance (Ω) <sub>max</sub> 20°C 100KHz	Ripple Current mA (rms) 105°C 100KHz	D <sub>1</sub> xL(mm)	Impedance (Ω) <sub>max</sub> 20°C 100KHz	Ripple Current mA(rms) 105°C 100KHz	D <sub>1</sub> xL(mm)	Impedance (Ω) <sub>max</sub> 20°C 100KHz	Ripple Current mA(rms) 105°C 100KHz
10							5x11	4.00	37	5x11	2.10	56	
22							5x11	2.00	70	5x11	1.80	120	
33							5x11	1.26	130	5x11	1.20	150	
47				5x11	1.20	120	5x11	0.52	190	5x11	0.50	220	
100		5x11	0.95	185	5x11	0.48	205	6.3x11	0.31	260	6.3x11	0.28	300
220		6.3x11	0.60	300	6.3x11	0.28	330	8x12	0.21	455	8x12	0.125	550
330		8x12	0.30	390	8x12	0.16	430	8x12	0.12	550	10x13	0.082	720
470		8x12	0.22	415	8x12	0.12	555	10x13	0.095	722	10x16	0.065	1040
1000		10x13	0.12	625	10x16	0.07	1010	10x25	0.050	1180	13x25	0.039	1530
2200		13x20	0.06	1300	13x25	0.04	1690	13x25	0.033	1950	16x25	0.027	2405
3300		13x25	0.048	1425	16x25	0.029	1980	16x25	0.028	2340	18x25	0.022	2960
4700		16x25	0.032	1800	16x25	0.029	2100	16x31.5	0.024	2570	18x36	0.021	3600

uF	WV	35			50			63		
		D <sub>1</sub> xL(mm)	Impedance (Ω) <sub>max</sub> 20°C 100KHz	Ripple Current mA(rms) 105°C 100KHz	D <sub>1</sub> xL(mm)	Impedance (Ω) <sub>max</sub> 20°C 100KHz	Ripple Current mA(rms) 105°C 100KHz	D <sub>1</sub> xL(mm)	Impedance (Ω) <sub>max</sub> 20°C 100KHz	Ripple Current mA(rms) 105°C 100KHz
1					5x11	3.95	25	5x11	2.80	27
2.2					5x11	2.60	33	5x11	2.40	38
3.3					5x11	2.00	45	5x11	2.00	48
4.7					5x11	1.89	58	5x11	1.89	62
10		5x11	1.90	70	5x11	1.70	100	5x11	1.65	105
22		5x11	1.36	130	6.3x11	1.00	135	6.3x11	0.80	170
33		5x11	0.95	175	6.3x11	0.74	230	8x12	0.61	245
47		6.3x11	0.44	250	8x12	0.50	285	8x12	0.56	290
100		8x12	0.19	380	10x13	0.18	475	10x16	0.24	590
220		10x13	0.098	720	10x20	0.085	900	13x20	0.080	1054
330		10x16	0.065	995	10x25	0.068	1050	13x25	0.067	1160
470		10x20	0.050	1150	13x21	0.048	1490	16x25	0.041	1750
1000		16x25	0.036	1950	16x31.5	0.030	2130	16x36	0.030	1980
2200		16x31.5	0.022	2570						

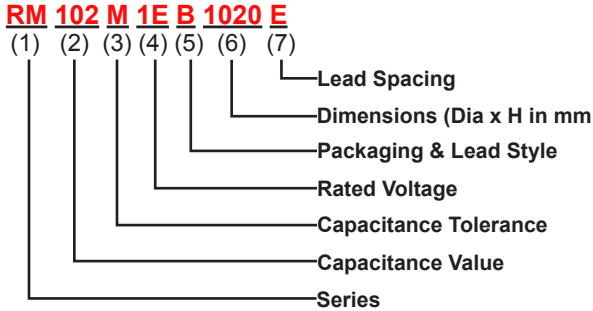
# ORDERING INFORMATION for Leaded Type



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		