

RM series

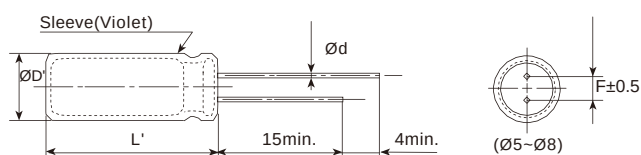
- Endurance +105°C 10,000 hours
- Miniaturized, long life
- RoHS Compliant



SPECIFICATIONS

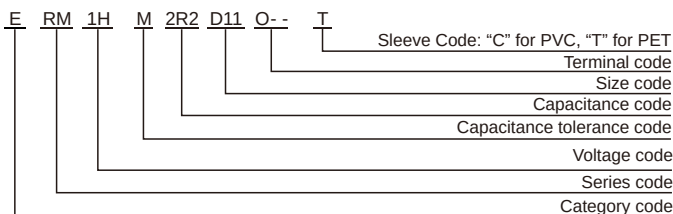
Items	Characteristics							
Category Temperature Range	-40~+105°C							
Rated Voltage Range	10~100 V _{dc}							
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)							
Leakage Current	I≤0.01CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)							
Dissipation Factor (tanδ)	Rated Voltage(V _{dc})	10	16	25	35	50	63	100
	tanδ (max.)	0.45	0.35	0.30	0.22	0.19	0.17	0.15
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C,120Hz)							
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V _{dc})	10	16	25	35	50	63	100
	Z(-25°C)/Z(+20°C)	8	6	4	3			
	Z(-40°C)/Z(+20°C)	13	10	8	7 (at 120Hz)			
Endurance	The specifications listed below shall be met when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for 10,000 hours at 105°C.							
	Capacitance Change		≤±25% of the initial value					
	D.F. (tanδ)		≤300% of the initial specified value					
	Leakage Current		≤The initial specified value					
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.							
	Capacitance Change		≤±20% of the initial value					
	D.F. (tanδ)		≤200% of the initial specified value					
	Leakage Current		≤200% of the initial specified value					

DIMENSIONS[mm]



ØD	5	6.3	8
Ød	0.5	0.5	0.5
F	2.0	2.5	3.5
ØD'	ØD+0.5max.		
L'	L+1.5max.		

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Freq.(Hz) Cap.(μF)	120	1k	10k	100k
Cap.<22	0.42	0.60	0.80	1.00
22≤Cap.<47	0.55	0.75	0.90	1.00
Cap.≥47	0.70	0.85	0.95	1.00

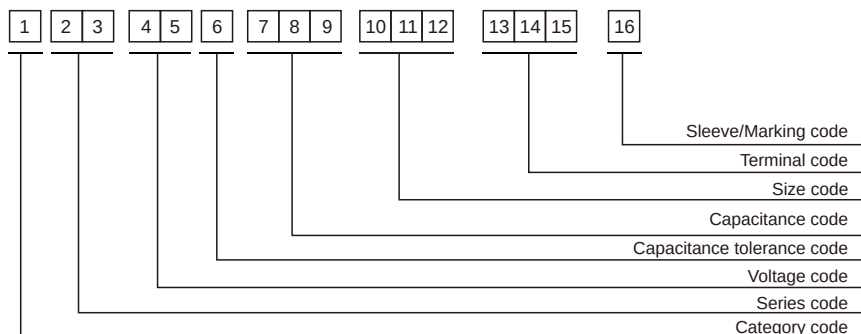
The endurance of capacitors is shortened with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

RM series

■ STANDARD RATINGS

WV (V _{dc})	Cap (μF)	Size ΦD×L(mm)	tanδ	Rated ripple current (mA _{rms} /105°C,100kHz)	Part Number
10(1A)	100	5×11	0.45	130	ERM1AM101D11OT
	220	6.3×11	0.45	210	ERM1AM221E11OT
	330	8×11	0.45	330	ERM1AM331F11OT
16(1C)	47	5×11	0.35	130	ERM1CM470D11OT
	100	6.3×11	0.35	210	ERM1CM101E11OT
	220	8×11	0.35	330	ERM1CM221F11OT
25(1E)	33	5×11	0.30	130	ERM1EM330D11OT
	47	5×11	0.30	130	ERM1EM470D11OT
	100	6.3×11	0.30	210	ERM1EM101E11OT
35(1V)	33	5×11	0.22	130	ERM1VM330D11OT
	47	6.3×11	0.22	210	ERM1VM470E11OT
	100	8×11	0.22	330	ERM1VM101F11OT
50(1H)	0.47	5×11	0.19	12	ERM1HMR47D11OT
	1	5×11	0.19	25	ERM1HM010D11OT
	2.2	5×11	0.19	35	ERM1HM2R2D11OT
	3.3	5×11	0.19	70	ERM1HM3R3D11OT
	4.7	5×11	0.19	80	ERM1HM4R7D11OT
	10	5×11	0.19	90	ERM1HM100D11OT
	22	5×12	0.19	110	ERM1HM220D12OT
	33	6.3×11	0.19	190	ERM1HM330E11OT
	47	6.3×11	0.19	190	ERM1HM470E11OT
	100	8×12	0.19	270	ERM1HM101F12OT
63(1J)	10	5×11	0.17	80	ERM1JM100D11OT
	22	6.3×11	0.17	170	ERM1JM220E11OT
	33	6.3×12	0.17	170	ERM1JM330E12OT
	47	8×12	0.17	240	ERM1JM470F12OT
100(1K)	0.47	5×11	0.15	20	ERM1KMR47D11OT
	1	5×11	0.15	40	ERM1KM010D11OT
	2.2	5×11	0.15	50	ERM1KM2R2D11OT
	3.3	5×11	0.15	60	ERM1KM3R3D11OT
	4.7	5×11	0.15	70	ERM1KM4R7D11OT
	10	6.3×12	0.15	150	ERM1KM100E12OT
	22	8×12	0.15	230	ERM1KM220F12OT

Part Numbering System



Category code

Type	Code
Aluminum electrolytic capacitor	E

Voltage code

WV (V _{dc})	Code	
	4	5
2.5	0	E
3	0	D
4	0	G
6.3	0	J
6.8	0	C
7	0	Q
7.5	0	A
10	1	A
12	1	T
16	1	C
25	1	E
35	1	V
40	1	G
50	1	H
63	1	J
80	1	B
100	1	K
120	2	B
160	2	C
180	2	L
200	2	D
220	2	N
250	2	E
315	2	F
350	2	V
380	2	P
400	2	G
420	2	T
450	2	W
500	2	H
550	2	J
600	2	K

Capacitance tolerance code

Tol. (%)	Code
-10~+10	K
-20~+20	M
-10~+30	Q
-10~+20	V
0~+20	A
-5~+20	C
-10~-20	B
-5~-+5	D
0~+10	E
-5~-20	F
-15~-+5	N

Capacitance code

Cap (μF)	Code		
	7	8	9
0.10	R	1	0
0.22	R	2	2
0.33	R	3	3
0.47	R	4	7
0.68	R	6	8
1	0	1	0
2.2	2	R	2
3.3	3	R	3
4.7	4	R	7
6.8	6	R	8
10	1	0	0
22	2	2	0
33	3	3	0
47	4	7	0
68	6	8	0
100	1	0	1
220	2	2	1
330	3	3	1
470	4	7	1
680	6	8	1
1000	1	0	2
2200	2	2	2
3300	3	3	2
4700	4	7	2
6800	6	8	2
10000	1	0	3
22000	2	2	3
33000	3	3	3
68000	6	8	3

Series code

Series name	Code	
	2	3
WH	W	H
CD11GE	G	E
CD11GES	G	X
CD11GAS	G	W
CD11GHS	G	S
NR	N	R

Size code

ΦD (mm)	Code
4	C
5	D
6.3	E
8	F
10	G
11	H
12	J
12.5	W
13	K
14	X
16	L
18	M
19	Z
20	N
22	O
25	P
30	Q
35	R
40	Y
51.6	S
64.3	T
76.9	U
91	V
100	A

L (mm)	Code	
	11	12
5	0	5
7	0	7
11	1	1
12	1	2
16	1	6
20	2	0
25	2	5
30	3	0
35	3	5
40	4	0
46	4	6
50	5	0
60	6	0
80	8	0
100	A	0
115	B	5
120	C	0
130	D	0
140	E	0
160	G	0
200	K	0
220	M	0
236	N	6
250	P	0

Terminal code

Specification	Code	Size	
	13	14	15
Bulk packing	O	-	-
Taping (SMD Type)	D	0	0
Φ4~8 Taping F=5.0mm	P	5	0
Φ10~12.5 Taping F=5.0mm	B	5	0
Lead Cut L=3.5mm	C	3	5
Lead Cut L=11.0mm	C	B	0
Lead Forming & Cut L=4.5mm	F	-	-
Kink & Cut L=4.5mm	J	-	-
Snap-in type Terminal 4.0mm in length	K	-	-
Three Terminals	T	-	-
Ring clip mounting standard design	A	0	0
Ring clip mounting special design	S	-	-

Sleeve/Marking code

Sleeve/Marking	Code
PVC	C
PET	T
Dark blue	B
Bright red	R
Sky-blue	S
Light blue	T
Pink	Z
Black	H
Purple-blue	V
Red	O

Lead Forming

Taping Specifications (Unit: mm)

Fig.1 code: X

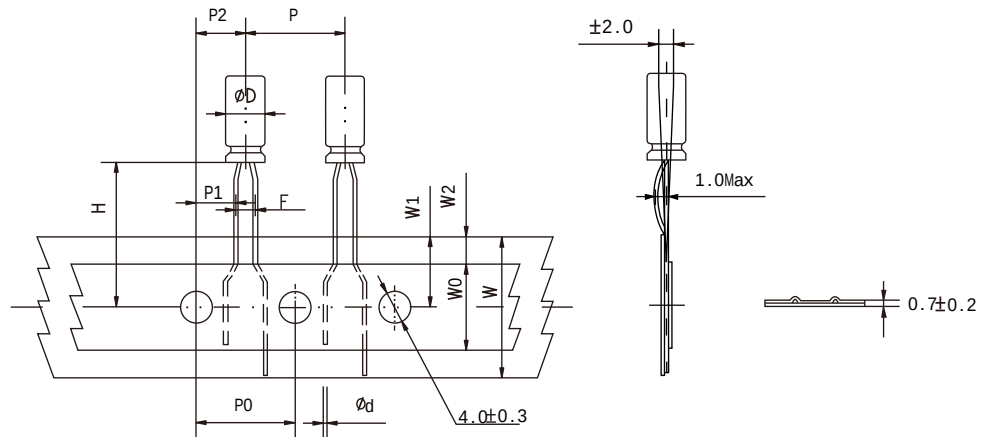


Fig.2 code: B

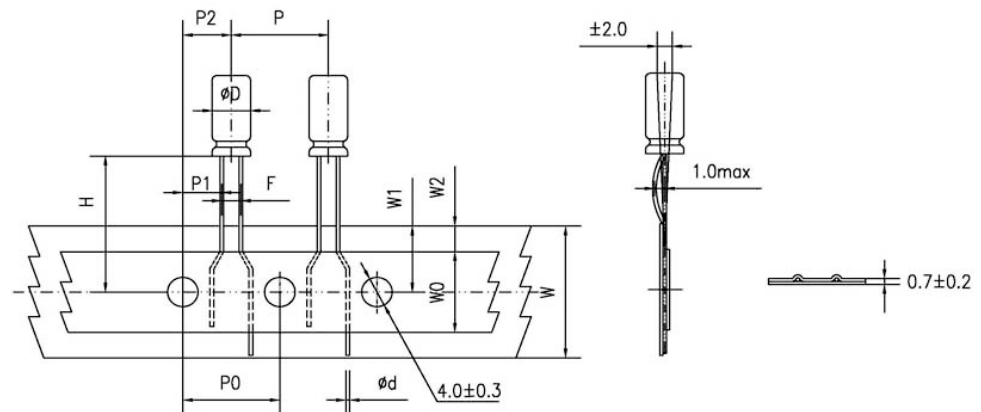


Fig.3 code: B

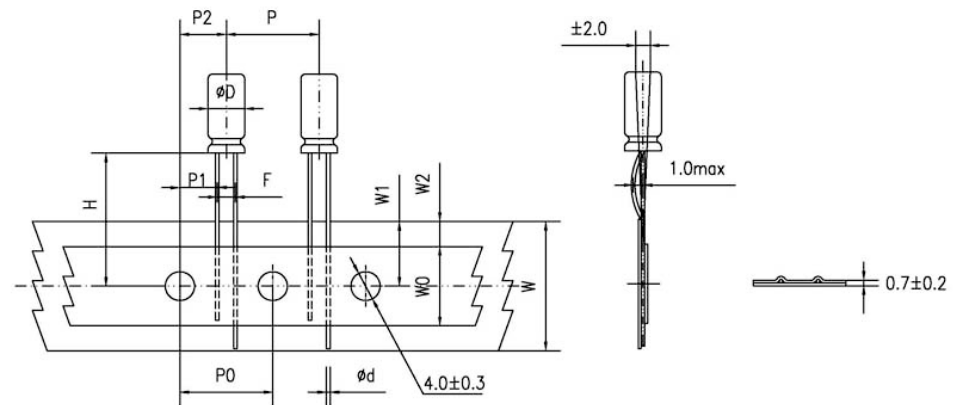
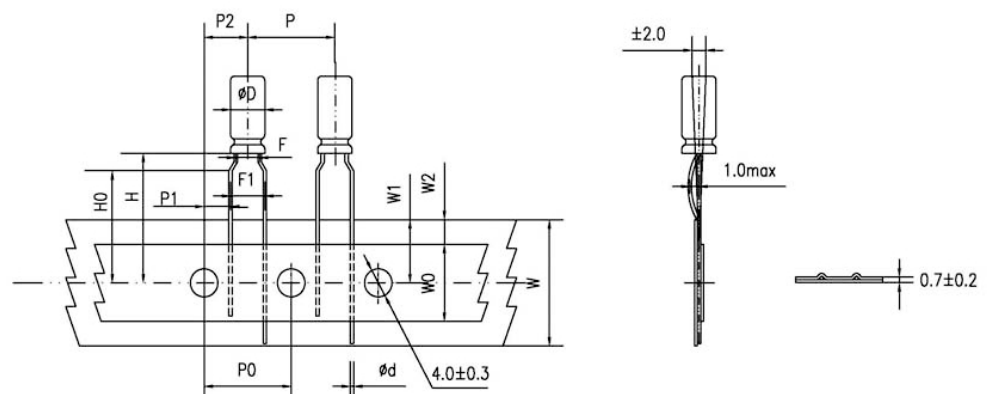


Fig.4 code: P



Lead Forming

Specification Fig.1 & Fig.2 & Fig.3

(mm)

Items	Symbol	Case size											Tolerance	
		4×5 4×7		5×5 5×7		5×11		6.3×5	6.3×7 6.3×9 6.3×11 6.3×12	8×5/7 8×9/11 8×11.5 8×12	8×16 8×20	10×9 10×12 10×13/16 10×20/25		12.5×16 12.5×20 13×20
Pin Code		X	B	X	B	X	B	B	B	B	B	B	B	
Lead wire diameter	Φd	0.45		0.45		0.5		0.45	0.5	0.45/0.5	0.6	0.6	0.6	±0.05
Pitch of body	P	12.7		12.7		12.7		12.7	12.7	12.7	12.7	12.7	15	±1.0
Feed hole pitch	P0	12.7		12.7		12.7		12.7	12.7	12.7	12.7	12.7	15	±0.2
Distance from hole center to lead	P1	5.1	5.6	5.1	5.35	5.1	5.35	5.1	5.1	4.6	4.6	3.85	5.0	±0.7
Distance from feed hole center to body center	P2	6.35		6.35		6.35		6.35	6.35	6.35	6.35	6.35	7.5	±1.0
Lead-to-lead distance	F	2.5	1.5	2.5	2.0	2.5	2.0	2.5	2.5	3.5	3.5	5.0	5.0	±0.5
Height of body from tape center	H	18.5		18.5		18.5		18.5	18.5	18.5	18.5	18.5	18.5	±0.75
Base tape width	W	18.0		18.0		18.0		18.0	18.0	18.0	18.0	18.0	18.0	±0.5
Adhesive tape width	W0	6.0		6.0		6.0		6.0	8.0	8.0	8.0	11.0	11.0	min
Hole position	W1	9.0		9.0		9.0		9.0	9.0	9.0	9.0	9.0	9.0	+0.75 -0.5
Hole down tape position	W2	1.5		1.5		1.5		1.5	1.5	1.5	1.5	1.5	1.5	max

Specification Fig.4

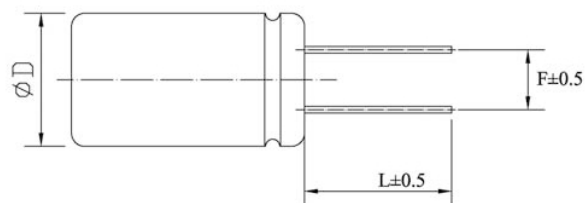
(mm)

Items	Symbol	Case size									Tolerance
		4×5 4×7	5×5	5×7	5×11	6.3×5	6.3×7 6.3×9	6.3×11 6.3×12	8×5/7 8×9/11 8×11.5/12	8×16 8×20	
Pin Code		P	P	P	P	P	P	P	P	P	
Lead wire diameter	Φd	0.45	0.45	0.45	0.5	0.45	0.5	0.5	0.45/0.5	0.6	±0.05
Pitch of body	P	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	±1.0
Feed hole pitch	P0	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	±0.2
Distance from hole center to lead	P1	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	±0.7
Distance from feed hole center to body center	P2	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	±1.0
Lead-to-lead distance	F	1.5	2.0	2.0	2.0	2.5	2.5	2.5	3.5	3.5	±0.5
Lead to lead distance	F1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	+0.8 -0.2
Height of body from tape center	H	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	±0.75
Lead wire clinch height	H0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	±0.5
Base tape width	W	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	±0.5
Adhesive tape width	W0	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	8.0	min
Hole position	W1	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	+0.75 -0.5
Hole down tape position	W2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	max

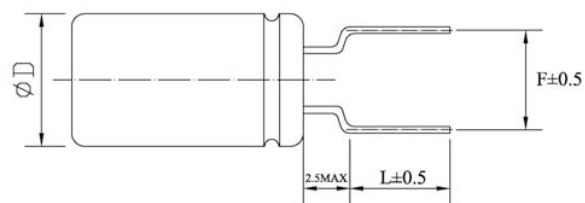
Lead Forming

Lead Forming & Cut

Code:C

RANGE: $\Phi 4 \sim \Phi 18$ 

Code:F

RANGE: $\Phi 4 \sim \Phi 8$ 

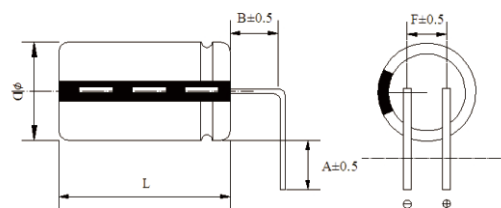
(mm)

ΦD	F	L	ΦD	F	L
4	1.5	3.0~12.0	4	5.0	3.5, 4.5, 5.0, 7.0
5	2.0	3.0~12.0	5	5.0	3.5, 4.5, 5.0, 7.0
6.3	2.5	3.0~12.0	6.3	5.0	3.5, 4.5, 5.0, 7.0
8	3.5	3.0~12.0	8	5.0	3.5, 4.5, 5.0, 7.0
10	5.0	3.0~12.0	-	-	-
12.5	5.0	3.0~12.0	-	-	-
16	7.5	3.0~12.0	-	-	-
18	7.5	3.0~12.0	-	-	-

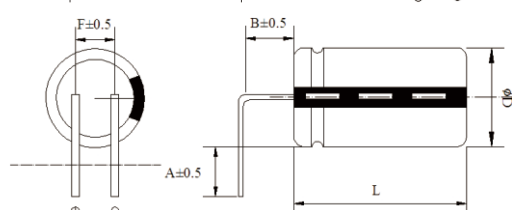
Code:R/L

RANGE: $\Phi 10 \sim \Phi 18$

Right horizontal forming



Left horizontal forming



(mm)

ΦD	F	A	B
10~12.5	5.0	2.5, 3.0, 3.5, 4.0, 4.5, 5.0	1.5, 2.5
16~18	7.5	2.5, 3.0, 3.5, 4.0, 4.5, 5.0	1.5, 2.5