



Miniature Aluminum Electrolytic Capacitors

Series

CSB

FEATURES

- 1、High temperature and long load life

SPECIFICATIONS

Item	Performance Characteristics																									
Operating Temperature Range	-40 to +105°C																									
Rated Working voltage Range	10 to 100V DC				160 to 450V DC																					
Nominal Capacitance Range	3.3 to 3300(uF)																									
Capacitance Tolerance	±20% (120Hz, +20°C)																									
Leakage Current	I ≤ 0.01CV or 4(uA) after 2 minutes whichever is greater working voltage at +20°C				I ≤ 0.03CV+40(uA) or 4(uA) after 2 minutes whichever is greater measured with rated working voltage at +20°C																					
Dissipation Factor tan δ (120Hz+20°C)	<table border="1"> <tr> <td>Working 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>0.28</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> </tr> </table>								Working voltage(V)	6.3	10	16	25	35	50	63	100	Tan δ (max.)	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08
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	Tan δ (max.)	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08																	
	<table border="1"> <tr> <td>Working voltage(V)</td> <td>160</td> <td>200</td> <td>250</td> <td>350</td> <td>400</td> <td>450</td> <td colspan="2"></td> </tr> <tr> <td>Tan δ (max.)</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td colspan="2"></td> </tr> </table>								Working voltage(V)	160	200	250	350	400	450			Tan δ (max.)	0.15	0.15	0.15	0.15	0.15	0.15		
Working voltage(V)	160	200	250	350	400	450																				
Tan δ (max.)	0.15	0.15	0.15	0.15	0.15	0.15																				
For capacitance value >1000uF add 0.02 per another 1000uF																										
Maximum permissible ripple current	Refer to standard produce table (120HZ,+105°C) Correction factor for frequency																									
	V	Freq.(Hz)	50	120	300	1k	10k~																			
		CAP(uF)																								
	6.3~100	~47	0.75	1.00	1.35	1.57	2.00																			
		100~470	0.80	1.00	1.23	1.34	1.50																			
		1000~15000	0.85	1.00	1.10	1.13	1.15																			
160~450	0.47~220	0.80	1.00	1.25	1.40	1.60																				
	270~330	0.90	1.00	1.10	1.13	1.15																				
Multiplier for Ripple Current vs. Temperature	Temperature °C	45	60	70	85	105																				
	Multiplier	2.10	1.90	1.40	1.25	1.00																				
Low Temperature Characteristics	Impedance ratio max. at 120Hz																									
	Working voltage(V)	6.3	10	16	25	35	50	63	100																	
	Z-25°C/Z+20°C	5	4	3	2	2	2	2	2																	
	Z-40°C/Z+20°C	12	10	8	5	4	3	3	3																	
	<table border="1"> <tr> <td>Working voltage(V)</td> <td>160</td> <td>200</td> <td>250</td> <td>350</td> <td>400</td> <td>450</td> <td colspan="2"></td> </tr> <tr> <td>Z-40°C/Z+20°C</td> <td>3</td> <td>3</td> <td>4</td> <td>4</td> <td>6</td> <td>15</td> <td colspan="2"></td> </tr> </table>								Working voltage(V)	160	200	250	350	400	450			Z-40°C/Z+20°C	3	3	4	4	6	15		
Working voltage(V)	160	200	250	350	400	450																				
Z-40°C/Z+20°C	3	3	4	4	6	15																				
For capacitance value >1000uF: Add 0.5 per another 1000uF for Z-25°C/Z+20°C Add 1.0 per another 1000uF for Z-40°C/Z+20°C																										
High Temperature Loading	Test conditions																									
	Duration	: Φ D8~10Φ:7000 hours, Φ D>10Φ:10000 hours																								
	Ambient temperature	:+105°C																								
	Applied voltage	:Rated DC working voltage																								
	Post test requirements at +20°C																									
	Leakage current	: ≤ Initial specified value																								
Capacitance change	: ≤ ±25% of initial measured value																									
tan δ	: ≤ 200% of initial specified value																									

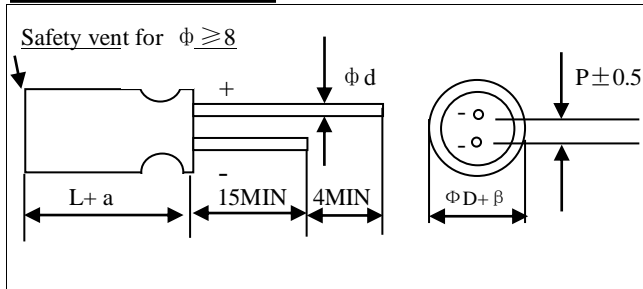


Miniature Aluminum Electrolytic Capacitors

Shelf life	Test conditions
	Duration : 1000 hours Ambient temperature : +105°C Applied voltage : (None) Post test requirements at +20°C Leakage current : ≤ Initial specified value Capacitance change : ≤ ±20% of initial measured value tan δ : ≤ 200% of initial specified value
Others	JIS C-5141 JIS C-5102

CASE SIZE TABLE

Unit:mm



D φ	5	6.3	8	10	13	16	18	22
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0
d φ (±0.05)	0.5			0.6		0.8		

aMAX	(L < 20) 1.5
	(L ≥ 20) 2.0

β MAX	(D < 20) 0.5
	(D ≥ 20) 1.0

DIMENSIONS

ΦD×L(mm)

WV (SV)		10V(13)		16V(20)		25V(32)		35V(44)		50V(63)	
Cap.(uF)	Code	1A		1C		1E		1V		1H	
100	107									10×17	525
220	227							10×20	690	13×21	1080
330	337			10×15	530	10×17	685	13×21	990	13×25	1250
470	477	10×12.5	530	10×17	590	13×21	725	13×25	1240	16×26	1400
680	687	10×17	690	10×20	840	13×25	820	16×26	1600	16×30	1770
1000	108	10×20	980	13×21	880	13×21	1800	16×30	1900	18×30	2060
						16×26	1890				
2200	228	13×25	1510	16×26	1930	16×30	2270				
3300	338	16×26	1850	16×30	2210	18×36	2600			Case size	Allowable ripple

Allowable Ripple (mA rms) at 105°C 120HZ

WV(SV)		63V(79)		100V(125)		160V(200)		200V(250)		250(300)	
Cap.(uF)	Code	1J		2A		2C		2D		2E	
3.3	335									10×12.5	80
4.7	475									10×15	95
10	106					10×15	125	10×20	150	10×20	225
22	226					10×20	195	10×25	365	13×21	360
33	336					10×25	420	13×21	470	13×25	270
47	476			10×25	535	13×21	550	13×25	570	16×26	635
68	686	10×17	520	13×21	615	13×25	665	13×25	770	16×30	790
100	107	10×25	660	13×25	790	16×26	980	16×30	990	18×36	1080
220	227	13×25	1290	16×30	1370	16×35	1100	18×36	1175		
330	337	16×26	1370	18×36	1570	18×36	1430				
470	477	16×30	1600	18×40	1680						
680	687	18×30	1970								
1000	108	18×36	2160							Case size	Allowable ripple

Allowable Ripple (mA rms) at 105°C 120HZ

ΦD×L(mm)

WV(SV)		350(400)		400V(450)		450V(500)	
Cap.(uF)	Code	2V		2G		2W	
2.2	225			10×12.5	55	10×15	65
3.3	335	10×12.5	85	10×15	90	10×20	100



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4.7	475	10×17	102	10×20	120	13×21	110
10	106	10×20	145	13×21	155	13×25	215
22	226	13×21	278	13×25	280	16×26	450
33	336	16×26	440	16×26	455	16×30	470
47	476	16×30	565	16×30	580	18×30	680
68	686	18×30	940	18×32	955	18×36	745
100	107	18×36	990	22×35	1010	22×40	870
120	127					Case size	Allowable ripple

Allowable Ripple (mA rms) at 105°C 120HZ