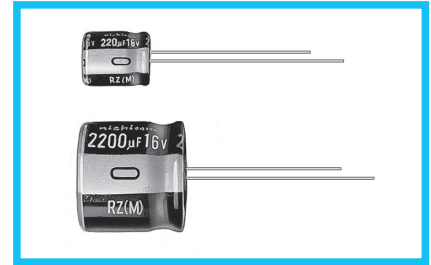


# ALUMINUM ELECTROLYTIC CAPACITORS

**URZ** Compact & Low-Profile Sized,  
Wide Temperature Range



- Very small case sizes same as URS, but operating over wide temperature range of  $-55$  ( $-40$ ) to  $+105^{\circ}\text{C}$ .
- Compliant to the RoHS directive (2011/65/EU).

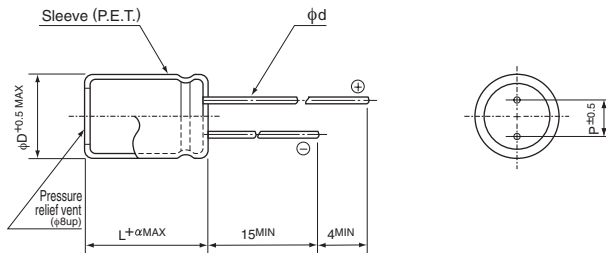
**URZ**



## Specifications

Item	Performance Characteristics																																							
Category Temperature Range	$-55$ to $+105^{\circ}\text{C}$ (6.3 to 100V) , $-40$ to $+105^{\circ}\text{C}$ (160 to 400V)																																							
Rated Voltage Range	6.3 to 400V																																							
Rated Capacitance Range	1 to 10000 $\mu\text{F}$																																							
Capacitance Tolerance	$\pm 20\%$ at 120Hz, $20^{\circ}\text{C}$																																							
Leakage Current	<table border="1"> <tr> <th>Rated voltage (V)</th> <th>6.3 to 100</th> <th>160 to 400</th> </tr> <tr> <td>_____</td> <td>After 1 minute's application of rated voltage at <math>20^{\circ}\text{C}</math>, leakage current is not more than <math>0.03\text{CV}</math> or <math>4</math> (<math>\mu\text{A}</math>), whichever is greater. After 2 minutes' application of rated voltage at <math>20^{\circ}\text{C}</math>, leakage current is not more than <math>0.01\text{CV}</math> or <math>3</math> (<math>\mu\text{A}</math>), whichever is greater.</td> <td>After 1 minute's application of rated voltage at <math>20^{\circ}\text{C}</math>, <math>I = 0.04\text{CV} + 100</math> (<math>\mu\text{A}</math>) or less</td> </tr> </table>	Rated voltage (V)	6.3 to 100	160 to 400	_____	After 1 minute's application of rated voltage at $20^{\circ}\text{C}$ , leakage current is not more than $0.03\text{CV}$ or $4$ ( $\mu\text{A}$ ), whichever is greater. After 2 minutes' application of rated voltage at $20^{\circ}\text{C}$ , leakage current is not more than $0.01\text{CV}$ or $3$ ( $\mu\text{A}$ ), whichever is greater.	After 1 minute's application of rated voltage at $20^{\circ}\text{C}$ , $I = 0.04\text{CV} + 100$ ( $\mu\text{A}$ ) or less																																	
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Tangent of loss angle ( $\tan \delta$ )	For capacitance of more than 1000 $\mu\text{F}$ , add 0.02 for every increase of 1000 $\mu\text{F}$ . Measurement frequency : 120Hz at $20^{\circ}\text{C}$																																							
Stability at Low Temperature	<table border="1"> <tr> <th>Rated 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> <th>160</th> <th>200</th> <th>250</th> <th>400</th> </tr> <tr> <td><math>\tan \delta</math> (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> <td>0.20</td> <td>0.20</td> <td>0.20</td> <td>0.25</td> </tr> </table>	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	400	$\tan \delta$ (MAX.)	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.20	0.20	0.20	0.25													
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Endurance	<table border="1"> <tr> <th>Rated 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> <th>160</th> <th>200</th> <th>250</th> <th>400</th> </tr> <tr> <td>Impedance ratio <math>Z_{-25^{\circ}\text{C}} / Z_{+20^{\circ}\text{C}}</math></td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>3</td> <td>3</td> <td>3</td> <td>6</td> </tr> <tr> <td><math>Z\text{T} / Z20</math> (MAX.)</td> <td>10</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>4</td> <td>4</td> <td>6</td> <td>10</td> </tr> </table>	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	400	Impedance ratio $Z_{-25^{\circ}\text{C}} / Z_{+20^{\circ}\text{C}}$	5	4	3	2	2	2	2	2	3	3	3	6	$Z\text{T} / Z20$ (MAX.)	10	8	6	4	3	3	3	3	4	4	6	10
	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	400																											
Impedance ratio $Z_{-25^{\circ}\text{C}} / Z_{+20^{\circ}\text{C}}$	5	4	3	2	2	2	2	2	3	3	3	6																												
$Z\text{T} / Z20$ (MAX.)	10	8	6	4	3	3	3	3	4	4	6	10																												
Shelf Life	The specifications listed at right shall be met when the capacitors are restored to $20^{\circ}\text{C}$ after the rated voltage is applied for 1000 hours at $105^{\circ}\text{C}$ .																																							
	<table border="1"> <tr> <td>Capacitance change</td> <td>Within <math>\pm 20\%</math> of the initial capacitance value</td> </tr> <tr> <td><math>\tan \delta</math></td> <td>200% or less than the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Less than or equal to the initial specified value</td> </tr> </table>	Capacitance change	Within $\pm 20\%$ of the initial capacitance value	$\tan \delta$	200% or less than the initial specified value	Leakage current	Less than or equal to the initial specified value																																	
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Marking	Printed with white color letter on black sleeve.																																							

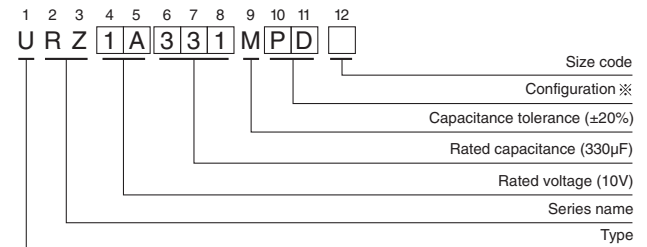
## Radial Lead Type



$\alpha$	$(\phi D < 20)$	1.5
	$(\phi D \geq 20)$	2.0
$\phi D$	5, 6.3, 8, 10, 12.5, 16, 18, 20	(mm)
P	2.0, 2.5, 3.5, 5.0, 5.0, 7.5, 7.5, 10.0	
$\phi d$	0.5, 0.5, 0.6, 0.6, 0.6, 0.8, 0.8, 1.0	

• Please refer to page 20 about the end seal configuration.

## Type numbering system (Example : 10V 330 $\mu\text{F}$ )



※ Configuration

$\phi D$	Pb-free leadwire Pb-free PET sleeve
5 - 6.3	DD
8 - 10	PD
12.5 to 18	HD
20	RD

Please refer to page 20, 21, 22 about the formed or taped product spec.  
Please refer to page 4 for the minimum order quantity.

● Dimension table in next page.

## URZ

### ■ Dimensions

V		6.3		10		16		25		35		50	
Cap.(μF)	Code	0J		1A		1C		1E		1V		1H	
2.2	2R2											5 × 9	18
3.3	3R3											5 × 9	25
4.7	4R7							5 × 9	20	5 × 9	25	5 × 9	30
10	100					5 × 9	30	5 × 9	35	5 × 9	40	5 × 9	46
22	220	5 × 9	25	5 × 9	40	5 × 9	50	5 × 9	55	5 × 9	60	5 × 9	65
33	330	5 × 9	40	5 × 9	55	5 × 9	60	5 × 9	70	5 × 9	75	6.3 × 9	85
47	470	5 × 9	55	5 × 9	65	5 × 9	70	5 × 9	80	6.3 × 9	95	6.3 × 9	100
100	101	5 × 9	90	5 × 9	95	6.3 × 9	115	6.3 × 9	130	8 × 9	155	10 × 9	170
220	221	6.3 × 9	145	6.3 × 9	155	8 × 9	205	10 × 9	220	10 × 9	235	10 × 12.5	290
330	331	6.3 × 9	180	8 × 9	210	10 × 9	240	10 × 9	270	10 × 12.5	340	12.5 × 12.5	370
470	471	8 × 9	235	8 × 9	275	10 × 9	290	10 × 12.5	370	12.5 × 12.5	420	16 × 15	540
1000	102	10 × 9	370	10 × 12.5	450	12.5 × 12.5	520	12.5 × 15	590	16 × 15	720	18 × 20	830
2200	222	12.5 × 15	635	12.5 × 15	690	16 × 15	830	18 × 15	970	18 × 20	1110	20 × 25	1250
3300	332	16 × 15	860	16 × 15	940	18 × 15	1050	18 × 20	1220	20 × 25	1430		
4700	472	16 × 15	1010	18 × 15	1120	18 × 20	1260	18 × 25	1470				
6800	682	18 × 15	1200	18 × 20	1330	18 × 25	1560					Case size φ D × L (mm)	Rated ripple
10000	103	18 × 20	1450	18 × 25	1700								

V		63		100		160		200		250		400	
Cap.(μF)	Code	1J		2A		2C		2D		2E		2G	
1	010			5 × 9	12								
2.2	2R2			5 × 9	17								
3.3	3R3			5 × 9	25								
4.7	4R7			6.3 × 9	32								
10	100	5 × 9	42	6.3 × 9	50							16 × 15	100
22	220	6.3 × 9	71	8 × 9	93					16 × 15	200	● 18 × 15	200
33	330	8 × 9	100	10 × 9	130			16 × 15	250	● 18 × 15	250	18 × 20	250
47	470	8 × 9	120	10 × 12.5	165	16 × 15	300	● 18 × 15	300	Δ 18 × 20	300	★ 18 × 25	300
68	680					● 18 × 15	350	Δ 18 × 20	350	18 × 20	350	20 × 25	350
100	101	10 × 9	215	12.5 × 15	265	Δ 18 × 20	420	★ 18 × 25	420	18 × 25	420		
150	151					★ 18 × 25	510	18 × 25	510				
220	221	12.5 × 12.5	335	16 × 15	440	20 × 25	550						
330	331	12.5 × 15	510	18 × 15	540							Case size φ D × L (mm)	Rated ripple
470	471	16 × 15	640										

Rated ripple current (mArms) at 105°C 120Hz

Size φ 16 × 20 is available for capacitors marked "●"  
 Size φ 20 × 15 is available for capacitors marked "Δ"  
 Size φ 20 × 20 is available for capacitors marked "★"

In this case, [6] will be put at 12th digit of type numbering system.

### ● Frequency coefficient of rated ripple current

V	Frequency		50Hz	120Hz	300Hz	1 kHz	10kHz or more
	Cap.(μF)						
6.3 to 100	1 to 47		0.75	1.00	1.35	1.57	2.00
	100 to 470		0.80	1.00	1.23	1.34	1.50
	1000 to 10000		0.85	1.00	1.10	1.13	1.15
160 to 400	10 to 220		0.80	1.00	1.25	1.40	1.60