REA Series

Features

- 85℃, 2,000 ~ 3,000 hours assured
- Standard series for general purposes
- RoHS Compliance

Sleeve & Marking Color: Blue & Black

Specifications

Items	Performance
Category Temperature Range	-40℃ ~ +85℃
Capacitance Tolerance	±20% (at 120Hz, 20℃)

Leakage Current (at 20℃)

Rated voltage	≦100V	>100V	
Time	after 2 minutes	after 5 minutes	
Leakage Current	I = 0.01CV or 3 (μA) whichever is greater	CV ≦ 1,000 I = 0.03CV + 15(μA)	CV > 1,000 I = 0.02CV + 25(μA)

Where, C = rated capacitance in μF V = rated DC working voltage in V

Tanδ (at 120 Hz, 20℃)

Rated Voltage	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450
Tanδ (max)	0.23	0.20	0.16	0.14	0.12	0.10	0.09	0.08	0.12	0.14	0.17	0.20	0.25	0.25

When the capacitance exceeds 1,000μF, 0.02 shall be added every 1,000μF increase.

Low Temperature Characteristics (at 120Hz)

Impedance ratio shall not exceed the values given in the table below.

Rated Voltage			6.3	10	16	25	35	50	63	100	160	200	250	350	400	450
Impedance Ratio	Z(-25℃) /Z(+20℃)	φD<16	6	4	3	3	2	2	2	2	3	6	8	12	14	16
		φD≧16	8	6	4	4	3	3	3	3						
	Z(-40℃) /Z(+20℃)	φD<16	10	8	6	6	4	3	3	3	4	8	10	16	18	20
		φD≧16	18	16	12	10	8	8	6	6						

Endurance

Test Time	2,000 Hrs for φD ≦ 8mm 3,000 Hrs for φD ≧ 10mm
Capacitance Change	With in ±20% of initial value
Tanδ	Less than 200% of specified value
Leakage Current	Within specified value

* The above Specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage applied with rated ripple current for 2,000 / 3,000 hours at 85℃.

Shelf Life Test

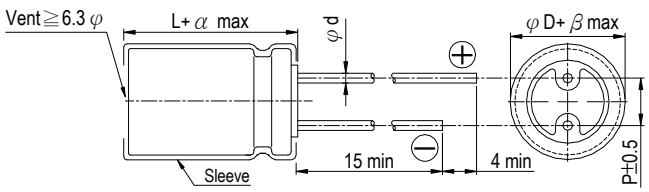
Test Time	1,000 Hrs
Capacitance Change	With in ±20% of initial value
Tanδ	Less than 200% of specified value
Leakage Current	Within specified value

* The above Specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. The rated voltage shall be applied to the capacitors before the measurements for 160 ~ 450V (Refer to JIS C 5101-4 4.1).

Ripple Current & Frequency Multipliers

Cap. (μF) \ Freq. (Hz)	60 (50)	120	500	1k	10k up
Under 100	0.70	1.00	1.30	1.40	1.50
100<C≦1,000	0.75	1.00	1.20	1.30	1.35
1,000 up above	0.80	1.00	1.10	1.12	1.15

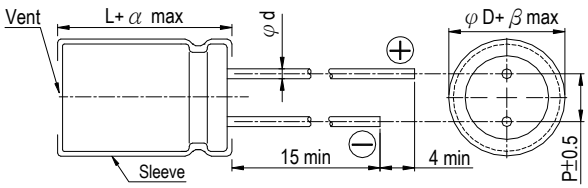
Diagram of Dimensions



Lead Spacing and Diameter Unit: mm

φD	5	6.3	8	10	12.5	16	18	22	25
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10	12.5
φd	0.5		0.6			0.8		1.0	
α	L<20: 1.5, L≧20: 2.0							2.0	
β	0.5								

The case size of 12.5×16, 16×16, 16×20, 18×16, 18×20 and 18×25 are suitable for below diagram:



All product specifications in the catalog are subject to change without notice. (CAT. 2014E2)

Dimension: ϕD × L(mm)

Ripple Current: mA/rms at 120 Hz, 85℃

Dimension & Permissible Ripple Current

μF	Contents	6.3V (0J) ϕD×L	6.3V (0J) mA	10V (1A) ϕD×L	10V (1A) mA	16V (1C) ϕD×L	16V (1C) mA	25V (1E) ϕD×L	25V (1E) mA	35V (1V) ϕD×L	35V (1V) mA	50V (1H) ϕD×L	50V (1H) mA	63V (1J) ϕD×L	63V (1J) mA	100V (2A) ϕD×L	100V (2A) mA
2.2	2R2											5×11	29			5×11	33
3.3	3R3											5×11	35			5×11	40
4.7	4R7											5×11	42			5×11	48
10	100											5×11	65	5×11	70	5×11	59
22	220											5×11	95	6.3×11	115	6.3×11 8×11.5	115 135
33	330									5×11	108	6.3×11 5×11	136 125	6.3×11	140	8×11.5	145
47	470							5×11	115	5×11	130	6.3×11	165	6.3×11	170	10×12.5	235
100	101					5×11	160	6.3×11	190	6.3×11	210	8×11.5	260	8×11.5 10×12.5	245 320	10×16	325
220	221			5×11	220	6.3×11	260	8×11.5	320	8×11.5	385	10×12.5	455	10×16	490	12.5×20 16×16	640 625
330	331			6.3×11	290	6.3×11	290	8×11.5	440	10×12.5	490	10×16	585	10×20 12.5×16	710 675	16×20 18×16	695 685
470	471			6.3×11	350	8×11.5	440	10×12.5	545	10×16	740	10×20 12.5×16	755 610	16×16 12.5×20	910 900	16×25	910
1,000	102	8×11.5	540	10×12.5 8×11.5	650 550	10×12.5	635	10×20 12.5×16	955 830	12.5×20 16×16	1,145 1,010	12.5×25 16×20	1,340 1,160	16×20	1,260	18×40	1,820
2,200	222	10×16	845	10×20 12.5×16	1,070 970	12.5×16 16×16	930 1,160	12.5×25 16×16	1,540 1,150	16×20	1,390	16×35.5	1,960	18×31.5	2,040		
3,300	332	10×20 12.5×16	1,185 960	12.5×20	1,420	12.5×20 16×16	1,450 1,240	16×20	1,490	16×31.5 18×25	2,070 1,970	18×35.5	2,500	18×40	2,575		
4,700	472	12.5×20	1,545	12.5×25 16×16	1,780 1,420	16×20 18×16	1,600 1,820	16×25 18×25	2,100 2,170	18×35.5	2,700	22×40	3,040				
6,800	682	12.5×25	1,880	16×20 18×20	1,700 1,870	16×25 18×20	2,280 1,890	16×35.5 18×31.5	2,475 2,550	22×40	2,900	22×45	3,185				
10,000	103	16×20 18×20	2,000 2,020	16×25 18×25	2,150 2,370	18×31.5 16×35.5	2,590 2,450	18×40	3,080	22×45	3,400						
15,000	153	16×31.5 18×25	2,460 2,375	16×40 18×31.5	2,730 2,620	18×40	3,100	22×45 25×40	3,780 3,850								
22,000	223	18×31.5	2,780	18×40	3,370	22×40	3,900	25×45	4,290								
33,000	333	22×40	3,700														

μF	Contents	160V (2C) ϕD×L	160V (2C) mA	200V (2D) ϕD×L	200V (2D) mA	250V (2E) ϕD×L	250V (2E) mA	350V (2V) ϕD×L	350V (2V) mA	400V (2G) ϕD×L	400V (2G) mA	450V (2W) ϕD×L	450V (2W) mA
1	010					5×11	18	5×11	18	5×11	22	6.3×11	25
2.2	2R2			5×11	29	6.3×11	33	6.3×11	33	6.3×11	33	8×11.5	45
3.3	3R3			6.3×11	46	6.3×11	46	8×11.5	50	8×11.5	50	10×12.5	65
4.7	4R7			6.3×11	50	8×11.5	55	8×11.5	60	8×11.5 10×12.5	55 80	8×11.5 10×12.5	55 80
10	100	8×11.5	75	8×11.5	81	10×12.5	100	10×16	110	10×16	110	10×20	140
22	220	10×12.5	130	10×12.5	135	10×16	150	12.5×16	185	12.5×20	200	12.5×25	300
33	330	10×16	175	10×16	180	10×20 12.5×16	215 220	12.5×20 16×16	245 260	16×16	260	16×20	270
47	470	10×20 12.5×16	230 250	10×20 12.5×16	240 250	12.5×20	290	16×20 18×16	340 310	16×20	340	16×31.5	390
68	680	12.5×20	330	12.5×20 16×16	330 370	12.5×25	370	16×25 18×20	420 410	16×31.5	435	16×35.5	460
100	101	12.5×25	440	16×20 18×16	460 450	16×25	510	16×31.5 18×25	540 520	16×40 18×35.5	560 570	18×35.5	570
150	151	16×25	620	16×25 18×20	620 605	16×31.5 18×25	625 630	18×35.5	640	18×40	670	22×45	800
220	221	16×31.5 18×25	790 760	16×35.5	830	16×40 18×35.5	840 890	22×40	920	22×45 25×40	960 980	25×45	1,030
330	331	18×35.5	985	18×40	1,150	22×40	1,200	25×45	1,270				
470	471	18×40	1,150	22×40	1,400	22×45	1,470						

Part Numbering System

REA series	470μF	±20%	16V	Bulk Package	Gas Type	8ϕ×11.5L	Pb-free and PET sleeve
REA	**471**	**M**	**1C**	**BK**	**-**	**0811**	
Series	Capacitance	Capacitance Tolerance	Rated Voltage	Lead Configuration & Package	Rubber Type	Case Size	Lead Wire and Sleeve Type

Note: For more details, please refer to “Part Numbering System (Radial Type)” on page 10.