ALUMINUM ELECTROLYTIC CAPACITORS

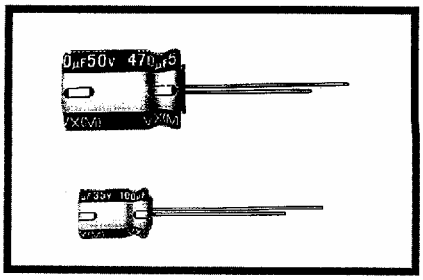
nichicon

VX Standard, For General Purposes (04 type) series

RCJ Approved — Anti-Solvent Feature (Through 100V only)

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

- Standard series for general purposes.



PS ⑯ (High Temperature) → **VX** → High Ripple Current → PJ ⑲

Smaller → **VR.SA.SR** ㊻ ㊴ ㊴

■Specifications

Item	Performance Characteristics
Operating Temperature Range	−40～+85℃ (6.3～400V), −25～+85℃ (450V)
Voltage Range	6.3～450V
Capacitance Range	0.1～22000 μF
Capacitance Tolerance	±20% at 120Hz, 20℃
Leakage Current	Rated voltage (V) 6.3～100: φD≦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. φD=20: After 5 minutes' application of rated voltage, not more than $3\sqrt{CV}$ (μA). Rated voltage (V) 160～450: 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). After 5 minutes' application of rated voltage, not more than $3\sqrt{CV}$ (μA).
tan δ	For capacitance of more than 1000 μF, add 0.02 for every increase of 1000 μF. Measurement frequency : 120Hz, Temperature : 20℃

Rated voltage (V)	6.3	10	16	25	35	50	63～100	160～315	350～450
tan δ (MAX.)	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.20	0.25

Stability at Low Temperature — Measurement frequency : 120Hz

Rated voltage (V)		6.3	10	16	25	35～100	160～200	250	315～350	400	450
Impedance ratio ZT/Z20 (MAX.)	Z−25℃/Z+20℃	4	3	2	2	2	3	3	6	6	15
	Z−40℃/Z+20℃	10	8	6	4	3	4	6	6	6	—

Load Life — After 2000 hours' application of rated voltage at 85℃, capacitors meet the characteristics requirements listed at right.

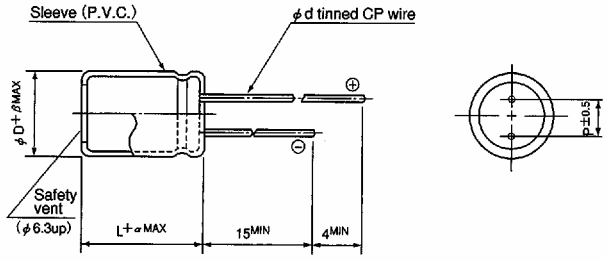
Capacitance change	Within ±20% of initial value
tan δ	200% or less of initial specified value
Leakage current	Initial specified value or less

Shelf Life — After leaving capacitors under no load at 85℃ 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



φD	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
φd	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	1.5	2.0
α 160V～	—	1.5	1.5	2.0	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

Type numbering system (Example : 10V 330 μF)

1	2	3	4	5	6	7	8	9	10	11	12
U	V	X	1	A	3	3	1	M	P	A	

Configuration

Capacitance tolerance (±20%): M

Capacitance (330 μF): 331

Rated voltage (10V): 1A

Series name: VX

Type: U

φD	Code
5	DA
6.3	EA
8・10	PA
12.5～18	HA
20	RAY

● Dimension table in next page.

VX (04 type) series

■Dimensions

DXL(mm)

Cap.(μF) \ V	Code	6.3		10		16		25		35		50		63		100	
		0J		1A		1C		1E		1V		1H		1J		2A	
0.1	0R1											5X11	1.1			5X11	2.1
0.22	R22											5X11	2.3			5X11	4.7
0.33	R33											5X11	3.5			5X11	7
0.47	R47											5X11	5			5X11	10
1	010											5X11	10			5X11	21
2.2	2R2											5X11	23			5X11	30
3.3	3R3											5X11	35			5X11	40
4.7	4R7							5X11	30	5X11	35	5X11	40	5X11	45	5X11	45
10	100					5X11	40	5X11	50	5X11	55	5X11	65	5X11	70	6.3X11	75
22	220	5X11	35	5X11	55	5X11	75	5X11	80	5X11	85	5X11	95	6.3X11	115	8X11.5	130
33	330	5X11	55	5X11	80	5X11	90	5X11	95	5X11	105	6.3X11	125	6.3X11	140	10X12.5	170
47	470	5X11	75	5X11	95	5X11	110	5X11	115	6.3X11	140	6.3X11	150	8X11.5	190	10X15	230
100	101	5X11	130	5X11	145	6.3X11	175	6.3X11	185	8X11.5	230	8X11.5	250	10X12.5	300	12.5X20	400
220	221	6.3X11	215	6.3X11	230	8X11.5	300	8X11.5	320	10X12.5	370	10X15	440	10X20	490	16X25	710
330	331	6.3X11	265	8X11.5	330	8X11.5	360	10X12.5	420	10X15	490	10X20	580	12.5X20	680	16X25	860
470	471	8X11.5	360	8X11.5	390	10X12.5	470	10X15	540	10X20	640	12.5X20	760	12.5X25	880	16X31.5	1100
1000	102	10X12.5	570	10X15	630	10X20	790	12.5X20	950	12.5X25	1100	16X25	1350	16X31.5	1550	18X40 20X35	1690 1720
2200	222	12.5X20	1050	12.5X20	1100	12.5X25	1350	16X25	1550	16X31.5	1800	18X35.5 20X31	2090 2060	18X40 20X35	2200 2250		
3300	332	12.5X20	1250	12.5X25	1400	16X25	1700	16X31.5	1950	18X35.5 20X31	2220 2190	20X40	2360				
4700	472	16X25	1700	16X25	1800	16X31.5	2100	18X35.5 20X31	2360 2330	18X40 20X35	2490 2460						
6800	682	16X25	1900	16X31.5	2150	18X35.5 20X31	2500 2470	20X40	2590								
10000	103	16X31.5	2250	18X35.5 20X31	2500 2470	18X40 20X35	2640 2610										
12000	123	16X35.5	2450	18X35.5 20X31	2600 2560	20X40	2730										
15000	153	18X35.5 20X31	2680 2650	18X40 20X35	2720 2680												
18000	183	18X40 20X35	2750 2720	20X40	2850												
22000	223	20X40	2850														

Cap.(μF) \ V	Code	160		200		250		315		350		400		450	
		2C		2D		2E		2F		2V		2G		2W	
0.47	R47	6.3X11	12	6.3X11	12	6.3X11	12								
1	010	6.3X11	17	6.3X11	17	6.3X11	17	6.3X11	17	8X11.5	18	8X11.5	18	10X12.5	19
2.2	2R2	6.3X11	26	6.3X11	26	8X11.5	30	8X11.5	30	10X12.5	28	10X12.5	28	10X15	29
3.3	3R3	8X11.5	35	8X11.5	35	10X12.5	35	10X12.5	35	10X15	35	10X15	35	10X20	35
4.7	4R7	8X11.5	40	10X12.5	45	10X12.5	45	10X15	45	10X15	40	10X20	45	12.5X20	50
10	100	10X12.5	65	10X15	70	10X20	70	10X20	70	12.5X20	70	12.5X20	70	12.5X25	75
22	220	10X20	110	10X20	110	12.5X25	130	12.5X25	120	12.5X25	110	16X25	110	16X31.5	110
33	330	12.5X20	150	12.5X25	160	12.5X25	160	16X25	150	16X31.5	140	16X31.5	140	18X35.5 20X31	150 140
47	470	12.5X25	180	12.5X25	180	16X25	210	16X31.5	190	18X35.5 20X31	220 210	18X35.5 20X31	220 210	20X40	230
100	101	16X25	300	16X31.5	330	18X35.5 20X31	340 330	18X40 20X35	340 330	20X40	360				
150	151	16X35.5	420	18X35.5 20X31	450 440	18X40 20X35	460 460	20X40	450						
220	221	18X35.5 20X31	510 500	18X40 20X35	520 510	20X40	530								
270	271	18X40 20X35	540 540	20X40	570										
330	331	20X40	60											Case size	Allowable ripple

Allowable Ripple (mA rms) at 85℃ 120Hz

● Frequency coefficient of allowable ripple current

V	Cap.(μF) \ 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