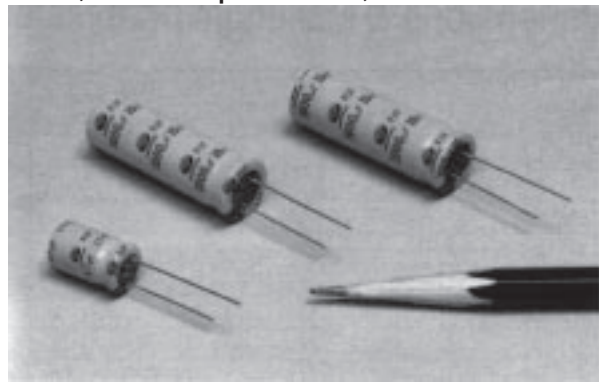


Features

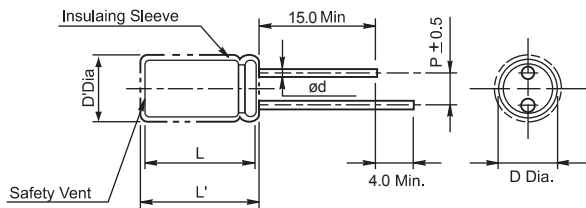
- Very low impedance and ESR at high frequency
- Large permissible ripple current
- High performance and reliability
- For switching mode power supplies (SMPS)
- Load life of 2000 hours at 105°C
- Possible cleaning by Freon TE, TES, TMS (5 min)



Specifications

Item	Performance Characteristics							
Operating temperature range	-55°C ~ +105°C							
Rated working voltage range	6.3V ~ 50V							
Nominal capacitance range	1μF ~ 1000 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. $I \leq 0.002CV$ or $2 \mu A(3 \text{ min})$, 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	0.12	0.10	0.08	0.06	0.06	0.05	
Characteristics at low temperature(max.) (impedance ratio at 120Hz)	W.V(V)	6.3~10		16	25~50			
	Z-55°C/Z20°C	3		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 ± 15% of initial measured value						
	Tan δ	≤ 150% of initial specified value						
	Leakage current	≤ Initial specified value						
Shelf life	After storage for 500 hours at +105°C with no voltage applied and then being stabilized at +20°C, capacitors shall meet following limits.							
	Capacitance change	Within ± 10% of initial measured value						
	Tan δ	≤ 115% of initial specified value						
	Leakage current	≤ 200% of initial specified value						

Case sizes and Dimensions



• Standard lead style

øD	8.0	10.0	13.0
P	3.5	5.0	
ød	0.6		

$$D' = [D + 0.5] \text{Max.}$$

$$L' = [L + 1.0] \text{Max. at } D \leq 8.0$$

$$L' = [L + 1.5] \text{Max. at } D \geq 10.0$$

Ripple current coefficient

• Frequency

W.V	Freq(Hz)	50	120	300	1K	10~100K
6.3~16V		0.54	0.70	0.85	0.95	1
25~35V		0.43	0.57	0.73	0.88	1
50V		0.39	0.55	0.71	0.86	1

• Temperature

Temperature	≤ 40°C	70°C	85°C	105°C
Factor	1.5	1.3	1	0.55

Dimensions & Maximum permissible ripple current [mA(rms) at 85°C, 100Hz]

 $\varnothing D \times L(\text{mm})$

Cap(μF) \ W.V	6.3		10		16		25		35		50		
	SIZE	I _r	SIZE	I _r	SIZE	I _r	SIZE	I _r	SIZE	I _r	SIZE	I _r	
1.0											8x11.5	80	
2.2											8x11.5	100	
3.3											8x11.5	130	
4.7											8x11.5	150	
10										8x11.5	220	8x11.5	220
22							8x11.5	330	10x12.5	330	10x12.5	340	
33					8x11.5	350	10x12.5	410	10x16	410	10x16	420	
47			8x11.5	370	10x12.5	420	10x12.5	480	10x16	480	10x20	510	
100	10x12.5	510	10x16	560	10x16	630	10x20	730	13x20	750	13x25	780	
220	10x20	780	10x20	850	13x20	970	13x20	1100	13x25	1120	13x40	1280	
330	13x20	970	13x20	1060	13x25	1310	13x25	1410	13x40	1550			
470	13x20	1280	13x25	1420	13x40	2440	13x40	1900					
1000	13x25	1970	13x40	2870									

Max. Impedance (Ω at 20°C, 100 KHz)

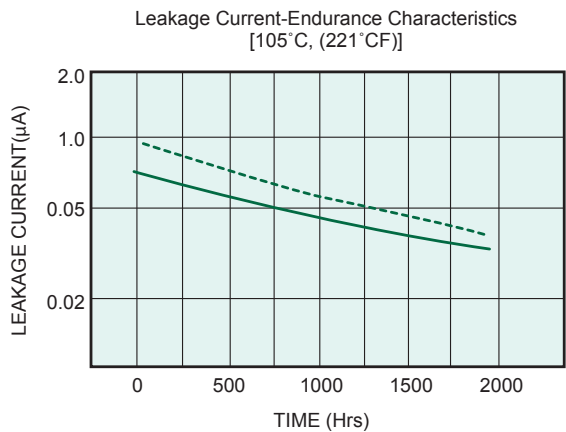
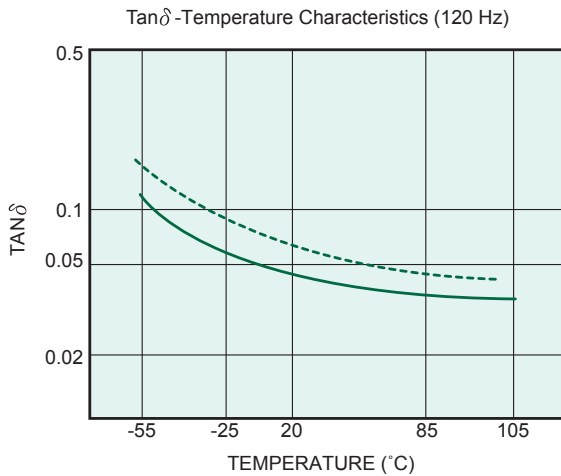
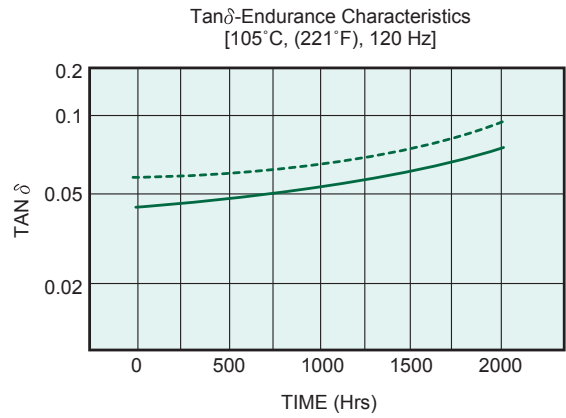
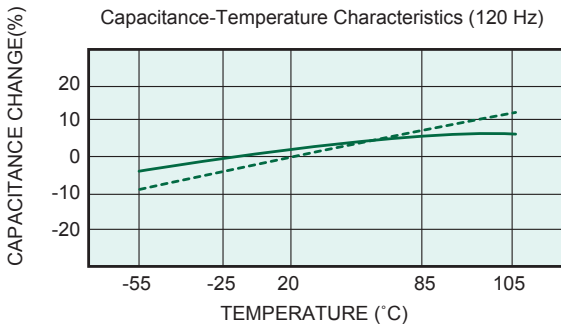
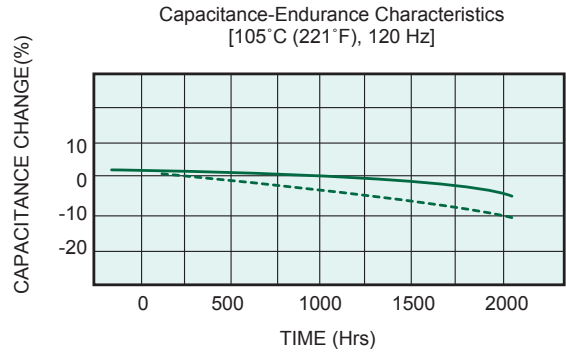
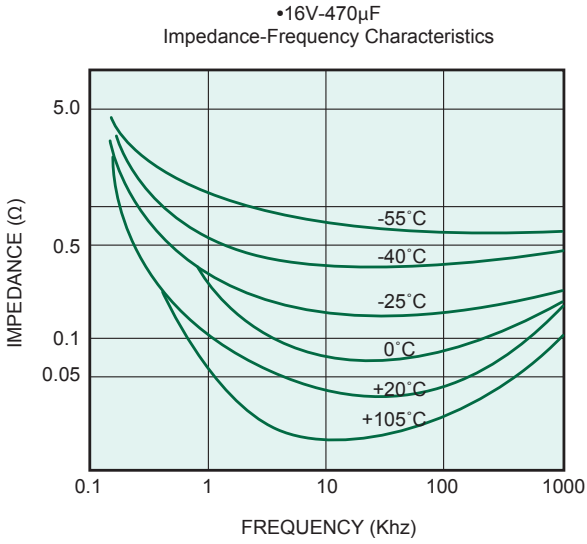
Cap(μF) \ W.V	6.3	10	16	25	35	50
1.0						31
2.2						14
3.3						9.3
4.7						6.5
10					1.5	2.1
22				0.97	1.2	1.40
33				0.97	0.93	0.90
47		0.90	0.85	0.68	0.67	0.65
100	0.67	0.57	0.45	0.35	0.30	0.26
220	0.33	0.27	0.23	0.16	0.17	0.15
330	0.24	0.20	0.12	0.12	0.12	
470	0.17	0.12	0.11	0.07		
1000	0.09	0.06				

Max.ESR (Ω at 20°C)

Cap(μF) \ W.V	6.3		10		16		25		35		50	
	120Hz	1KHz	120Hz	1KHz	120Hz	1KHz	120Hz	1KHz	120Hz	1KHz	120Hz	1KHz
1.0											66.4	46.2
2.2											30.2	21.0
3.3											20.0	14.0
4.7											14.0	9.8
10									8.00	2.0	6.6	4.5
22							3.60	2.0	3.60	1.5	3.0	2.1
33					3.20	1.92	2.60	1.44	2.40	1.3	2.0	1.4
47			2.80	1.68	2.30	1.38	1.70	1.02	1.70	1.02	1.4	1.0
100	1.59	0.95	1.33	0.80	1.06	0.63	0.80	0.48	0.80	0.40	0.66	0.46
220	0.72	0.43	0.60	0.36	0.48	0.29	0.36	0.22	0.36	0.22	0.30	0.21
330	0.48	0.29	0.40	0.24	0.28	0.17	0.24	0.14	0.24	0.14		
470	0.34	0.20	0.28	0.17	0.23	0.14	0.17	0.10				
1000	0.16	0.10	0.13	0.08								

PERFORMANCE CURVES

—— 50V-47 μ F
 - - - - 16V-470 μ F



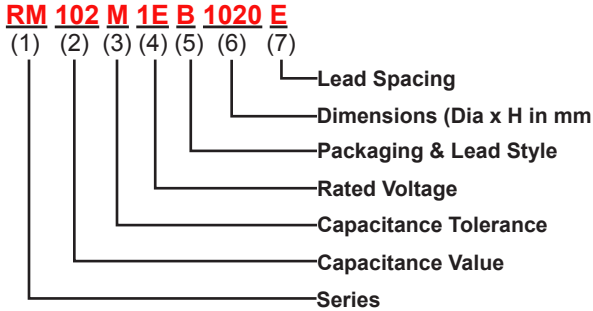
ORDERING INFORMATION for Leaded Type



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		