

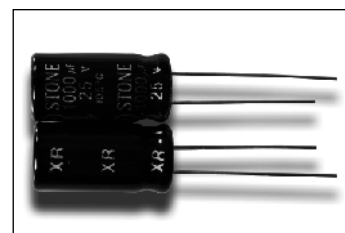


# Aluminum Electrolytic Capacitors

**XR** Series

## Features

- Low Impedance
- Load Life of 2000 hours at 105°C
- RoHS Compliance



## Specification

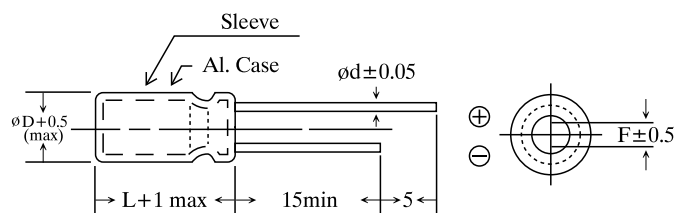
Items	Performance																								
Capacitance Tolerance	±20% (at 120Hz, 20°C)																								
Rated Voltage Range	6.3 to 50 VDC																								
Capacitance Range	47 to 4700 μF																								
Operating Temperature Range	-40 to +105°C																								
Leakage Current (at 20°C)	$I \leq 0.01 CV$ or $3 (\mu A)$ , whichever is greater. After 2 minutes application of working voltage. $I$ = Leakage current ( $\mu A$ ), $C$ = Rated capacitance ( $\mu F$ ), $V$ = Rated voltage (V)																								
Dissipation Factor (Tan $\delta$ at 120Hz, 20°C)	<table border="1"> <thead> <tr> <th>Rated Voltage</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>Tan <math>\delta</math> (max)</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> </tr> </tbody> </table> For capacitance > 1000 μF, add 0.02 per 1000 μF increase.	Rated Voltage	6.3	10	16	25	35	50	Tan $\delta$ (max)	0.22	0.19	0.16	0.14	0.12	0.10										
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Low Temperature Characteristics (at 120Hz)	Impedance ratio max. <table border="1"> <thead> <tr> <th>Rated Voltage</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>4</td> <td>3</td> <td>3</td> </tr> </tbody> </table>	Rated Voltage	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	4	3	3			
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Load Life	After 2000 hours application of W.V. at +105°C, the capacitor shall meet the following limits. Capacitance change : $\leq \pm 25\%$ of initial value Dissipation factor : $\leq 200\%$ of initial specified value Leakage Current : $\leq$ Initial specified value																								
Shelf Life	After storage for 1000 hours at 105°C, with no voltage applied and being stabilized at +20°C, Capacitor shall meet the limit specified in load life.																								
Ripple Current & Frequency Multiplier	<table border="1"> <thead> <tr> <th>Freq.(Hz) \ Cap.(μF)</th> <th>60 (50)</th> <th>120</th> <th>1K</th> <th>10K</th> <th>100K</th> </tr> </thead> <tbody> <tr> <td>47 to 330</td> <td>0.60</td> <td>0.70</td> <td>0.85</td> <td>0.95</td> <td>1.00</td> </tr> <tr> <td>470 to 1000</td> <td>0.65</td> <td>0.75</td> <td>0.90</td> <td>0.98</td> <td>1.00</td> </tr> <tr> <td>1200 up above</td> <td>0.75</td> <td>0.80</td> <td>0.95</td> <td>1.00</td> <td>1.00</td> </tr> </tbody> </table>	Freq.(Hz) \ Cap.(μF)	60 (50)	120	1K	10K	100K	47 to 330	0.60	0.70	0.85	0.95	1.00	470 to 1000	0.65	0.75	0.90	0.98	1.00	1200 up above	0.75	0.80	0.95	1.00	1.00
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# Aluminum Electrolytic Capacitors

**XR** Series

## DIAGRAM OF DIMENSIONS



## LEAD SPACING AND DIAMTER Unit: mm

D	8	10	13
F	3.5	5.0	5.0
d	0.5	0.6	

Dimension :  $\phi D \times L$  (mm)

Ripple Current : mA/rms at 100KHz, 105°C

Max Impedance : ( $\Omega$ ) at 100KHz, 20°C

## DIMENSION & PERMISSIBLE RIPPLE CURRENT

VDC $\mu F$	6.3V			10V			16V		
	$\phi D \times L$	Ripple	Impedance	$\phi D \times L$	Ripple	Impedance	$\phi D \times L$	Ripple	Impedance
470							8x12	600	0.100
1000	8x12 8x14	500 600	0.090 0.090	10x12.5	1000	0.080	10x20	1380	0.060
1200	8x20 10x16	800 1000	0.060 0.060	10x20	1200	0.045			
1500	8x20 10x16 10x20	800 1000 1100	0.070 0.060 0.045	10x20	1200	0.045	10x20	1800	0.045
2200	10x20	1100	0.075	10x20	1450	0.060	10x25 13x21	1720 1810	0.050 0.045
3300	10x25	1500	0.050	13x26	1800	0.043			
4700	13x26	1790	0.050						

VDC $\mu F$	25V			35V			50V		
	$\phi D \times L$	Ripple	Impedance	$\phi D \times L$	Ripple	Impedance	$\phi D \times L$	Ripple	Impedance
47							8x11	275	0.400
100				8x12	400	0.180	8x12	420	0.140
220	8x14	700	0.085	10x12.5	700	0.090	10x20	850	0.110
330	8x14	800	0.075	10x16	1000	0.065	10x25	1100	0.060
470	10x16	1050	0.075	10x20	1250	0.060	13x21	1450	0.050
1000	10x20 13x21	1580 1820	0.045 0.035	13x26	1820	0.035	16x26	2000	0.045
1500	13x26	1870	0.035						
2200	13x26	2200	0.035						