

Standard Capacitors

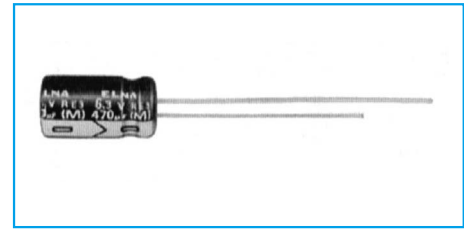
GREEN CAP

Anti-cleaning solvent 250V Max.

• Guarantees 2000 hours at 85°C.



High temperature



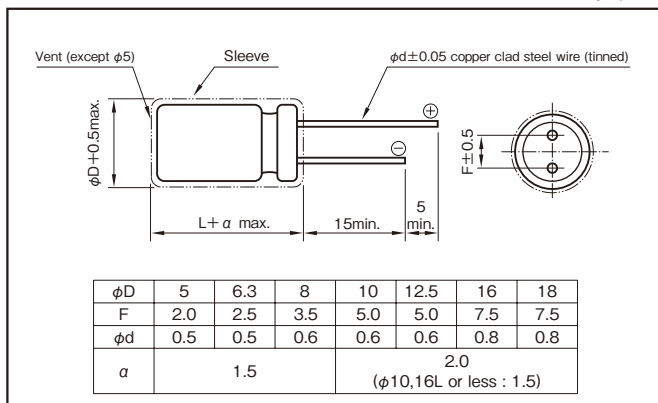
Marking color : White print on a blue sleeve

Specifications

Item	Performance																																															
Category temperature range (°C)	-40 to +85																																															
Tolerance at rated capacitance (%)	±20 (20°C, 120Hz)																																															
Leakage current (µA)	<table border="1"> <tr> <th>Rated voltage (V)</th> <th>6.3 to 100</th> <th>160 to 450</th> </tr> <tr> <td>Leakage current (µA)</td> <td>Less than 0.03CV or 4 whichever is larger (after 1 minute) Less than 0.01CV or 3 whichever is larger (after 2 minutes)</td> <td>CV ≤ 1000 : Less than 0.1CV + 40 (after 1 minute) CV > 1000 : Less than 0.04CV + 100 (after 1 minute)</td> </tr> </table>	Rated voltage (V)	6.3 to 100	160 to 450	Leakage current (µA)	Less than 0.03CV or 4 whichever is larger (after 1 minute) Less than 0.01CV or 3 whichever is larger (after 2 minutes)	CV ≤ 1000 : Less than 0.1CV + 40 (after 1 minute) CV > 1000 : Less than 0.04CV + 100 (after 1 minute)																																									
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C : Rated capacitance (µF) V : Rated voltage (V) (20°C)																																																
Tangent of loss angle (tanδ)	<table border="1"> <tr> <th>Rated voltage (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> <th>160</th> <th>200</th> <th>250</th> <th>315</th> <th>350</th> <th>400</th> <th>450</th> </tr> <tr> <td>tanδ (max.)</td> <td>0.28</td> <td>0.24</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.08</td> <td>0.20</td> <td>0.20</td> <td>0.20</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> </tr> </table>	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	315	350	400	450	tanδ (max.)	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.20	0.20	0.20	0.24	0.24	0.24	0.24															
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0.02 is added to every 1000µF increase over 1000µF. (20°C, 120Hz)																																																
Characteristics at high and low temperature	<table border="1"> <tr> <th>Rated voltage (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> <th>160</th> <th>200</th> <th>250</th> <th>315</th> <th>350</th> <th>400</th> <th>450</th> </tr> <tr> <td rowspan="2">Impedance ratio (max.)</td> <td>Z-25°C/Z+20°C</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> </tr> <tr> <td>Z-40°C/Z+20°C</td> <td>12</td> <td>10</td> <td>8</td> <td>5</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>15</td> <td>15</td> <td>15</td> <td>10</td> <td>10</td> <td>10</td> </tr> </table>	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	315	350	400	450	Impedance ratio (max.)	Z-25°C/Z+20°C	5	4	3	2	2	2	2	4	4	4	4	4	4	4	Z-40°C/Z+20°C	12	10	8	5	4	3	3	3	15	15	15	10	10	10
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Impedance ratio (max.)	Z-25°C/Z+20°C	5	4	3	2	2	2	2	4	4	4	4	4	4	4																																	
	Z-40°C/Z+20°C	12	10	8	5	4	3	3	3	15	15	15	10	10	10																																	
(120Hz)																																																
Endurance (85°C) (Applied ripple current)	Test time	2000 hours																																														
	Leakage current	The initial specified value or less																																														
	Percentage of capacitance change	Within ±20% of initial value																																														
	Tangent of the loss angle	200% or less of the initial specified value																																														
Shelf life (85°C)	Test time : 1000 hours ; other items are the same as those for the endurance. Voltage application treatment																																															
Applicable standards	JIS C5101-1, -4 1998 (IEC 60384-1 1992, -4 1985)																																															

Outline Drawing

Unit : mm



Coefficient of Frequency for Rated Ripple Current

Rated voltage (V)	Frequency (Hz) CV (µF×VV)	50 · 60	120	1k	10k	100k
		6.3 to 16	All CV value	0.8	1	1.1
25 to 35	≤ 1000	0.8	1	1.5	1.7	1.7
	1000 <	0.8	1	1.2	1.3	1.3
50 to 100	≤ 1000	0.8	1	1.6	1.9	1.9
	1000 <	0.8	1	1.2	1.3	1.3
160 to 450	All CV value	0.8	1	1.3	1.5	1.6

Part numbering system (example : 16V1000µF)

RE3	—	16	V	102	M	H4	#
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol	

Casing symbol

Size φD×L (mm)	Casing Symbol	Size φD×L (mm)	Casing Symbol
5×11	E3	12.5×25	I6
6.3×11	F3	16×25	J6
8×11.5	G3	16×31.5	J7
10×12.5	H3	16×35.5	J8
10×16	H4	18×35.5	K8
10×20	H5	18×40	K9
12.5×20	I5		

NOTE

Design, Specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.

Standard Ratings

Rated capacitance (μF)	6.3			10			16			25			35			50			63			100			
	Item	Case	ESR	Rated ripple current mArms	Case	ESR	Rated ripple current mArms	Case	ESR	Rated ripple current mArms	Case	ESR	Rated ripple current mArms	Case	ESR	Rated ripple current mArms	Case	ESR	Rated ripple current mArms	Case	ESR	Rated ripple current mArms	Case	ESR	Rated ripple current mArms
		φD×L (mm)	Ω		φD×L (mm)	Ω		φD×L (mm)	Ω		φD×L (mm)	Ω		φD×L (mm)	Ω		φD×L (mm)	Ω		φD×L (mm)	Ω		φD×L (mm)	Ω	
0.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5×11	1990	3	—	—	—	5×11	1330	2.1	
0.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5×11	905	6	—	—	—	5×11	603	4.7	
0.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5×11	603	9	—	—	—	5×11	402	7	
0.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5×11	423	13	—	—	—	5×11	282	10	
1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5×11	199	21	—	—	—	5×11	133	21	
2.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5×11	90.5	31	—	—	—	5×11	60.3	30	
3.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5×11	60.3	38	—	—	—	5×11	40.2	40	
4.7	—	—	—	—	—	—	—	—	—	5×11	56.5	38	5×11	49.4	40	5×11	42.3	45	5×11	35.3	45	5×11	28.2	45	
10	—	—	—	—	—	—	5×11	33.2	50	5×11	26.5	55	5×11	23.2	59	5×11	19.9	66	5×11	16.6	66	6.3×11	13.3	75	
22	—	—	—	—	—	—	5×11	15.1	75	5×11	12.1	82	5×11	10.6	87	5×11	9.05	98	5×11	7.54	100	6.3×11	6.03	130	
33	—	—	—	—	—	—	5×11	10.1	92	5×11	8.04	100	5×11	7.04	107	5×11	6.03	126	6.3×11	5.03	140	8×11.5	4.02	180	
47	—	—	—	5×11	8.47	99	5×11	7.06	110	5×11	5.65	118	5×11	4.94	130	6.3×11	4.23	155	6.3×11	3.53	170	10×12.5	2.82	230	
100	—	—	—	5×11	3.78	146	5×11	3.32	160	6.3×11	2.65	199	6.3×11	2.32	214	8×11.5	1.99	260	10×12.5	1.66	300	10×20	1.33	370	
220	5×11	2.11	200	6.3×11	1.81	240	6.3×11	1.51	264	8×11.5	1.21	349	10×12.5	1.06	443	10×12.5	0.905	443	10×16	7.54	470	12.5×20	0.603	620	
330	6.3×11	1.41	270	6.3×11	1.21	290	8×11.5	1.01	383	10×12.5	0.804	510	10×12.5	0.704	542	10×16	0.603	595	10×20	0.503	710	12.5×25	0.402	760	
470	6.3×11	0.988	322	8×11.5	0.847	417	8×11.5	0.706	457	10×12.5	0.565	545	10×16	0.494	664	12.5×20	0.423	887	12.5×20	0.353	900	16×25	0.282	1000	
1000	8×11.5	0.464	546	10×12.5	0.398	650	10×16	0.332	791	10×20	0.265	996	12.5×20	0.232	1210	12.5×25	0.199	1400	16×25	0.166	1300	18×40	0.133	1380	
2200	10×20	0.226	1010	10×20	0.196	1080	12.5×20	0.166	1350	12.5×25	0.136	1660	16×25	0.121	1950	16×35.5	0.106	2340	—	—	—	—	—	—	
3300	10×20	0.161	1230	12.5×20	0.141	1430	12.5×25	0.121	1690	16×25	0.101	2030	16×35.5	0.09	2510	18×35.5	0.08	2810	—	—	—	—	—	—	
4700	12.5×20	0.12	1710	12.5×25	0.106	1780	16×25	0.092	2100	16×31.5	0.078	2650	18×35.5	0.071	2990	—	—	—	—	—	—	—	—	—	
6800	12.5×25	0.093	1930	16×25	0.083	2200	16×35.5	0.073	2580	18×35.5	0.063	3290	—	—	—	—	—	—	—	—	—	—	—	—	
10000	16×25	0.076	2450	16×35.5	0.07	2700	18×35.5	0.063	3130	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
15000	16×35.5	0.062	2860	18×35.5	0.058	3100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
22000	18×40	0.053	3340	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

Rated capacitance (μF)	160			200			250			315			350			400			450					
	Item	Case	ESR	Rated ripple current mArms	Case	ESR	Rated ripple current mArms	Case	ESR	Rated ripple current mArms	Case	ESR	Rated ripple current mArms	Case	ESR	Rated ripple current mArms	Case	ESR	Rated ripple current mArms	Case	ESR	Rated ripple current mArms		
		φD×L (mm)	Ω		φD×L (mm)	Ω		φD×L (mm)	Ω		φD×L (mm)	Ω		φD×L (mm)	Ω		φD×L (mm)	Ω		φD×L (mm)	Ω		φD×L (mm)	Ω
0.47	6.3×11	706	15	6.3×11	706	15	6.3×11	706	15	6.3×11	847	15	6.3×11	847	15	6.3×11	847	15	8×11.5	847	18			
1	6.3×11	332	22	6.3×11	332	22	6.3×11	332	22	6.3×11	398	22	6.3×11	398	22	6.3×11	398	22	8×11.5	398	25			
2.2	6.3×11	151	32	6.3×11	151	32	6.3×11	151	32	8×11.5	181	38	8×11.5	181	38	8×11.5	181	38	10×12.5	181	43			
3.3	6.3×11	101	40	6.3×11	101	40	8×11.5	101	48	10×12.5	121	53	10×12.5	121	53	10×12.5	121	54	10×16	121	59			
4.7	6.3×11	70.6	48	8×11.5	70.6	56	8×11.5	70.6	56	10×12.5	84.7	65	10×12.5	84.7	65	10×16	84.7	71	10×20	84.7	76			
10	8×11.5	33.2	81	10×12.5	33.2	94	10×16	33.2	101	10×20	39.8	115	10×20	39.8	115	12.5×20	39.8	123	12.5×20	39.8	123			
22	10×16	15.1	151	10×20	15.1	170	12.5×20	15.1	182	12.5×25	18.1	182	12.5×25	18.1	197	12.5×25	18.1	197	16×25	18.1	226			
33	10×20	10.1	202	12.5×20	10.1	223	12.5×25	10.1	243	16×25	12.1	277	16×25	12.1	277	16×25	12.1	277	16×31.5	12.1	304			
47	12.5×20	7.06	266	12.5×25	7.06	265	12.5×25	7.06	295	16×25	8.47	330	16×25	8.47	330	16×31.5	8.47	361	16×35.5	8.47	380			
100	12.5×25	3.32	422	16×25	3.32	483	16×31.5	3.32	528	18×31.5	3.98	567	18×31.5	3.98	567	—	—	—	—	—	—	—	—	
220	16×31.5	1.51	783	18×35.5	1.51	882	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
330	18×35.5	1.01	1080	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Note) ESR : 20°C, 120Hz ; Rated ripple current : 85°C, 120Hz