

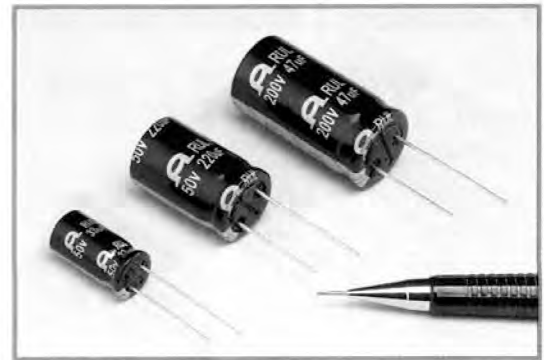


# RUL SERIES

105°C Long Life(5000H), Radial Leads

## Features

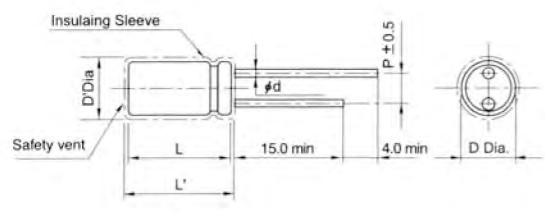
- Long life and excellent stability, Radial (equivalent to 13years at 60°C)
- No derating at high temperature
- Industrial and military applications
- Load life of 5000 hours at 105°C



## Specifications

Item	Performance Characteristics													
Operating temperature range	-40°C ~ +105°C													
Rated working voltage range	10V ~ 250V													
Nominal capacitance range	1μF ~ 2200μF, ±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. $I \leq 0.01CV + 2\mu A (10 \sim 100V) (3 \text{ min})$ $I \leq 0.04CV + 100\mu A (160 \sim 250V) (3 \text{ min})$ Where I=Leakage current(μA) C=Nominal capacitance(μF) V=Rated voltage(V)													
Tan δ (max., at 20°C, 120Hz)	W.V(V)	10	16	25	35	50	63	100	160	200	250			
	Tan δ	0.20	0.17	0.16	0.13	0.12	0.12	0.12	0.15	0.15	0.15			
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)	10			16			25			35~100		160~250	
	Z-25°C/Z20°C	3			2			2			2		2	
	Z-40°C/Z20°C	6			5			4			3		3	
Load life	After applying rated working voltage for 5000 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	10.0	12.5	16.0	18.0
p	5.0		7.5	
φd	0.6		0.8	

D' = [D+0.5]Max. 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 ≤ 10	0.8	1.0	1.30	1.45	1.65	1.70
10 < Cap ≤ 100	0.8	1.0	1.23	1.36	1.48	1.53
100 < Cap ≤ 1000	0.8	1.0	1.16	1.25	1.35	1.38
1000 < Cap	0.8	1.0	1.11	1.17	1.25	1.28

### Temperature

Temperature	≤ 70°C	85°C	105°C
Factor	2.2	1.8	1.0

# RUL SERIES

## ■ Dimensions & Maximum permissible ripple current

 $\phi$  D x L(mm)

Cap( $\mu$ F)	W.V(V)	10(1A)		16(1C)		25(1E)		35(1V)		50(1H)	
		SIZE	I <sub>r</sub>	SIZE	I <sub>r</sub>	SIZE	I <sub>r</sub>	SIZE	I <sub>r</sub>	SIZE	I <sub>r</sub>
33										10x20	190
47										10x20	245
68										10x20	320
100				10x16	185	10x20	255	10x20	290	12.5x20	410
150				10x20	295	12.5x20	345	12.5x20	390	12.5x25	540
220	10x20	330		12.5x20	395	12.5x20	450	12.5x25	515	16x25	710
330	12.5x20	435		12.5x25	530	12.5x25	600	16x25	690	16x31.5	930
470	12.5x20	570		16x25	690	16x25	770	16x25	890		
680	12.5x25	750		16x25	920	16x31.5	1000				
1000	16x25	970		16x31.5	1230	16x35.5	1320				
2200	16x35.5	1720									

Cap( $\mu$ F)	W.V(V)	63(1J)		100(2C)		160(2C)		200(2D)		250(2E)	
		SIZE	I <sub>r</sub>	SIZE	I <sub>r</sub>	SIZE	I <sub>r</sub>	SIZE	I <sub>r</sub>	SIZE	I <sub>r</sub>
1.0								10x16	26	10x16	32
1.5								10x16	34	10x16	42
2.2								10x16	46	10x16	56
3.3								10x16	61	10x20	77
4.7								10x20	79	12.5x20	100
6.8								12.5x20	105	12.5x25	130
10				10x20	140	12.5x20	125	12.5x25	135	16x25	175
15				10x20	205	12.5x25	170	16x25	185	16x31.5	235
22				12.5x20	295	16x25	225	16x25	240	16x35.5	310
33	10x20	155		12.5x25	430	16x31.5	295	16x35.5	315	18x35.5	420
47	10x20	200		16x25	610	16x35.5	390	18x35.5	410	18x40	540
68	12.5x20	265									
100	12.5x20	350									
150	12.5x25	480									
220	16x25	630									
330	16x35.5	860									

I<sub>r</sub>: Maximum permissible ripple current[mA(rms) at 105°C, 120Hz]

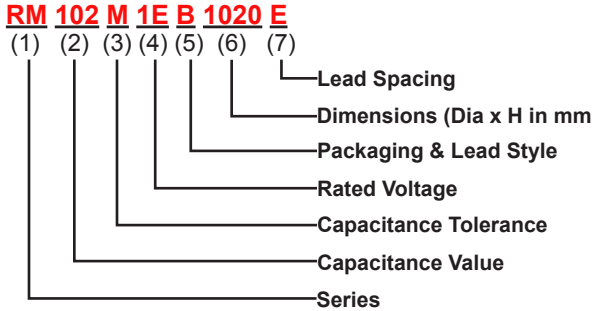
# ORDERING INFORMATION for Leaded Type



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		