VZ Wide Temperature Range series

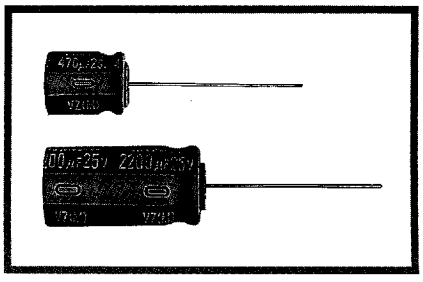
Smaller

Anti-Solvent Feature (Through 100V only)

- Small case sizes as same as VR series, but operating over wide temperature range of −55～+105℃.

VZ → High Ripple Current High Reliability → PS 76, PJ 69

VZ ← High Temperature ← VR 46



■Specifications

Item	Performance Characteristics
Operating Temperature Range	−55～+105℃ (6.3～100V), −40～+105℃ (160～400V), −25～+105℃ (450V)
Voltage Range	6.3～450V
Capacitance Range	0.1～33000 μF
Capacitance Tolerance	±20% at 120Hz, 20℃
Leakage Current	Rated voltage (V): 6.3～100 — 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. 160～450 — After 1 minute's application of rated voltage, CV≦1000 : I=0.1CV+40 μA or less. After 1 minute's application of rated voltage, CV>1000 : I=0.04CV+100 (μA) or less
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.)	0.28	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	63	100	160～200	250～350	400	450
Impedance ratio ZT/Z20 (MAX.)	Z−25℃/Z+20℃	5	4	3	2	2	2	2	2	3	4	6	15
	Z−40℃/Z+20℃	10	8	6	4	3	3	3	3	4	8	10	—

Load Life — After 1000 hours' application of rated voltage at 105℃, capacitors meet the characteristics requirements listed at right.

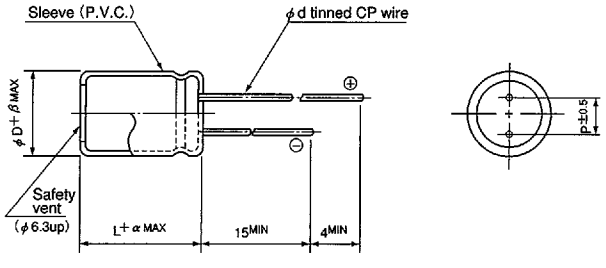
Capacitance change	Within ±20% of initial value
tan δ	200% or less of initial specified value
Leakage current	Initial specified value or less

Shelf Life — After leaving capacitors under no load at 105℃ for 1000 hours, they meet the specified value for load life characteristics listed above.

Marking — Printed with white color letter on black sleeve.

Applicable Standards — JIS C-5141 and JIS C-5102.

■Radial Lead Type



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

Type numbering system (Example : 10V 330 μF)

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

Configuration

Capacitance tolerance (±20%)

Capacitance (330 μF)

Rated voltage (10V)

Series name

Type

φD	Code
5	DH
6.3	EH
8・10	PH
12.5～18	HH
20～25	RH

● Dimension table in next page.

VZ series

■Dimensions

DXL(mm)

Cap.(μF) \ V	Code	6.3		10		16		25		35		50	
		0J		1A		1C		1E		1V		1H	
0.1	0R1											5X11	1.3
0.22	R22											5X11	2.9
0.33	R33											5X11	4.3
0.47	R47											5X11	7
1	010											5X11	13
2.2	2R2											5X11	20
3.3	3R3											5X11	25
4.7	4R7							5X11	25	5X11	28	5X11	30
10	100					5X11	35	5X11	36	5X11	41	5X11	46
22	220	5X11	45	5X11	45	5X11	54	5X11	58	5X11	61	5X11	68
33	330	5X11	55	5X11	58	5X11	65	5X11	68	5X11	75	5X11	90
47	470	5X11	65	5X11	68	5X11	79	5X11	83	5X11	93	6.3X11	115
100	101	5X11	95	5X11	105	5X11	115	6.3X11	140	6.3X11	150	8X11.5	190
220	221	5X11	145	6.3X11	175	6.3X11	190	8X11.5	240	10X12.5	275	10X12.5	300
330	331	6.3X11	195	6.3X11	210	8X11.5	265	10X12.5	315	10X12.5	350	10X16	410
470	471	6.3X11	230	6.3X11	250	8X11.5	315	10X12.5	380	10X16	460	12.5X20	530
1000	102	8X11.5	390	10X12.5	460	10X16	560	10X20	680	12.5X20	810	12.5X25	950
2200	222	10X20	710	10X20	760	12.5X20	920	12.5X25	1090	16X25	1260	16X35.5	1470
3300	332	10X20	840	12.5X20	1000	12.5X25	1170	16X25	1400	16X35.5	1610	18X35.5	1770
4700	472	12.5X20	1090	12.5X25	1260	16X25	1480	16X31.5	1710	18X35.5	1910	20X40	2100
6800	682	12.5X25	1350	16X25	1570	16X35.5	1780	18X35.5	2040	20X40	2150	22X50	2500
10000	103	16X25	1650	16X35.5	1890	18X35.5	2060	20X40	2150	22X50	2650	25X50	2850
15000	153	16X35.5	2010	18X35.5	2180	20X40	2430	22X50	2750	25X50	3100		
22000	223	18X40	2350	20X40	2650	22X50	3000	25X50	3250				Allow-able ripple
33000	333	22X50	2800	22X50	3250	25X50	3450					Case size	

Cap.(μF) \ V	Code	63		100		160		200		250		315		350		400		450	
		1J		2A		2C		2D		2E		2F		2V		2G		2W	
0.1	0R1			5X11	1.5														
0.22	R22			5X11	3.4														
0.33	R33			5X11	5.0														
0.47	R47			5X11	7.1	6.3X11	11	6.3X11	11	6.3X11	10								
1	010			5X11	15	6.3X11	16	6.3X11	16	6.3X11	15	6.3X11	15	6.3X11	15	8X11.5	17	8X11.5	13
2.2	2R2			5X11	21	6.3X11	25	6.3X11	25	6.3X11	23	8X11.5	26	8X11.5	26	10X12.5	30	10X12.5	23
3.3	3R3			5X11	29	6.3X11	30	6.3X11	30	8X11.5	32	10X12.5	38	10X12.5	38	10X12.5	38	10X16	31
4.7	4R7			5X11	32	6.3X11	34	8X11.5	39	8X11.5	39	10X12.5	45	10X12.5	45	10X16	50	10X20	40
10	100	5X11	46	6.3X11	54	8X11.5	41	10X12.5	65	10X16	74	10X20	80	10X20	80	12.5X20	90	12.5X20	65
22	220	5X11	71	6.3X11	93	10X16	100	10X20	120	12.5X20	130	12.5X20	115	12.5X25	115	16X25	165	16X25	115
33	330	6.3X11	100	8X11.5	130	10X20	145	12.5X20	160	12.5X20	160	16X25	195	16X25	195	16X31.5	215	16X35.5	165
47	470	6.3X11	120	10X12.5	165	12.5X20	195	12.5X20	195	12.5X25	210	16X25	230	16X35.5	270	16X35.5	270	18X40	185
100	101	10X12.5	215	10X20	265	12.5X25	215	16X31.5	375	16X31.5	365	18X35.5	395	18X40	420	20X40	450	22X40	270
220	221	10X16	335	12.5X25	440	16X35.5	570	18X35.5	575	20X40	600	22X50	620	22X50	620	25X50	660		
330	331	10X20	510	12.5X25	540	18X40	750	20X40	705	22X50	730	25X50	760						
470	471	12.5X20	640	16X25	715	22X40	900	22X50	840	25X50	870								
1000	102	16X25	930	18X40	985	25X50	1310												
2200	222	18X35.5	1650	22X50	1750														
3300	332	20X40	1950	25X50	2070														
4700	472	22X50	2450																Allow-able ripple
6800	682	25X50	2800															Case size	

Allowable Ripple (mA rms) at 105℃ 120Hz

● Frequency coefficient of allowable ripple current

V	Cap.(μF) \ Frequency	50Hz	120Hz	300Hz	1 kHz	10 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