



# Miniature Aluminum Electrolytic Capacitors

Series  
CNP

## FEATURES

- 1、NP Series for crossover net works for high-pitched, mean and low-pitched sounds in high-fidelity sound systems, have excellent frequency characteristics and small deviation of capacitance

## SPECIFICATIONS

Item	Performance Characteristics																																					
Operating Temperature Range	-40 to +85 °C																																					
Rated Working voltage Range	6.3 to 100V																																					
Nominal Capacitance Range	0.47to 6800(uF)																																					
Capacitance Tolerance	±20% (120Hz, +20 °C)																																					
Leakage Current	$I \leq 0.03CV$ or 3(uA) after 5 minutes application of 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> <th>63</th> <th>100</th> </tr> </thead> <tbody> <tr> <td><math>\tan \delta</math> (max.)</td> <td>0.26</td> <td>0.24</td> <td>0.22</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> </tr> </tbody> </table> <p>For capacitance value &gt;1000uF,add 0.02 per another 1000uF</p>	Working voltage(V)	6.3	10	16	25	35	50	63	100	$\tan \delta$ (max.)	0.26	0.24	0.22	0.20	0.16	0.14	0.12	0.10																			
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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> <th>63</th> <th>100</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> <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>5</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> </tr> </tbody> </table>	Working voltage(V)	6.3	10	16	25	35	50	63	100	Z-25 °C/Z+20 °C	4	3	2	2	2	2	2	2	Z-40 °C/Z+20 °C	10	8	6	5	4	4	3	3										
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Multiplier for Ripple Current vs. Frequency	<table border="1"> <thead> <tr> <th colspan="2">CAP(uF)\Hz</th> <th>60(50)</th> <th>120</th> <th>400</th> <th>1K</th> <th>10K</th> <th>50K-100K</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Multiplier</td> <td>CAP ≤ 10</td> <td>0.8</td> <td>1</td> <td>1.30</td> <td>1.45</td> <td>1.65</td> <td>1.70</td> </tr> <tr> <td>10 &lt; CAP ≤ 100</td> <td>0.8</td> <td>1</td> <td>1.23</td> <td>1.36</td> <td>1.48</td> <td>1.53</td> </tr> <tr> <td>100 &lt; CAP ≤ 1000</td> <td>0.8</td> <td>1</td> <td>1.16</td> <td>1.25</td> <td>1.35</td> <td>1.38</td> </tr> <tr> <td>1000 &lt; CAP</td> <td>0.8</td> <td>1</td> <td>1.11</td> <td>1.17</td> <td>1.25</td> <td>1.28</td> </tr> </tbody> </table>	CAP(uF)\Hz		60(50)	120	400	1K	10K	50K-100K	Multiplier	CAP ≤ 10	0.8	1	1.30	1.45	1.65	1.70	10 < CAP ≤ 100	0.8	1	1.23	1.36	1.48	1.53	100 < CAP ≤ 1000	0.8	1	1.16	1.25	1.35	1.38	1000 < CAP	0.8	1	1.11	1.17	1.25	1.28
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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> </tr> </thead> <tbody> <tr> <td>Multiplier</td> <td>1.80</td> <td>1.50</td> <td>1.30</td> <td>1.0</td> </tr> </tbody> </table>	Temperature °C	45	60	70	85	Multiplier	1.80	1.50	1.30	1.0																											
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High temperature Loading	<p>Test conditions</p> <p>Duration : 2000 hours</p> <p>Ambient temperature : +85 °C</p> <p>Applied voltage : Rated DC working voltage to each polarity every 250 hours.</p> <p>Post test requirements at +20 °C</p> <p>Leakage current : ≤ Initial specified value</p> <p>Capacitance change : ≤ ±20% of initial measured value</p> <p><math>\tan \delta</math> : ≤ 200% of initial specified value</p>																																					
Shelf life	<p>Test conditions</p> <p>Duration : 1000 hours</p> <p>Ambient temperature : +85 °C</p> <p>Applied voltage : (None)</p> <p>Post test requirements at +20 °C</p> <p>Same limits for high temperature loading</p>																																					

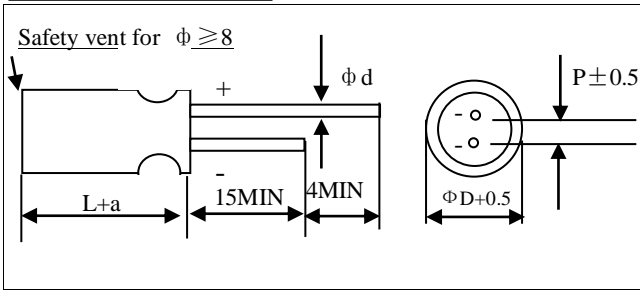


# Miniature Aluminum Electrolytic Capacitors

Others	JIS C-5141 JIS C-5102
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## CASE SIZE TABLE

Unit:mm



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

aMAX	(L<20)1.5
	(L≥20)2.0

## DIMENSIONS

Φ D × L (mm)

WV(SV)		6.3V(8)		10V(13)		16V(20)		25V(32)	
Cap.(uF)	Code	0J		1A		1C		1E	
10	106					5×11	42	5×11	42
22	226			5×11	57	5×11	57	6.3×11	65
33	336	5×11	64	5×11	64	5×11	70	6.3×11	80
47	476	5×11	76	5×11	76	6.3×11	95	6.3×11	95
100	107	6.3×11	125	6.3×11	125	8×12	160	8×12	160
220	227	8×12	215	8×12	215	10×12.5	275	10×15	305
330	337	8×12	265	10×15	345	10×15	375	13×21	450
470	477	10×12.5	370	10×17	410	13×21	485	13×21	540
1000	108	10×20	650	13×21	720	16×26	855	16×26	950
2200	228	13×25	1160	16×26	1280	16×30	1510	18×36	1620
3300	338	16×26	1570	18×30	1690	18×36	1980		
4700	478	16×30	2020	18×36	2160				
6800	688	18×30	2600					Case Size	Allowable ripple

Allowable Ripple (mA rms) at 85°C 120Hz

Φ D × L (mm)

WV(SV)		35V(44)		50V(63)		63V(79)		100V(125)	
Cap.(uF)	Code	1V		1H		1J		2A	
0.47	474			5×11	11			5×11	14
1	105			5×11	17			5×11	21
2.2	225			5×11	25			6.3×11	34
3.3	335			5×11	27	5×11	28	6.3×11	39
4.7	475	5×11	34	5×11	34	6.3×11	34	6.3×11	47
10	106	5×11	43	6.3×11	52	6.3×11	57	8×12	71
22	226	6.3×11	73	8×12	89	8×12	95	10×15	135
33	336	8×12	100	8×12	105	10×12.5	135	13×21	220
47	476	8×12	120	10×12.5	150	10×17	180	13×21	240
100	107	10×15	230	10×20	265	13×21	320	16×26	425
220	227	13×21	410	13×25	480	16×26	575	18×36	720
330	337	13×21	505	16×26	650	16×30	655		
470	477	13×25	655	16×30	835	18×36	965		



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1000	108	16×26	1140						
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Allowable Ripple (mA rms)at 85°C 120Hz