

ALUMINUM ELECTROLYTIC CAPACITORS

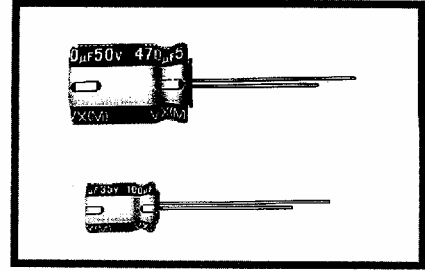
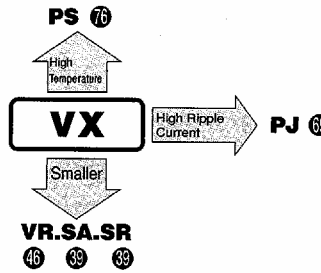
nichicon

VX Standard, For General Purposes
(04 type) series



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

- Standard series for general purposes.

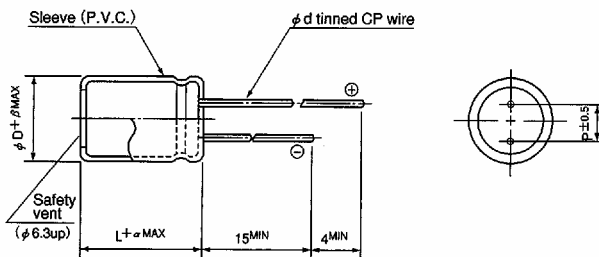


Specifications

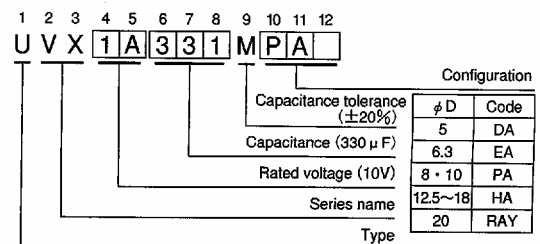
Item	Performance Characteristics																																							
Operating Temperature Range	-40~+85°C (6.3~400V), -25~+85°C (450V)																																							
Voltage Range	6.3~450V																																							
Capacitance Range	0.1~22000 μF																																							
Capacitance Tolerance	±20% at 120Hz, 20°C																																							
Leakage Current	<table border="1"> <thead> <tr> <th>Rated voltage (V)</th> <th>6.3~100</th> <th>160~450</th> </tr> </thead> <tbody> <tr> <td>φ D ≤ 18</td> <td>After 1 minute's application of rated voltage, not more than 0.03CV or 4 μA, whichever is greater. After 2 minutes' application of rated voltage, not more than 0.01CV or 3 μA, whichever is greater.</td> <td>In case of CV ≤ 1000 After 1 minute's application of rated voltage, not more than 0.1CV + 40 (μA). In case of CV > 1000 After 1 minute's application of rated voltage, not more than 0.04CV + 100 (μA).</td> </tr> <tr> <td>φ D = 20</td> <td>After 5 minutes' application of rated voltage, not more than 3√CV (μA).</td> <td>After 5 minutes' application of rated voltage, not more than 3√CV (μA).</td> </tr> </tbody> </table>	Rated voltage (V)	6.3~100	160~450	φ D ≤ 18	After 1 minute's application of rated voltage, not more than 0.03CV or 4 μA, whichever is greater. After 2 minutes' application of rated voltage, not more than 0.01CV or 3 μA, whichever is greater.	In case of CV ≤ 1000 After 1 minute's application of rated voltage, not more than 0.1CV + 40 (μA). In case of CV > 1000 After 1 minute's application of rated voltage, not more than 0.04CV + 100 (μA).	φ D = 20	After 5 minutes' application of rated voltage, not more than 3√CV (μA).	After 5 minutes' application of rated voltage, not more than 3√CV (μA).																														
	Rated voltage (V)	6.3~100	160~450																																					
φ D ≤ 18	After 1 minute's application of rated voltage, not more than 0.03CV or 4 μA, whichever is greater. After 2 minutes' application of rated voltage, not more than 0.01CV or 3 μA, whichever is greater.	In case of CV ≤ 1000 After 1 minute's application of rated voltage, not more than 0.1CV + 40 (μA). In case of CV > 1000 After 1 minute's application of rated voltage, not more than 0.04CV + 100 (μA).																																						
φ D = 20	After 5 minutes' application of rated voltage, not more than 3√CV (μA).	After 5 minutes' application of rated voltage, not more than 3√CV (μA).																																						
tan δ	For capacitance of more than 1000 μF, add 0.02 for every increase of 1000 μF. Measurement frequency: 120Hz, Temperature: 20°C																																							
Stability at Low Temperature	<table border="1"> <thead> <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>63~100</th> <th>160~200</th> <th>250</th> <th>315~350</th> <th>400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td>Impedance ratio Z-25°C/Z+20°C</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>3</td> <td>3</td> <td>3</td> <td>6</td> <td>6</td> <td>6</td> <td>15</td> </tr> <tr> <td>ZT/Z20 (MAX.)</td> <td>Z-40°C/Z+20°C</td> <td>10</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>4</td> <td>6</td> <td>6</td> <td>6</td> <td>6</td> <td>—</td> </tr> </tbody> </table>	Rated voltage (V)	6.3	10	16	25	35	50	63~100	160~200	250	315~350	400	450	Impedance ratio Z-25°C/Z+20°C	4	3	2	2	2	3	3	3	6	6	6	15	ZT/Z20 (MAX.)	Z-40°C/Z+20°C	10	8	6	4	3	4	6	6	6	6	—
	Rated voltage (V)	6.3	10	16	25	35	50	63~100	160~200	250	315~350	400	450																											
Impedance ratio Z-25°C/Z+20°C	4	3	2	2	2	3	3	3	6	6	6	15																												
ZT/Z20 (MAX.)	Z-40°C/Z+20°C	10	8	6	4	3	4	6	6	6	6	—																												
Load Life	<p>After 2000 hours' application of rated voltage at 85°C, capacitors meet the characteristics requirements listed at right.</p> <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 load life characteristics listed above.																																							
Marking	Printed with white color letter on purple blue sleeve.																																							
Applicable Standards	JIS C-5141 and JIS C-5102.																																							

Radial Lead Type

Type numbering system (Example : 10V 330 μF)



φ D	5	6.3	8	10	12.5	16	18	20
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0
φ d	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0
α	~100V	1.0	1.0	1.0	1.5	1.5	1.5	2.0
	160V~	—	1.5	1.5	2.0	2.0	2.0	2.0
β	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0



Dimension table in next page.

ALUMINUM ELECTROLYTIC CAPACITORS

nichicon

VX (04 type) series

Dimensions

V		6.3		10		16		25		35		50		63		100		DXL(mm)
Cap.(μ F)	Code	0J		1A		1C		1E		1V		1H		1J		2A		
0.1	0R1											5×11	1.1			5×11	2.1	
0.22	R22											5×11	2.3			5×11	4.7	
0.33	R33											5×11	3.5			5×11	7	
0.47	R47											5×11	5			5×11	10	
1	010											5×11	10			5×11	21	
2.2	2R2											5×11	23			5×11	30	
3.3	3R3											5×11	35			5×11	40	
4.7	4R7							5×11	30	5×11	35	5×11	40	5×11	45	5×11	45	
10	100					5×11	40	5×11	50	5×11	55	5×11	65	5×11	70	6.3×11	75	
22	220	5×11	35	5×11	55	5×11	75	5×11	80	5×11	85	5×11	95	6.3×11	115	8×11.5	130	
33	330	5×11	55	5×11	80	5×11	90	5×11	95	5×11	105	6.3×11	125	6.3×11	140	10×12.5	170	
47	470	5×11	75	5×11	95	5×11	110	5×11	115	6.3×11	140	6.3×11	150	8×11.5	190	10×15	230	
100	101	5×11	130	5×11	145	6.3×11	175	6.3×11	185	8×11.5	230	8×11.5	250	10×12.5	300	12.5×20	400	
220	221	6.3×11	215	6.3×11	230	8×11.5	300	8×11.5	320	10×12.5	370	10×15	440	10×20	490	16×25	710	
330	331	6.3×11	265	8×11.5	330	8×11.5	360	10×12.5	420	10×15	490	10×20	580	12.5×20	680	16×25	860	
470	471	8×11.5	360	8×11.5	390	10×12.5	470	10×15	540	10×20	640	12.5×20	760	12.5×25	880	16×31.5	1100	
1000	102	10×12.5	570	10×15	630	10×20	790	12.5×20	950	12.5×25	1100	16×25	1350	16×31.5	1550	18×40 20×35	1690 1720	
2200	222	12.5×20	1050	12.5×20	1100	12.5×25	1350	16×25	1550	16×31.5	1800	18×35.5 20×31	2090 2190	18×40 20×35	2200 2250			
3300	332	12.5×20	1250	12.5×25	1400	16×25	1700	16×31.5	1950	18×35.5 20×31	2220 2330	20×40	2360					
4700	472	16×25	1700	16×25	1800	16×31.5	2100	18×35.5 20×31	2360 2330	18×40 20×35	2490 2460							
6800	682	16×25	1900	16×31.5	2150	18×35.5 20×31	2500 2470	20×40	2590									
10000	103	16×31.5	2250	18×35.5 20×31	2500 2470	18×40 20×35	2640 2610											
12000	123	16×35.5	2450	18×35.5 20×31	2600 2560	20×40	2730											
15000	153	18×35.5 20×31	2680 2650	18×40 20×35	2720 2680													
18000	183	18×40 20×35	2750 2720	20×40	2850													
22000	223	20×40	2850															

V		160		200		250		315		350		400		450	
Cap.(μ F)	Code	2C		2D		2E		2F		2V		2G		2W	
0.47	R47	6.3×11	12	6.3×11	12	6.3×11	12								
1	010	6.3×11	17	6.3×11	17	6.3×11	17	6.3×11	17	8×11.5	18	8×11.5	18	10×12.5	19
2.2	2R2	6.3×11	26	6.3×11	26	8×11.5	30	8×11.5	30	10×12.5	28	10×12.5	28	10×15	29
3.3	3R3	8×11.5	35	8×11.5	35	10×12.5	35	10×12.5	35	10×15	35	10×15	35	10×20	35
4.7	4R7	8×11.5	40	10×12.5	45	10×12.5	45	10×15	45	10×15	40	10×20	45	12.5×20	50
10	100	10×12.5	65	10×15	70	10×20	70	10×20	70	12.5×20	70	12.5×20	70	12.5×25	75
22	220	10×20	110	10×20	110	12.5×25	130	12.5×25	120	12.5×25	110	16×25	110	16×31.5	110
33	330	12.5×20	150	12.5×25	160	12.5×25	160	16×25	150	16×31.5	140	16×31.5	140	18×35.5 20×31	150 140
47	470	12.5×25	180	12.5×25	180	16×25	210	16×31.5	190	18×35.5 20×31	220 210	18×35.5 20×31	220 210	20×40	230
100	101	16×25	300	16×31.5	330	18×35.5 20×31	340 330	18×40 20×35	340 330	20×40	360				
150	151	16×35.5	420	18×35.5 20×31	450 440	18×40 20×35	460 460	20×40	450						
220	221	18×35.5 20×31	510 500	18×40 20×35	520 510	20×40	530								
270	271	18×40 20×35	540 540	20×40	570										
330	331	20×40	60												Case size Allowable ripple

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

Frequency coefficient of allowable ripple current

V	Cap.(μ F)	Frequency				
		50Hz	120Hz	300Hz	1kHz	10kHz~
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
	1000~22000	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