RE SERIES

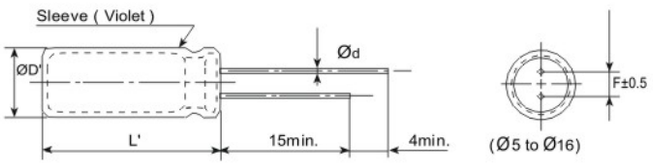
- Low impedance for high frequency.
- Lifetime +105℃ 2,000 to 4,000 hours
- Suitable for switching power, UPS, power sources etc.
- RoHS Compliant

◆SPECIFICATIONS

Items	Characteristics										
Category Temperature Range	-40 to +105℃(6.3 to 100Vdc)							-25 to +105℃(160 to 450Vdc)			
Rated Voltage Range	6.3 to 450Vdc										
Capacitance Tolerance	±20%(M)										(at 20℃, 120Hz)
Leakage Current	6.3 to 100Vdc			160 to 450Vdc							
								after 1 minutes	after 5 minutes	Where, I : Max. leakage current (μA),	
	I≤0.01CV or 3μA (after 2 minutes) whichever is greater							CV≤1000	I≤0.1CV+40μA	I≤0.03CV+15μA	C : Nominal capacitance (μF),
								CV > 1000	I≤0.04CV+100μA	I≤0.02CV+25μA	V : Rated voltage (V) (at 20℃)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3	10	16	25	35	50	63	100	160 to 250	350 to 450
	tanδ (Max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.12	0.15
	When nominal capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000μF increase										(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3	10	16	25	35	50	63	100	160 to 250	350 to 450
	Z(-25℃)/Z(+20℃)	4	3	2	2	2				3	6
	Z(-40℃)/Z(+20℃)	8	6	4	3	3				-	-
											(at 120Hz)
Endurance	The following specification shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for the specified period of time at 105℃										
	Capacitance change	≤±25% of the initial value(160~450WV:±20%)									
	D.F. (tanδ)	≤200% 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 exposing them for 1000 hours at 105°C without voltage applied.										
	Capacitance change	≤±25% of the initial Value(160~450WV:±20%)									
	D.F. (tanδ)	≤200% of the initial specified value									
	Leakage current	≤200%The initial specified value									

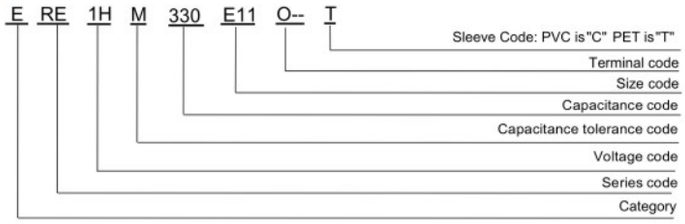
Case Dia.	Life time (hours)	
	6.3~100WV	160~450WV
ØD≤ 6.3	2000	-
ØD= 8	3000	-
ØD= 10	3000	3000
ØD≥12.5	4000	3000

◆DIMENSIONS [mm]



ØD	5	6.3	8		10	12.5	16	18
Ød	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5		5.0	5.0	7.5	7.5
ØD'	ØD+0.5max.							
L'	L+2max.							

◆PART NUMBERING SYSTEM



※Sleeve Code and Terminal Code should follow the part number system

◆RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Freq.(Hz) / Cap(μF)	50/60	120	1K	10K	100K
6.8 to 33	0.45	0.55	0.75	0.90	1.00
39 to 330	0.60	0.70	0.85	0.95	1.00
390 to 1000	0.65	0.75	0.90	0.98	1.00
1200 to 4700	0.75	0.80	0.95	1.00	1.00

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

RE SERIES

STANDARD RATINGS (Impedance :at 20°C100KHz /Ωmax , Ripple current :mArms/105°C 100KHz)

WV (Vdc)	Cap (μF)	Case size ΦDxL(mm)	tanδ	Impedance (Ωmax)	Ripple current (mArms)
6.3(0J)	180	6.3×11	0.22	0.25	340
	220	6.3×11	0.22	0.25	340
	270	6.3×11	0.22	0.25	340
	330	8×11	0.22	0.13	650
	470	8×11	0.22	0.13	650
	560	8×11	0.22	0.13	650
	680	8×11	0.22	0.13	650
	820	10×12	0.22	0.08	870
	1000	8×11 10×12	0.22	0.13 0.08	650 870
	1200	10×12	0.22	0.08	870
	1500	8×20 10×16	0.22	0.068 0.060	1050 1210
	1800	10×20	0.22	0.045	1400
	2200	10×20	0.24	0.045	1400
	2700	10×25 12.5×20	0.24	0.042 0.035	1650 1900
	3300	10×25 12.5×20	0.26	0.042 0.035	1650 1900
	3900	12.5×20	0.26	0.035	1900
	4700	12.5×25	0.28	0.030	2130
10(1A)	150	6.3×11	0.19	0.25	340
	180	6.3×11	0.19	0.25	340
	220	6.3×11	0.19	0.25	340
	270	6.3×11 8×11	0.19	0.25 0.13	340 650
	330	8×11	0.19	0.13	650
	470	8×11	0.19	0.13	650
	560	8×11	0.19	0.13	650
	680	8×11	0.19	0.13	650
	820	10×12	0.19	0.08	870
	1000	8×16 10×16	0.19	0.087 0.06	850 1210
	1200	10×20	0.19	0.045	1400
	1500	10×20	0.19	0.045	1400
	1800	10×20	0.19	0.045	1400
	2200	10×20	0.21	0.045	1400
	2700	10×25 12.5×20	0.21	0.042 0.035	1650 1900
	3300	12.5×25	0.23	0.030	2130
16(1C)	100	6.3×11	0.16	0.25	340
	120	6.3×11	0.16	0.25	340
	150	6.3×11 8×11	0.16	0.25	340 650
	180	6.3×11 8×11	0.16	0.25	340 650
	220	6.3×11 8×11	0.16	0.25	340 650
	270	8×11	0.16	0.13	650
	330	8×11	0.16	0.13	650
	470	8×11 10×12	0.16	0.13 0.08	650 870
	560	10×12	0.16	0.08	870
	680	8×16 10×12	0.16	0.087 0.08	850 870
	820	10×16	0.16	0.06	1210
	1000	10×16	0.16	0.06	1210
	1200	10×20	0.16	0.045	1400
	1500	10×20	0.16	0.045	1400
	1800	10×25 12.5×20	0.16	0.042 0.035	1650 1900
	2200	12.5×20	0.18	0.035	1900
	2700	12.5×20	0.18	0.030	2130

WV (Vdc)	Cap (μF)	Case size ΦDxL(mm)	tanδ	Impedance (Ωmax)	Ripple current (mArms)
25(1E)	82	6.3×11	0.14	0.25	340
	100	6.3×11	0.14	0.25	340
	120	8×11	0.14	0.13	650
	150	8×11	0.14	0.13	650
	180	8×11	0.14	0.13	650
	220	8×11	0.14	0.13	650
	270	8×11 10×12	0.14	0.13 0.08	650 870
	330	8×11 10×12	0.14	0.13 0.08	650 870
	470	8×16 10×12	0.14	0.087 0.080	840 870
	560	10×16	0.14	0.060	1210
	680	10×16	0.14	0.060	1210
	820	10×20	0.14	0.045	1400
	1000	10×20	0.14	0.045	1400
	1200	10×20	0.14	0.045	1400
	1500	10×25 12.5×20	0.14	0.042 0.035	1650 1900
	1800	12.5×25	0.14	0.030	2130
	2200	12.5×25	0.16	0.030	2130
35(1V)	47	6.3×11	0.12	0.25	340
	56	6.3×11	0.12	0.25	340
	68	6.3×11	0.12	0.25	340
	82	8×11	0.12	0.13	650
	100	8×11	0.12	0.13	650
	120	8×11	0.12	0.13	650
	150	8×11	0.12	0.13	650
	180	10×12	0.12	0.080	870
	220	8×11 8×16 10×12	0.12	0.13 0.087 0.080	650 840 870
	270	10×16	0.12	0.06	1210
	330	8×20 10×12 10×16	0.12	0.069 0.080 0.060	1050 870 1210
	470	10×16	0.12	0.060	1210
	560	10×20	0.12	0.045	1400
	680	10×20	0.12	0.045	1400
	820	10×25 12.5×20	0.12	0.042 0.035	1650 1900
	1000	12.5×20 12.5×25	0.12	0.035 0.030	1900 2130
50(1H)	33	6.3×11	0.10	0.30	295
	39	6.3×11	0.10	0.30	295
	47	6.3×11	0.10	0.30	295
	56	8×11	0.10	0.17	560
	68	8×11	0.10	0.17	560
	82	8×11	0.10	0.17	560
	100	10×12	0.10	0.12	760
	120	8×16 10×12	0.10	0.12 0.12	730 760
	150	10×16	0.10	0.084	1050
	180	8×20 10×16	0.10	0.090 0.084	1050
	220	10×16	0.10	0.084	1050
	270	10×25	0.10	0.055	1440
	330	12.5×20	0.10	0.045	1660
	470	12.5×25	0.10	0.034	1950
	560	12.5×25	0.10	0.034	1950

RE SERIES

◆STANDARD RATINGS (Impedance :at 20 ℃100KHz /Ωmax , Ripple current :mArms/105℃ 100KHz)

WV (Vdc)	Cap (μF)	Case size Φ D×L(Mm)	tanδ	Impedance (Ωmax)	Ripple current (mArms)
63(1J)	22	6.3×11	0.09	0.95	120
	27	6.3×11	0.09	0.95	120
	33	6.3×11	0.09	0.95	120
	39	8×11	0.09	0.51	235
	47	8×11	0.09	0.51	235
	56	8×11	0.09	0.51	235
	68	8×11	0.09	0.51	235
	82	10×12	0.09	0.340	315
	100	8×16 10×12	0.09	0.350 0.340	300 315
	120	10×16	0.09	0.245	360
	150	8×20	0.09	0.265	360
	180	10×20	0.09	0.165	470
	220	10×20	0.09	0.165	470
	270	12.5×20	0.09	0.125	700
	330	12.5×20	0.09	0.125	700
	390	12.5×25	0.09	0.095	930

WV (Vdc)	Cap (μF)	Case size Φ D×L(mm)	tanδ	Impedance (Ωmax)	Ripple current (mArms)
100(1K)	15	6.3×11	0.08	0.95	120
	27	8×11	0.08	0.51	235
	39	8×16	0.08	0.36	300
	47	10×12	0.08	0.34	315
	56	8×20	0.08	0.265	360
	68	10×16	0.08	0.245	360
	82	10×20	0.08	0.165	470
	100	10×20	0.08	0.165	470
	120	12.5×20	0.08	0.125	700
	180	12.5×25	0.08	0.095	930
	220	12.5×25	0.08	0.095	930

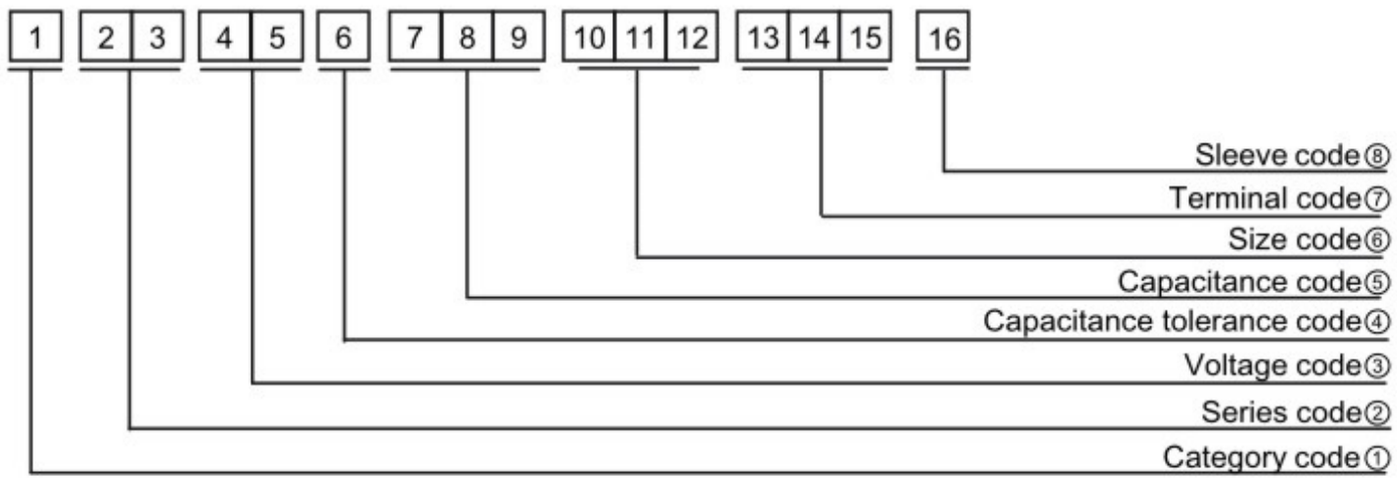
RE SERIES

◆STANDARD RATINGS (Ripple current : mArms/105℃100KHz)

WV (Vdc)	Cap (μF)	Case size ΦD×L(mm)	tanδ	Ripple current (mArms)
160(2C)	10	10×12	0.12	126
	15	10×12	0.12	145
	22	10×16	0.12	175
	33	10×20	0.12	230
	47	12.5×20	0.12	385
	56	12.5×20	0.12	410
	68	12.5×20	0.12	432
	82	12.5×25	0.12	490
	100	12.5×25	0.12	525
	120	16×20	0.12	600
	150	16×25	0.12	720
	220	18×25	0.12	885
	330	18×30	0.12	1225
	470	18×35	0.12	1485
200(2D)	6.8	10×12	0.12	108
	10	10×12	0.12	132
	15	10×12	0.12	175
	22	10×16	0.12	190
	33	10×20	0.12	290
	47	12.5×20	0.12	420
	56	12.5×20	0.12	435
	68	12.5×25	0.12	489
	82	12.5×25	0.12	516
	100	16×25	0.12	635
	120	16×25	0.12	675
	150	18×25	0.12	876
	220	18×32	0.12	1115
	330	18×35	0.12	1320
	470	18×40	0.12	1500
250(2E)	6.8	10×12	0.12	108
	10	10×12	0.12	134
	15	10×16	0.12	150
	22	10×16	0.12	242
	33	12.5×20	0.12	340
	47	12.5×20	0.12	420
	56	12.5×25	0.12	440
	68	16×25	0.12	590
	82	16×25	0.12	645
	100	16×30	0.12	748
	120	18×30	0.12	850
	150	18×30	0.12	980
	220	18×35	0.12	1300
350(2V)	6.8	10×12	0.15	96
	10	10×20	0.15	120
	15	10×20	0.15	145
	22	12.5×20	0.15	235
	33	12.5×25	0.15	280
	47	16×25	0.15	435

WV (Vdc)	Cap (μF)	Case size ΦD×L(mm)	tanδ	Ripple current (mArms)
350(2V)	56	16×25	0.15	460
	68	16×30	0.15	498
	82	16×35	0.15	530
	100	18×30	0.15	650
	120	18×35	0.15	750
	150	18×40	0.15	860
400(2G)	6.8	10×16	0.15	110
	10	10×20	0.15	132
	15	12.5×20	0.15	156
	22	12.5×20	0.15	240
	22	10×30	0.15	240
	33	12.5×25	0.15	295
	47	16×25	0.15	462
	47	12.5×35	0.15	462
	56	18×25	0.15	540
	68	18×25	0.15	600
	82	18×30	0.15	660
	100	18×30	0.15	720
	120	18×35	0.15	840
	150	18×40	0.15	980
	150	20×35	0.15	980
420(2T)	6.8	10×16	0.15	110
	10	10×20	0.15	132
	15	12.5×20	0.15	156
	22	12.5×20	0.15	240
	33	12.5×25	0.15	297
	47	16×25	0.15	460
	56	18×25	0.15	540
	68	18×30	0.15	630
	82	18×30	0.15	650
	100	18×35	0.15	745
	120	18×40	0.15	780
450(2W)	6.8	10×16	0.15	100
	10	10×20	0.15	105
	15	12.5×20	0.15	160
	22	12.5×25	0.15	275
	22	16×20	0.15	275
	33	12.5×30	0.15	390
	33	16×25	0.15	390
	47	12.5×35	0.15	450
	47	18×25	0.15	450
	56	18×25	0.15	480
	56	16×30	0.15	480
	68	18×30	0.15	600
	68	16×35	0.15	600
	82	18×30	0.15	625
	100	18×35	0.15	745
	120	18×40	0.15	830

Part Number System



①Category

Type	Code
	1th
Electrolytic Capacitor	E

②Series code

Series name	Code	
	2 th	3 th
WH	W	H
CD11GE	G	E

③Voltage code

WV (V)	Code	
	4th	5th
4	0	G
6.3	0	J
10	1	A
16	1	C
25	1	E
35	1	V
40	1	G
50	1	H
63	1	J
80	1	B
100	1	K
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

④ Capacitance Tolerance

Tol. (%)	Code
	6th
-10 ~ +10	K
-20 ~ +20	M
-10 ~ +30	Q
-10 ~ +50	T
-10 ~ +20	V
-0 ~ +20	A
-0 ~ +30	
-5 ~ +20	C
-10 ~ -20	B
-5 ~ +5	D
-0 ~ +10	E
-5 ~ +20	F
-15 ~ +5	N

⑤Capacitance code

Cap (μF)	Code		
	7th	8th	9th
0.10	0	R	1
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

⑥ Size code

ΦD	Code
	10th
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	S
63.5	T
76	U
89	V

L	Code	
	11th	12th
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

⑦Terminal Code

Specification	Code	Size	
	13th	14th	15th
Bulk packing	O	-	-
Taping F=5.0mm	P	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	4	5
Kink & cut L=4.5mm	J	4	5
Snap-in type Terminal 4.0mm in Length	K	4	0
Horizontal mounting Terminal	M	-	-
Screw Terminal	S	-	-
Lug Terminal	L	-	-
Three terminals	T	-	-
Four terminals	Q	-	-
Five terminals	Y	-	-

⑧Sleeve Code

Sleeve	Code
	16th
PVC	C
PET	T