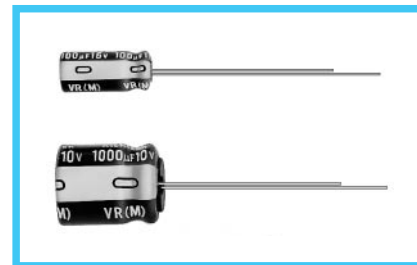
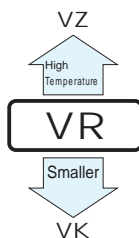


VR series
Miniature Sized



Approved by Reliability Center for Electronic Component, Japan-Certification No. RCJ-03-22C

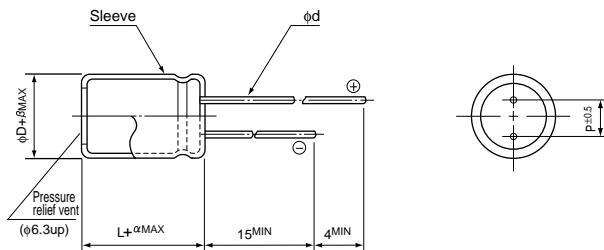
■ One rank smaller case sizes than VX series.



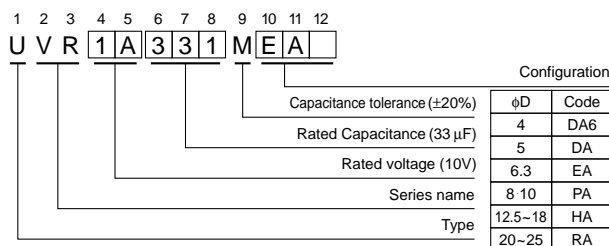
Specifications

Item	Performance Characteristics																						
Category Temperature Range	-40~+85°C (6.3V~400V), -25°C~85°C (450V)																						
Rated Voltage Range	6.3~450V																						
Rated Capacitance Range	0.1~33000µF																						
Capacitance Tolerance	±20% at 120Hz, 20°C																						
Leakage Current	Rated voltage (V)	6.3~100V																					
		After 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 4(µA), whichever is greater. After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3(µA), whichever is greater.																					
tan δ	Rated voltage (V)	160~450V																					
		After 1 minute's application of rated voltage, CV ≤ 1000 : I = 0.1CV+40µA or less After 1 minute's application of rated voltage, CV > 1000 : I = 0.04CV+100(µA) or less																					
Stability at Low Temperature	For capacitance of more than 1000µF, add 0.02 for every increase of 1000µF. Measurement frequency : 120Hz, Temperature : 20°C																						
		<table border="1"> <tr> <td>Rated 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> <td>160~315</td> <td>350~450</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> <td>0.20</td> <td>0.25</td> </tr> </table>	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160~315	350~450	tan δ (MAX.)	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.20
Rated voltage (V)	6.3	10	16	25	35	50	63	100	160~315	350~450													
tan δ (MAX.)	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.20	0.25													
Endurance	After 2000 hours' application of rated voltage at 85°C, capacitors meet the characteristic requirements listed at right.																						
		<table border="1"> <tr> <td>Capacitance change</td> <td>Within ±20% of initial value</td> </tr> <tr> <td>tan δ</td> <td>200% or less of initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Initial specified value or less</td> </tr> </table>	Capacitance change	Within ±20% of initial value	tan δ	200% or less of initial specified value	Leakage current	Initial specified value or less															
Capacitance change	Within ±20% of initial value																						
tan δ	200% or less of initial specified value																						
Leakage current	Initial specified value or less																						
Shelf Life	After leaving capacitors under no load at 85°C for 1000 hours, they meet the specified value for endurance characteristics listed above.																						
Marking	Printed with white color letter on black sleeve.																						

Radial Lead Type



Type numbering system (Example: 10V 33µF)



φD	4	5	6.3	8	10	12.5	16	18	20	22	25
P	1.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0	10.0	12.5
φd	0.45	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0	1.0	1.0
β	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.0

α	(L < 20)	1.5
	(L ≥ 20)	2.0

Please refer to page 18, 19, 20 about the formed or taped product spec.
Please refer to page 3 for the minimum order quantity.

• Dimension table in next page.

ALUMINUM ELECTROLYTIC CAPACITORS

VR series

■ Dimensions

V Cap.(μF) Code		6.3		10		16		25		35		50		63		100		D×L (mm)	
		0J		1A		1C		1E		1V		1H		1J		2A			
0.1	0R1											● 5×11	13			5×11	21		
0.22	R22											● 5×11	29			5×11	47		
0.33	R33											● 5×11	43			5×11	7		
0.47	R47											● 5×11	62			5×11	10		
1	010											● 5×11	17			5×11	21		
2.2	2R2											● 5×11	28			5×11	30		
3.3	3R3											● 5×11	35			5×11	40		
4.7	4R7							● 5×11	35	● 5×11	40	● 5×11	40			5×11	45		
10	100					● 5×11	50	● 5×11	55	● 5×11	60	● 5×11	60	5×11	65	6.3×11	75		
22	220	● 5×11	65	● 5×11	65	● 5×11	75	● 5×11	80	● 5×11	90	● 5×11	95	5×11	100	6.3×11	130		
33	330	● 5×11	80	● 5×11	85	● 5×11	90	● 5×11	95	5×11	105	5×11	125	6.3×11	140	8×11.5	180		
47	470	● 5×11	95	● 5×11	100	● 5×11	110	● 5×11	115	5×11	130	6.3×11	155	6.3×11	170	10×12.5	230		
100	101	● 5×11	135	● 5×11	145	5×11	160	6.3×11	190	6.3×11	210	8×11.5	260	10×12.5	300	10×20	370		
220	221	5×11	200	6.3×11	240	6.3×11	260	8×11.5	330	10×12.5	385	10×12.5	430	10×16	490	12.5×25	620		
330	331	6.3×11	270	6.3×11	290	8×11.5	370	10×12.5	440	10×12.5	490	10×16	590	10×20	710	12.5×25	760		
470	471	6.3×11	320	6.3×11	350	8×11.5	440	10×12.5	550	10×16	650	12.5×20	760	12.5×20	900	16×25	1000		
1000	102	8×11.5	540	10×12.5	650	10×16	790	10×20	960	12.5×20	1150	12.5×25	1350	16×25	1300	18×40	1380		
2200	222	10×20	1000	10×20	1100	12.5×20	1300	12.5×25	1550	16×25	1800	16×35.5	2100	18×35.5	2300	22×50	2400		
3300	332	10×20	1190	12.5×20	1450	12.5×25	1700	16×25	1980	16×35.5	2280	18×35.5	2500	20×40	2700	25×50	2900		
4700	472	12.5×20	1550	12.5×25	1800	16×25	2100	16×31.5	2450	18×35.5	2700	20×40	2900	22×50	3400				
6800	682	12.5×25	1920	16×25	2250	16×35.5	2650	18×35.5	2900	20×40	3000	22×50	3500	25×50	3900				
10000	103	16×25	2350	16×35.5	2700	18×35.5	2950	20×40	3000	22×50	3700	25×50	4000						
15000	153	16×35.5	2850	18×35.5	3100	20×40	3400	22×50	3800	25×50	4300								
22000	223	18×40	3350	20×40	3700	22×50	4200	25×50	4500										
33000	333	22×50	3900	22×50	4500	25×50	4800											Case size	Rated ripple

V Cap.(μF) Code		160		200		250		315		350		400		450		D×L (mm)	
		2C		2D		2E		2F		2V		2G		2W			
0.47	R47	6.3×11	15	6.3×11	15	6.3×11	15										
1	010	6.3×11	22	6.3×11	22	6.3×11	22	6.3×11	22	6.3×11	22	8×11.5	25	8×11.5	23		
2.2	2R2	6.3×11	33	6.3×11	33	6.3×11	33	8×11.5	33	8×11.5	38	10×12.5	45	10×12.5	35		
3.3	3R3	6.3×11	40	6.3×11	40	8×11.5	46	10×12.5	55	10×12.5	55	10×12.5	55	10×16	45		
4.7	4R7	6.3×11	50	8×11.5	55	8×11.5	55	10×12.5	65	10×12.5	65	10×16	70	10×20	55		
10	100	8×11.5	80	10×12.5	95	10×16	105	10×20	115	10×20	115	12.5×20	130	12.5×20	90		
22	220	10×16	155	10×20	170	12.5×20	190	12.5×20	190	12.5×25	200	16×25	240	16×25	165		
33	330	10×20	205	12.5×20	230	12.5×20	230	16×25	275	16×25	275	16×31.5	300	16×35.5	230		
47	470	12.5×20	270	12.5×20	270	12.5×25	300	16×25	340	16×35.5	380	16×35.5	370	18×40	300		
100	101	12.5×25	430	16×31.5	530	16×31.5	520	18×35.5	560	18×40	590	20×40	550	22×40	350		
220	221	16×35.5	800	18×35.5	810	20×40	740	22×50	850	22×50	850	25×50	750				
330	331	18×40	940	20×40	1130	22×50	1170	25×50	1250	22×50	890						
470	471	22×40	1410	22×50	1490	25×50	1600										
1000	102	25×50	1900													Case size	Rated ripple

Size 4×11 is available for capacitors marked — ●
In this case, [6] will be put at 12th digit of type numbering system — ▲

Rated Ripple (mA rms) at 85°C 120Hz

• Frequency coefficient of rated ripple current

V	Cap.(μF)	Frequency				
		~ 47	50Hz	120Hz	300Hz	1 kHz
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
	1000~33000	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
	330~1000	0.90	1.00	1.10	1.13	1.15