

Standard Bipolar Capacitors

GREEN CAP Anti-cleaning solvent

• Guarantees 2000 hours at 85°C.



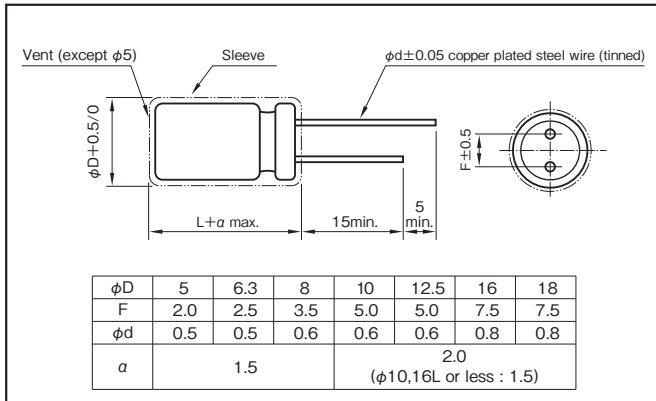
Marking color : White print on a blue sleeve

Specifications

Item	Performance																										
Category temperature range (°C)	-40 to +85																										
Tolerance at rated capacitance (%)	±20 (20°C, 120Hz)																										
Leakage current (µA) (max.)	0.03CV + 3 (after 5 minutes) C : Rated capacitance (µF) ; V : Rated voltage (V) (20°C)																										
Tangent of loss angle (tanδ)	<table border="1"> <tr> <td>Rated voltage (V)</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> </tr> <tr> <td>tan δ (max.)</td> <td>0.24</td> <td>0.24</td> <td>0.20</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> </tr> </table> <p>0.02 is added to every 1000µF increase over 1000µF (20°C, 120Hz)</p>	Rated voltage (V)	6.3	10	16	25	35	50	63	100	tan δ (max.)	0.24	0.24	0.20	0.20	0.16	0.14	0.12	0.10								
Rated voltage (V)	6.3	10	16	25	35	50	63	100																			
tan δ (max.)	0.24	0.24	0.20	0.20	0.16	0.14	0.12	0.10																			
Characteristics at high and low temperature	<table border="1"> <tr> <td>Rated voltage (V)</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> </tr> <tr> <td rowspan="2">Impedance ratio (max.)</td> <td>Z-25°C/Z+20°C</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z-40°C/Z+20°C</td> <td>10</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table> <p>0.5 for -25°C, 1 for -40°C are added to every 1000µF increase over 1000µF (120Hz)</p>	Rated voltage (V)	6.3	10	16	25	35	50	63	100	Impedance ratio (max.)	Z-25°C/Z+20°C	4	3	2	2	2	2	2	Z-40°C/Z+20°C	10	8	6	4	3	3	3
Rated voltage (V)	6.3	10	16	25	35	50	63	100																			
Impedance ratio (max.)	Z-25°C/Z+20°C	4	3	2	2	2	2	2																			
	Z-40°C/Z+20°C	10	8	6	4	3	3	3																			
Endurance (85°C) (Applied ripple current)	<table border="1"> <tr> <td>Test time</td> <td>2000 hours (with the polarity inverted every 250 hours)</td> </tr> <tr> <td>Leakage current</td> <td>The initial specified value or less</td> </tr> <tr> <td>Percentage of capacitance change</td> <td>Within ±20% of initial value</td> </tr> <tr> <td>Tangent of the loss angle</td> <td>150% or less of the initial specified value</td> </tr> </table>	Test time	2000 hours (with the polarity inverted every 250 hours)	Leakage current	The initial specified value or less	Percentage of capacitance change	Within ±20% of initial value	Tangent of the loss angle	150% or less of the initial specified value																		
Test time	2000 hours (with the polarity inverted every 250 hours)																										
Leakage current	The initial specified value or less																										
Percentage of capacitance change	Within ±20% of initial value																										
Tangent of the loss angle	150% or less of the initial specified value																										
Shelf life (85°C)	Test time : 1000hours ; other items are same as the endurance. Voltage application treatment : According to JIS C5101-4 4.1																										
Applicable standards	JIS C5101-1, -4 (IEC 60384-1, -4)																										

Outline Drawing

Unit : mm



Coefficient of Frequency for Rated Ripple Current

Rated voltage (V) \ Frequency (Hz)	50 · 60	120	1k	10k · 100k
6.3 to 16	0.8	1	1.1	1.2
25 to 35	0.8	1	1.5	1.7
50 to 100	0.8	1	1.6	1.9

Part numbering system (example : 10V1000µF)

R2B	—	10	V	102	M	I5	#	—	□
Series code		Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol			Taping/Forming symbol

Casing symbol

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

Standard Ratings

Rated capacitance (µF)	6.3		10		16		25		35		50		63		100	
	Case φD×L (mm)	Rated ripple current (mA rms)	Case φD×L (mm)	Rated ripple current (mA rms)	Case φD×L (mm)	Rated ripple current (mA rms)	Case φD×L (mm)	Rated ripple current (mA rms)	Case φD×L (mm)	Rated ripple current (mA rms)	Case φD×L (mm)	Rated ripple current (mA rms)	Case φD×L (mm)	Rated ripple current (mA rms)	Case φD×L (mm)	Rated ripple current (mA rms)
1	—	—	—	—	—	—	—	—	—	—	5×11	14	—	—	5×11	16
2.2	—	—	—	—	—	—	—	—	—	—	5×11	21	5×11	23	5×11	24
3.3	—	—	—	—	—	—	—	—	—	—	5×11	26	5×11	28	6.3×11	34
4.7	—	—	—	—	—	—	5×11	28	5×11	28	5×11	31	5×11	34	6.3×11	41
10	—	—	—	—	5×11	39	5×11	40	5×11	42	5×11	45	6.3×11	57	8×11.5	70
22	—	—	5×11	52	5×11	58	5×11	60	6.3×11	71	6.3×11	77	8×11.5	89	10×16	136
33	5×11	58	5×11	63	5×11	71	6.3×11	84	6.3×11	87	8×11.5	111	10×12.5	144	10×20	181
47	5×11	69	5×11	75	6.3×11	97	6.3×11	100	8×11.5	122	10×12.5	157	10×16	188	12.5×20	248
100	6.3×11	115	6.3×11	126	8×11.5	167	10×12.5	204	10×12.5	212	10×20	273	12.5×20	343	16×25	458
220	8×11.5	202	8×11.5	221	10×12.5	294	10×16	332	10×20	375	12.5×25	506	16×25	645	18×35.5	837
330	8×11.5	247	10×12.5	322	10×16	394	10×20	444	12.5×20	526	12.5×25	620	—	—	—	—
470	10×12.5	350	10×16	420	10×20	513	12.5×20	607	12.5×25	685	16×25	861	—	—	—	—
1000	10×20	611	12.5×20	767	12.5×25	935	16×25	1120	16×31.5	1270	—	—	—	—	—	—
2200	12.5×25	1090	16×25	1380	16×31.5	1660	—	—	—	—	—	—	—	—	—	—
3300	16×25	1490	16×31.5	1760	—	—	—	—	—	—	—	—	—	—	—	—
4700	16×31.5	1880	18×35.5	2280	—	—	—	—	—	—	—	—	—	—	—	—

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

105°C Bipolar Capacitors

GREEN CAP Anti-cleaning solvent

• Guarantees 2000 hours at 105°C.



High temperature



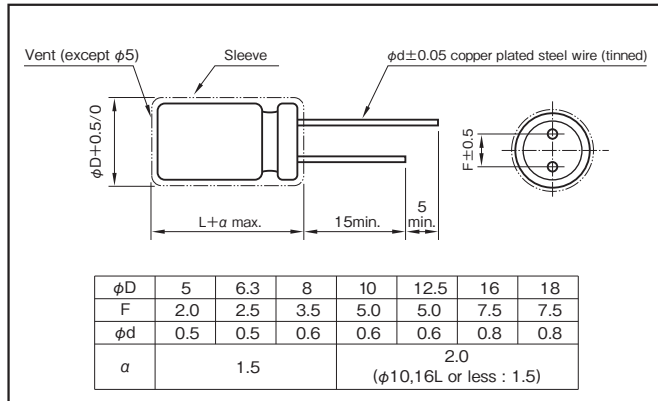
Marking color : White print on a black sleeve

Specifications

Item	Performance																				
Category temperature range (°C)	-40 to +105																				
Tolerance at rated capacitance (%)	±20 (20°C,120Hz)																				
Leakage current (µA) (max.)	0.03CV + 3 (after 5 minutes) C : Rated capacitance (µF) ; V : Rated voltage (V) (20°C)																				
Tangent of loss angle (tanδ)	<table border="1"> <tr> <th>Rated voltage (V)</th> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <th>tan δ (max.)</th> <td>0.4</td> <td>0.3</td> <td>0.2</td> <td>0.2</td> <td>0.16</td> <td>0.14</td> </tr> </table>	Rated voltage (V)	6.3	10	16	25	35	50	tan δ (max.)	0.4	0.3	0.2	0.2	0.16	0.14						
	Rated voltage (V)	6.3	10	16	25	35	50														
tan δ (max.)	0.4	0.3	0.2	0.2	0.16	0.14															
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> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <th rowspan="2">Impedance ratio (max.)</th> <td>Z-25°C/Z+20°C</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z-40°C/Z+20°C</td> <td>10</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> </tr> </table>	Rated voltage (V)	6.3	10	16	25	35	50	Impedance ratio (max.)	Z-25°C/Z+20°C	5	4	3	2	2	Z-40°C/Z+20°C	10	8	6	4	3
	Rated voltage (V)	6.3	10	16	25	35	50														
Impedance ratio (max.)	Z-25°C/Z+20°C	5	4	3	2	2															
	Z-40°C/Z+20°C	10	8	6	4	3															
0.5 for -25°C, 1 for -40°C are added to every 1000µF increase over 1000µF (120Hz)																					
Endurance (105°C) (Applied ripple current)	Test time	2000 hours (φ5 to φ8 : 1000 hours) with the polarity inverted every 250 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 (105°C)	Test time : 1000hours ; other items are same as the endurance. Voltage application treatment : According to JIS C5101-4 4.1																				
Applicable standards	JIS C5101-1, -4 (IEC 60384-1, -4)																				

Outline Drawing

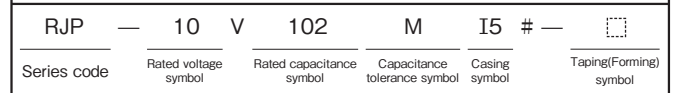
Unit : mm



Coefficient of Frequency for Rated Ripple Current

Frequency (Hz)	50 - 60	120	1k	10k - 100k
Rated voltage (V)				
6.3 to 16	0.8	1	1.1	1.2
25 to 35	0.8	1	1.5	1.7
50	0.8	1	1.6	1.9

Part numbering system (example : 10V1000µF)



Casing symbol

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

Standard Ratings

Rated voltage (V)	6.3		10		16		25		35		50	
	Case φD × L (mm)	Rated ripple current (mAmps)	Case φD × L (mm)	Rated ripple current (mAmps)	Case φD × L (mm)	Rated ripple current (mAmps)	Case φD × L (mm)	Rated ripple current (mAmps)	Case φD × L (mm)	Rated ripple current (mAmps)	Case φD × L (mm)	Rated ripple current (mAmps)
1	—	—	—	—	—	—	—	—	—	—	5 × 11	12
2.2	—	—	—	—	—	—	—	—	—	—	5 × 11	18
3.3	—	—	—	—	—	—	—	—	—	—	5 × 11	22
4.7	—	—	—	—	—	—	—	—	5 × 11	25	5 × 11	22
10	—	—	—	—	5 × 11	30	5 × 11	34	5 × 11	30	6.3 × 11.5	37
22	—	—	5 × 11	42	5 × 11	40	6.3 × 11.5	55	6.3 × 11.5	51	8 × 11.5	63
33	5 × 11	46	5 × 11	45	5 × 11	49	6.3 × 11.5	56	8 × 11.5	72	8 × 11.5	77
47	5 × 11	54	5 × 11	54	6.3 × 11.5	67	6.3 × 11.5	67	8 × 11.5	86	10 × 12.5	105
100	6.3 × 11.5	90	6.3 × 11.5	96	8 × 11.5	110	8 × 11.5	110	10 × 16	160	10 × 20	190
220	8 × 11.5	150	8 × 11.5	150	10 × 12.5	195	10 × 16	215	12.5 × 20	290	12.5 × 25	340
330	8 × 11.5	185	10 × 16	240	10 × 16	265	12.5 × 20	320	12.5 × 20	350	16 × 25	460
470	10 × 12.5	260	10 × 16	290	10 × 20	345	12.5 × 20	380	12.5 × 25	465	16 × 31.5	590
1000	10 × 20	460	12.5 × 20	510	12.5 × 25	605	16 × 25	670	16 × 31.5	805	—	—
2200	12.5 × 25	820	16 × 25	910	16 × 31.5	1070	18 × 35.5	1140	—	—	—	—
3300	16 × 25	1110	16 × 31.5	1200	18 × 35.5	1400	—	—	—	—	—	—
4700	16 × 31.5	1430	18 × 35.5	1520	—	—	—	—	—	—	—	—
6800	18 × 35.5	1830	—	—	—	—	—	—	—	—	—	—

(Note) Rated ripple current : 105°C , 120Hz

NOTE : Design, Specifications are subject to change without notice. It is recommended that you shall obtain technical specifications from ELNA to ensure that the component is suitable for your use.