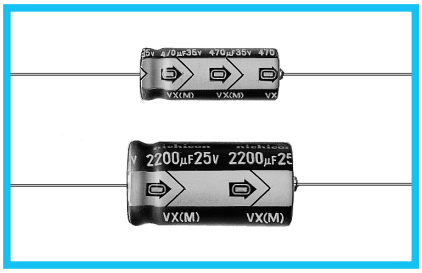
ALUMINUM ELECTROLYTIC CAPACITORS

nichicon

VX Standard, For General Purposes - Axial Lead Type

(02 type) series

Anti-Solvent Feature
(Through 100V only)



- Axial lead type of standard series for general purposes.
- Compliant to the RoHS directive (2011/65/EU).

■Specifications

Item	Performance Characteristics
Category Temperature Range	−40 to +85°C (6.3 to 250V), −25 to +85°C (315 to 450V)
Rated Voltage Range	6.3 to 450V
Rated Capacitance Range	0.47 to 10000μF
Capacitance Tolerance	±20% at 120Hz, 20°C
Leakage Current	Rated voltage (V): 6.3 to 100 — Leakage current: After 1 minute's application of rated voltage at 20°C, not more than 0.03CV or 4 (μA), whichever is greater. After 2 minutes' application of rated voltage at 20°C, not more than 0.01CV or 3 (μA), whichever is greater. / 160 to 450 — In case of CV ≦ 1000: After 1 minute's application of rated voltage at 20°C, not more than 0.1CV+40 (μA). In case of CV > 1000: After 1 minute's application of rated voltage at 20°C, not more than 0.04CV+100 (μA).
Tangent of loss angle (tan δ)	Measurement frequency : 120Hz at 20°C

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

For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF.

Stability at Low Temperature — Measurement frequency : 120Hz

Rated voltage (V)		6.3	10	16	25	35 to 100	160 to 250	315 · 350	400 · 450
Impedance ratio ZT / Z20 (MAX.)	Z−25°C / Z+20°C	4	3	2	2	2	4	6	15
	Z−40°C / Z+20°C	10	8	6	4	3	12	—	—

Endurance

The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 85°C.

Capacitance change	Within ±20% of the initial capacitance value
tan δ	200% or less than the initial specified value
Leakage current	Less than or equal to the initial specified value

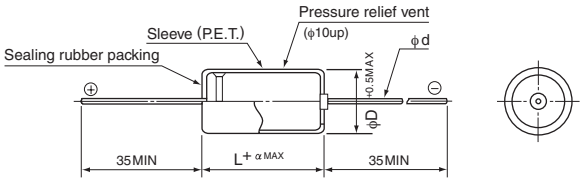
Shelf Life

After storing the capacitors under no load at 85°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the characteristic requirements at right.

Capacitance change	Within ±20% of the initial capacitance value
tan δ	200% or less than the initial specified value
Leakage current	Less than or equal to the initial specified value

Marking	Printed with white color letter on purple blue sleeve.

■Axial Lead Type



α	(φD < 10)	1
	(φD ≧ 10)	2

(mm)

φD	5 to 13	16 to 18
φd	0.6	0.8

Type numbering system (Example : 10V 330μF)

1	2	3	4	5	6	7	8	9	10	11
T	V	X	1	A	3	3	1	M	A	D

- 11: Configuration※
- 10: Capacitance tolerance (±20%)
- 9: Rated capacitance (330μF)
- 8: Rated voltage (10V)
- 5: Series name
- 1: Type

※Configuration

φD	Pb-free leadwire Pb-free PET sleeve
5 to 8	AD
10 to 18	CD

Please refer to page 22 about the taped product spec.
Please refer to page 4 for the minimum order quantity.

●Dimension table in next page.

VX (02 type) series

■Dimensions

Cap.(μF) \ V	Code	6.3		10		16		25		35		50		63		100	
		0J		1A		1C		1E		1V		1H		1J		2A	
0.47	R47											5 × 12	5			5 × 12	10
1	010											5 × 12	10			5 × 12	18
2.2	2R2											5 × 12	23			5 × 12	28
3.3	3R3											5 × 12	28			5 × 12	34
4.7	4R7											5 × 12	34			5 × 12	40
10	100											5 × 12	50	5 × 12	55	6.3 × 12	60
22	220									5 × 12	70	6.3 × 12	85	6.3 × 12	90	8 × 16	120
33	330							5 × 12	80	6.3 × 12	90	6.3 × 16	110	6.3 × 16	120	8 × 16	150
47	470					5 × 12	85	6.3 × 12	100	6.3 × 16	120	6.3 × 16	130	8 × 16	160	8 × 20	190
100	101	5 × 12	110	6.3 × 12	130	6.3 × 16	160	6.3 × 16	170	8 × 16	210	8 × 16	220	8 × 20	260	10 × 26	340
220	221	6.3 × 16	200	6.3 × 16	210	8 × 16	260	8 × 16	280	8 × 20	340	10 × 21	410	10 × 26	480	13 × 26	560
330	331	6.3 × 16	250	8 × 16	300	8 × 16	320	8 × 20	380	10 × 21	460	10 × 26	560	13 × 26	650	13 × 31.5	750
470	471	8 × 16	330	8 × 16	350	8 × 20	430	10 × 26	510	10 × 26	610	13 × 26	730	13 × 31.5	840	16 × 31.5	970
1000	102	10 × 21	600	10 × 21	640	10 × 26	770	13 × 26	900	13 × 31.5	1060	16 × 31.5	1260	16 × 31.5	1330		
2200	222	13 × 26	1020	13 × 26	1090	13 × 31.5	1180	16 × 31.5	1480	16 × 31.5	1580	18 × 41	1920				
3300	332	13 × 26	1200	13 × 31.5	1390	16 × 31.5	1620	16 × 41.5	1710	16 × 41.5	2050						
4700	472	16 × 31.5	1500	16 × 31.5	1730	16 × 41.5	1840	18 × 41	2170								
6800	682	16 × 31.5	1840	16 × 41.5	1930	18 × 41	2310										
10000	103	16 × 41.5	2260	18 × 41	2350												

Cap.(μF) \ V	Code	160		200		250		315		350		400		450	
		2C		2D		2E		2F		2V		2G		2W	
1	010	6.3 × 12	13	6.3 × 12	13	6.3 × 16	14	6.3 × 16	14	6.3 × 16	12	8 × 16	14	8 × 16	14
2.2	2R2	6.3 × 16	23	6.3 × 16	23	8 × 16	27	8 × 16	27	8 × 16	24	8 × 20	28	10 × 21	31
3.3	3R3	8 × 16	33	8 × 16	33	8 × 16	33	8 × 20	36	8 × 20	32	10 × 21	38	10 × 21	38
4.7	4R7	8 × 16	39	8 × 16	39	8 × 20	45	8 × 20	45	10 × 21	46	10 × 21	46	10 × 26	50
10	100	8 × 20	60	10 × 21	70	10 × 21	70	10 × 26	80	13 × 26	85	13 × 26	85	13 × 26	85
22	220	10 × 26	120	13 × 26	140	13 × 26	140	13 × 31.5	150	13 × 31.5	140	16 × 31.5	150	16 × 31.5	150
33	330	13 × 26	170	13 × 26	170	13 × 31.5	190	16 × 31.5	210	16 × 31.5	190	16 × 41.5	210	18 × 41	230
47	470	13 × 31.5	230	13 × 31.5	230	16 × 31.5	260	16 × 31.5	260	16 × 41.5	260	18 × 41	290	Case size φD × L (mm)	Rated ripple
100	101	16 × 41.5	430	16 × 41.5	430	16 × 41.5	430								

Rated ripple current (mArms) at 85°C 120Hz

●Frequency coefficient of rated ripple current

V	Cap.(μF) \ Frequency	120 Hz	300 Hz	1kHz	10kHz or more
6.3 to 100	0.47 to 47	1.00	1.35	1.57	2.00
	100 to 470	1.00	1.23	1.34	1.50
	1000 to 10000	1.00	1.10	1.13	1.15
160 to 450	1 to 100	1.00	1.25	1.40	1.60

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Nichicon:

TVX1E102MCD TVX1E221MAD TVX1E222MCD TVX1E330MAD TVX1E331MAD TVX1E332MCD TVX1E470MAD TVX1E471MCD TVX1E472MCD TVX1H010MAD TVX1H100MAD TVX1H101MAD TVX1H102MCD TVX1H220MAD TVX1H221MCD TVX1H222MCD TVX1H2R2MAD TVX1H330MAD TVX1H331MCD TVX1H3R3MAD TVX1H470MAD TVX1H471MCD TVX1H4R7MAD TVX1HR47MAD TVX1J100MAD TVX1J101MAD TVX1J102MCD TVX1J220MAD TVX1J221MCD TVX1J330MAD TVX1J331MCD TVX1J470MAD TVX1J471MCD TVX1V101MAD TVX1V102MCD TVX1V220MAD TVX1V221MAD TVX1V222MCD TVX1V330MAD TVX1V331MCD TVX1V332MCD TVX1V470MAD TVX1V471MCD TVX2A010MAD TVX2A100MAD TVX2A101MCD TVX2A220MAD TVX2A221MCD TVX2A2R2MAD TVX2A330MAD TVX2A331MCD TVX2A3R3MAD TVX2A470MAD TVX2A471MCD TVX2A4R7MAD TVX2AR47MAD TVX2C010MAD TVX2C100MAD TVX2C101MCD TVX2C220MCD TVX2C2R2MAD TVX2C330MCD TVX2C3R3MAD TVX2C470MCD TVX2C4R7MAD TVX2D010MAD TVX2D100MCD TVX2D101MCD TVX2D220MCD TVX2D2R2MAD TVX2D330MCD TVX2D3R3MAD TVX2D470MCD TVX2D4R7MAD TVX2E010MAD TVX2E100MCD TVX2E101MCD TVX2E220MCD TVX2E2R2MAD TVX2E330MCD TVX2E3R3MAD TVX2E470MCD TVX2E4R7MAD TVX2F010MAD TVX2F100MCD TVX2F220MCD TVX2F2R2MAD TVX2F330MCD TVX2F3R3MAD TVX2F470MCD TVX2F4R7MAD TVX2G010MAD TVX2G100MCD TVX2G220MCD TVX2G2R2MAD TVX2G330MCD TVX2G3R3MCD TVX2G470MCD TVX2G4R7MCD TVX2V010MAD