



# Miniature Aluminum Electrolytic Capacitors

Series

CGM

## FEATURES

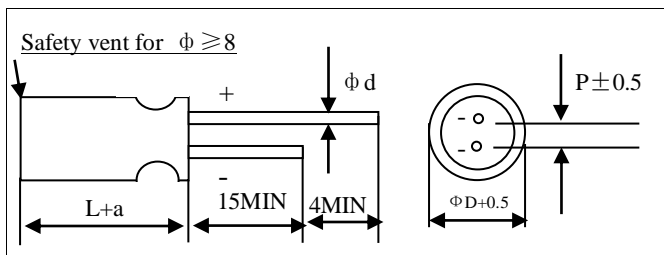
1. Low impedance for high frequency
2. Long life 3000~7000 hour at 105°C.

## SPECIFICATIONS

Item	Performance Characteristics																					
Operating Temperature Range	-40 to +105°C																					
Rated Working voltage Range	6.3 to 50V																					
Nominal Capacitance Range	22 ~6800(uF)																					
Capacitance Tolerance	±20% (120Hz, +20°C) (M)																					
Leakage Current	$I \leq 0.01CV$ or $4(\mu A)$ after 2 minutes Whichever is greater measured with rated working voltage at +20°C																					
Dissipation Factor $\tan \delta$ (120Hz+20°C)	<table border="1"> <thead> <tr> <th>Working voltage(V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td><math>\tan \delta</math> (max.)</td> <td>0.18</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.08</td> </tr> </tbody> </table> <p>For capacitance value &gt;1000uF add 0.02per another 1000uF</p>	Working voltage(V)	6.3	10	16	25	35	50	$\tan \delta$ (max.)	0.18	0.16	0.14	0.12	0.10	0.08							
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Low Temperature Characteristics	<p>Impedance ratio max. at 120Hz</p> <table border="1"> <thead> <tr> <th>Working voltage(V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <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> </tr> <tr> <td>Z-40°C/Z+20°C</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> </tbody> </table>	Working voltage(V)	6.3	10	16	25	35	50	Z-25°C/Z+20°C	4	3	2	2	2	2	Z-40°C/Z+20°C	8	6	4	3	3	3
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Multiplier for Ripple Current vs. Temperature	<table border="1"> <thead> <tr> <th>Temperature °C</th> <th>45</th> <th>60</th> <th>70</th> <th>85</th> <th>95</th> <th>105</th> </tr> </thead> <tbody> <tr> <td>Multiplier</td> <td>2.1</td> <td>1.9</td> <td>1.65</td> <td>1.4</td> <td>1.25</td> <td>1.00</td> </tr> </tbody> </table>	Temperature °C	45	60	70	85	95	105	Multiplier	2.1	1.9	1.65	1.4	1.25	1.00							
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High temperature Loading	<p>Test conditions</p> <p>Duration : <table border="1"><tr><td>Dφ</td><td>6.3~10V</td></tr><tr><td>φ5~6.3</td><td>3000</td></tr><tr><td>φ8</td><td>4000</td></tr><tr><td>φ10</td><td>5000</td></tr><tr><td>φ13</td><td>7000</td></tr></table></p> <p>Ambient temperature : +105°C</p> <p>Applied voltage : Rated DC working voltage</p> <p>Post test requirements at +20°C</p> <p>Leakage current : ≤ Initial specified value</p> <p>Capacitance change : ≤ ±25% of initial measured value</p> <p><math>\tan \delta</math> : ≤200% of initial specified value</p>	Dφ	6.3~10V	φ5~6.3	3000	φ8	4000	φ10	5000	φ13	7000											
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φ5~6.3	3000																					
φ8	4000																					
φ10	5000																					
φ13	7000																					
Shelf life	<p>Test conditions</p> <p>Duration : 1000hours</p> <p>Ambient temperature : +105°C</p> <p>Applied voltage : (None)</p> <p>Post test requirements at +20°C</p> <p>Same Limits for high temperature loading</p>																					
Others	JIS C-5141 JIS C-5102																					

## CASE SIZE TABLE

Unit:mm



Dφ	5	6.3	8	8	10	13	16	18
P	2.0	2.5	3.5	3.5	5.0	5.0	7.5	7.5
dφ (±0.05)	0.5		0.6		0.8			

aMAX	(L<20)1.5
	(L≥20)2.0



## Miniature Aluminum Electrolytic Capacitors

### Multiplier for Ripple Current vs. Frequency

CAP (uF) \ Hz		50(60)	120	400	1k	10k	50-100K
Multiplier	CAP ≤ 10	0.47	0.59	0.76	0.85	0.97	1
	10 < CAP ≤ 100	0.52	0.61	0.78	0.89	0.97	1
	100 < CAP ≤ 1000	0.58	0.75	0.88	0.92	0.98	1
	1000 ≤ CAP	0.63	0.89	0.91	0.93	0.98	1

### STANDARD RATINGS

Voltage Item Cap.(uF) Code		Case size φ D × L (mm)	6.3V(OJ)		
			Impedance(Ω MAX.) 20°C/100KHZ	Allowable ripple(mA rms)	
				105°C/100KHz	105°C/120Hz
100	107	5×11	0.50	205	125
220	227	6.3×11	0.30	350	260
330	337	6.3×11	0.13	410	308
470	477	8×12	0.10	640	480
680	687	8×12	0.076	745	560
1000	108	10×13	0.053	1035	920
1500	158	10×20	0.023	1825	1625
2200	228	10×25	0.022	2155	1918
3300	338	13×21	0.021	2360	2100
4700	478	13×30	0.016	3295	2933
6800	688	16×25	0.016	3460	3080

Voltage Item Cap.(uF) Code		Case size φ D × L (mm)	10V(1A)		
			Impedance(Ω MAX.) 20°C/100KHZ	Allowable ripple(mA rms)	
				105°C/100KHz	105°C/120Hz
100	107	5×11	0.30	252	154
220	227	6.3×11	0.13	410	308
330	337	8×12	0.105	640	480
470	477	8×12	0.072	760	570
680	687	8×16	0.056	1000	750
1000	108	10×17	0.038	1435	1277
1500	158	10×25	0.022	2155	1918
2200	228	13×21	0.021	2365	2105
3300	338	13×25	0.018	2775	2470
4700	478	13×35	0.015	3405	3030



## Miniature Aluminum Electrolytic Capacitors

### STANDARD RATINGS

Voltage Item Cap.(uF) Code		Case size φ D×L(mm)	16V(1C)		
			Impedance(Ω MAX.)	Allowable ripple(mA rms)	
				20°C/100KHZ	105°C/100KHz
100	107	6.3×11	0.20	360	220
220	227	8×12	0.10	575	431
330	337	8×12	0.072	760	570
470	477	10×13	0.053	1035	776
680	687	10×17	0.038	1435	1076
1000	108	10×20	0.023	1825	1369
1500	158	13×21	0.021	2365	2105
2200	228	13×25	0.018	2770	2400
3300	338	13×35	0.015	3400	3026

Voltage Item Cap.(uF) Code		Case size φ D×L(mm)	25V(1E)		
			Impedance(Ω MAX.)	Allowable ripple(mA rms)	
				20°C/100KHZ	105°C/100KHz
47	476	5×11	0.30	255	155
100	107	6.3×11	0.13	410	250
220	227	8×12	0.072	762	572
330	337	10×13	0.053	1035	776
470	477	10×17	0.038	1432	1075
680	687	10×20	0.023	1825	1370
1000	108	13×21	0.021	2365	1775
1500	158	13×25	0.018	2772	2465
2200	228	13×35	0.015	3405	3030
3300	338	16×30	0.014	3980	3542

### STANDARD RATINGS

Voltage Item Cap.(uF) Code		Case size φ D×L(mm)	35V(1V)		
			Impedance(Ω MAX.)	Allowable ripple(mA rms)	
				20°C/100KHZ	105°C/100KHz
33	336	5×11	0.30	255	156
47	476	6.3×11	0.25	465	284
100	107	8×12	0.10	595	363
220	227	10×13	0.053	1030	628
330	337	10×17	0.038	1432	1074
470	477	10×20	0.023	1822	1367
680	687	13×25	0.021	2380	1785
1000	108	13×25	0.018	2775	2080
1500	158	13×35	0.015	3400	3026



## Miniature Aluminum Electrolytic Capacitors

Voltage Item Cap.(uF) Code		50V(1H)			
		Case size φ D×L(mm)	Impedance(Ω MAX.)	Allowable ripple(mA rms)	
			20°C/100KHZ	105°C/100KHz	105°C/120Hz
22	226	5×11	0.34	240	145
33	336	6.3×11	0.26	470	287
47	476	6.3×11	0.23	542	330
100	107	8×12	0.074	725	442
220	227	10×17	0.042	1372	837
330	337	10×25	0.028	1870	1140
470	477	13×25	0.027	2055	1255
680	687	13×30	0.021	2862	1745
1000	108	16×30	0.021	3030	1848