



REA Series

Features

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

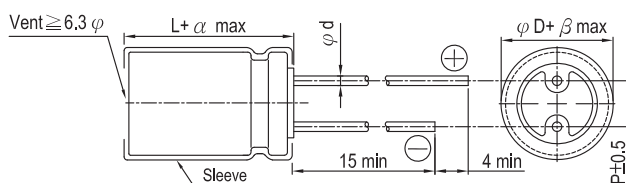


Sleeve & Marking Color: Blue & Black

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℃)	<table><tr><td>Rated Voltage</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td><td>160</td><td>200</td><td>250</td><td>350</td><td>400</td><td>450</td></tr><tr><td>Tanδ (max)</td><td>0.23</td><td>0.20</td><td>0.16</td><td>0.14</td><td>0.12</td><td>0.10</td><td>0.09</td><td>0.08</td><td>0.12</td><td>0.14</td><td>0.17</td><td>0.20</td><td>0.25</td><td>0.25</td></tr></table>															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
	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℃)	φD < 16	6	4	3	3	2	2	2	2	3	6	8	12	14	16																												
		/Z(+20℃)	φD ≥ 16	8	6	4	4	3	3	3	3																																		
		Z(-40℃)	φD < 16	10	8	6	6	4	3	3	3	4	8	10	16	18	20																												
/Z(+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		Within ±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		Within ±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

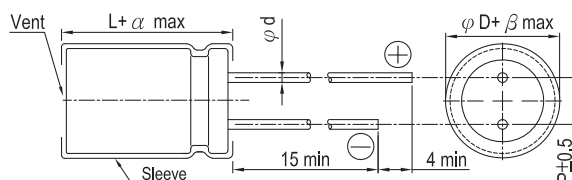


Lead Spacing and Diameter

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 $\geq$ 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. 2016E1)

Dimension: $\phi D \times L(\text{mm})$

Ripple Current: mA/rms at 120 Hz, 85°C

Dimension & Permissible Ripple Current

V. DC		6.3V (0J)		10V (1A)		16V (1C)		25V (1E)		35V (1V)		50V (1H)		63V (1J)		100V (2A)	
μF	Contents	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	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	115
33	330									5×11	108	6.3×11	136	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	245	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	640
330	331			6.3×11	290	6.3×11	290	8×11.5	440	10×12.5	490	10×16	585	10×20	710	16×20	695
470	471			6.3×11	350	8×11.5	440	10×12.5	545	10×16	740	10×20	755	12.5×20	910	16×25	910
1,000	102	8×11.5	540	10×12.5	650	10×12.5	635	10×20	955	12.5×20	1,145	12.5×25	1,340	16×20	1,260	18×40	1,820
2,200	222	10×16	845	12.5×16	970	12.5×16	930	12.5×25	1,540	16×20	1,390	16×35.5	1,960	18×31.5	2,040		
3,300	332	10×20	1,185	12.5×20	1,420	12.5×20	1,450	16×20	1,490	16×31.5	2,070	18×25	1,970	18×35.5	2,500	18×40	2,575
4,700	472	12.5×20	1,545	16×16	1,780	16×16	1,600	16×25	2,100	18×25	2,170	18×35.5	2,700	22×40	3,040		
6,800	682	12.5×25	1,880	16×20	1,700	16×25	2,280	16×35.5	2,475	22×40	2,900	22×45	3,185				
10,000	103	16×20	2,000	16×25	2,150	18×31.5	2,590	18×40	3,080	22×45	3,400						
15,000	153	16×31.5	2,460	16×40	2,730	18×40	3,100	22×45	3,780								
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														

V. DC		160V (2C)		200V (2D)		250V (2E)		350V (2V)		400V (2G)		450V (2W)	
μF	Contents	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	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	55	8×11.5	55
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	12.5×20	200
33	330	10×16	175	10×16	180	10×20	215	12.5×20	245	16×16	260	16×20	270
47	470	10×20	230	10×20	240	12.5×20	290	16×20	340	16×20	340	16×31.5	390
68	680	12.5×20	330	12.5×20	330	12.5×25	370	16×25	420	16×31.5	435	16×35.5	460
100	101	12.5×25	440	16×20	460	16×25	510	16×31.5	540	16×40	560	18×35.5	570
150	151	16×25	620	16×25	620	16×31.5	625	18×35.5	640	18×40	670	22×45	800
220	221	16×31.5	790	16×35.5	830	16×40	840	22×40	920	22×45	960	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 470 μF $\pm 20\%$ 16V Bulk Package Gas Type 8 $\phi \times 11.5\text{L}$ 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 11.