chanhvinh.com

ALUMINUM ELECTROLYTIC CAPACITORS

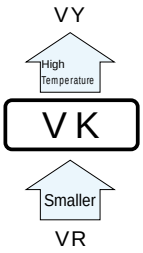
nichicon

VK Miniature Sized series

Smaller

Anti-Solvent Feature (Through 100V only)

- One rank smaller case sizes than VR series.
- Compliant to the RoHS directive (2011/65/EU).





■Specifications

Item	Performance Characteristics
Category Temperature Range	−40 to +85˚C (6.3V to 400V), −25˚C to +85˚C (450V)
Rated Voltage Range	6.3 to 450V
Rated Capacitance Range	0.1 to 68000μF
Capacitance Tolerance	±20% at 120Hz, 20˚C
Leakage Current	Rated voltage (V) | 6.3 to 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. | 160 to 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
Tangent of loss angle (tan δ)	For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF. Measurement frequency : 120Hz at 20˚C

Rated voltage (V)	6.3	10	16	25	35	50	63	100	160 to 250	350 to 450
tan δ (MAX.)	0.28	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	50 to 100	160 to 200	250 to 350	400	450
Impedance ratio	Z−25˚C / Z+20˚C	5	4	3	2	2	2	3	4	6	15
ZT / Z20 (MAX.)	Z−40˚C / Z+20˚C	12	10	8	5	4	3	4	8	10	—

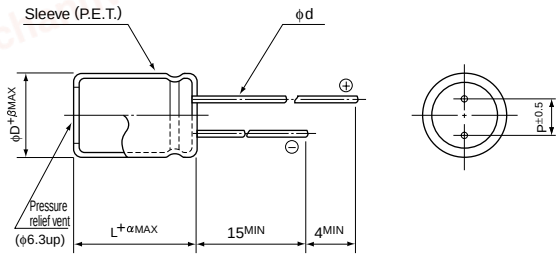
Endurance — The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 85°C.

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 specified values for the endurance characteristics listed above.

Marking — Printed with white color letter on black sleeve.

■Radial Lead Type



(mm)

φD	5	6.3	8	10	12.5	16	18	20	22	25
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0	10.0	12.5
φd	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	1.0	1.0

α	
	(L<20) 1.5
	(L≧20) 2.0

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

Type numbering system (Example : 10V 330μF)

1	2	3	4	5	6	7	8	9	10	11
U	V	K	1	A	3	3	1	M	E	D

- Configuration※
- Capacitance tolerance (±20%)
- Rated capacitance (330μF)
- Rated voltage (10V)
- Series name
- Type

※ Configuration

φ D	Pb-free leadwire Pb-free PET sleeve
5	DD
6.3	ED
8 · 10	PD
12.5 to 18	HD
20 to 25	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.

chanhvinh.com

ALUMINUM ELECTROLYTIC CAPACITORS

nichicon

VK series

■Dimensions

Cap.(μF) \ V / Code	6.3		10		16		25		35		50		63	
	0J		1A		1C		1E		1V		1H		1J	
0.1	0R1										5×11	1.3		
0.22	R22										5×11	2.9		
0.33	R33										5×11	4.3		
0.47	R47										5×11	6.2		
1	010										5×11	17		
2.2	2R2										5×11	28		
3.3	3R3										5×11	35		
4.7	4R7										5×11	40		
10	100										5×11	60		
22	220										5×11	95	5×11	100
33	330										5×11	125	6.3×11	140
47	470								5×11	130	6.3×11	155	6.3×11	170
68	680								6.3×11	160	6.3×11	210	8×11.5	220
100	101						5×11	180	6.3×11	210	8×11.5	260	8×11.5	280
220	221		5×11	220	6.3×11	260	6.3×11	280	8×11.5	350	10×12.5	430	10×16	490
330	331		6.3×11	290	6.3×11	320	8×11.5	390	10×12.5	490	10×16	590	10×20	710
470	471		6.3×11	350	8×11.5	440	10×12.5	550	10×16	650	10×20	760	12.5×20	900
1000	102	8×11.5	540	10×12.5	650	10×12.5	700	10×16	860	12.5×20	1150	12.5×25	1350	16×25	1300
2200	222	10×16	890	10×16	990	10×20	1000	12.5×25	1550	16×25	1800	16×31.5	1980	18×35.5	2300
3300	332	10×20	1190	12.5×20	1450	12.5×25	1700	16×25	1980	16×31.5	2100	18×35.5	2500	20×40	2700
4700	472	12.5×20	1550	12.5×25	1800	16×25	2100	16×25	2200	16×35.5	2500	20×40	2900	22×50	3400
6800	682	12.5×25	1920	16×25	2250	16×25	2250	16×35.5	2600	18×40	2800	22×50	3500	25×50	3900
10000	103	16×25	2350	16×31.5	2550	16×35.5	2710	18×40	2800	22×50	3700	25×50	4000		
15000	153	16×31.5	2550	16×35.5	2880	18×40	3100	22×50	3800	25×50	4300				
22000	223	18×35.5	3200	18×40	3400	22×40	3800	25×50	4500						
33000	333	20×40	3500	22×50	4500	25×50	4800								
47000	473	22×50	3900	25×50	5000								Case size	Rated
68000	683	25×50	4300										ϕD×L (mm)	ripple

Cap.(μF) \ V / Code	100		160		200		250		350		400		450	
	2A		2C		2D		2E		2V		2G		2W	
0.1	0R1	5×11	2.1			6.3×11	2.1							
0.22	R22	5×11	4.7			6.3×11	4.7							
0.33	R33	5×11	7			6.3×11	7							
0.47	R47	5×11	10			6.3×11	15				6.3×11	12		
1	010	5×11	21			6.3×11	22				6.3×11	20		
2.2	2R2	5×11	30			6.3×11	33		6.3×11	30	8×11.5	38	8×11.5	28
3.3	3R3	5×11	40			6.3×11	40	6.3×11	40	8×11.5	43	8×11.5	48	10×12.5	40
4.7	4R7	5×11	45			6.3×11	50	6.3×11	50	8×11.5	55	10×12.5	60	10×12.5	46
10	100	5×11	70	8×11.5	80	8×11.5	80	10×12.5	100	10×12.5	90	10×16	90	10×20	80
22	220	6.3×11	130	10×12.5	130	10×16	150	10×20	150	12.5×20	150	12.5×25	200	12.5×25	140
33	330	8×11.5	180	10×16	180	10×20	200	10×20	200	12.5×25	240	16×25	240	16×25	180
47	470	8×11.5	200	10×20	210	12.5×20	270	12.5×20	270	16×25	300	16×25	280	16×31.5	220
68	680	10×12.5	270	12.5×20	350	12.5×25	350	16×25	380	16×25	400	16×31.5	340	18×35.5	260
100	101	10×16	340	12.5×25	430	16×25	450	16×25	440	18×35.5	520	18×35.5	440	18×40	280
220	221	12.5×20	550	16×31.5	580	16×35.5	700	18×35.5	680	22×50	760	22×50	650	25×50	350
330	331	12.5×25	760	18×35.5	800	18×40	950	20×40	1000	25×50	1000				
470	471	16×25	1000	18×40	1200	22×40	1300	22×50	1400						
1000	102	18×35.5	1350	25×50	1900										
2200	222	22×50	2400										Case size	Rated
3300	332	25×50	2900										ϕD×L (mm)	ripple

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

●Frequency coefficient of rated ripple current

V	Cap.(μF) \ Frequency	50Hz	120Hz	300Hz	1 kHz	10kHz or more
6.3 to 100	0.1 to 68	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 68000	0.85	1.00	1.10	1.13	1.15
160 to 450	0.1 to 220	0.80	1.00	1.25	1.40	1.60
	330 to 1000	0.90	1.00	1.10	1.13	1.15