

ZV Series

Features

- ◆ Low impedance 100 KHz
- ◆ Reflow soldering is available
- ◆ Available for high density mounting
- ◆ Endurance 2000~5000 hrs at 105°C
- ◆ RoHS Compliant



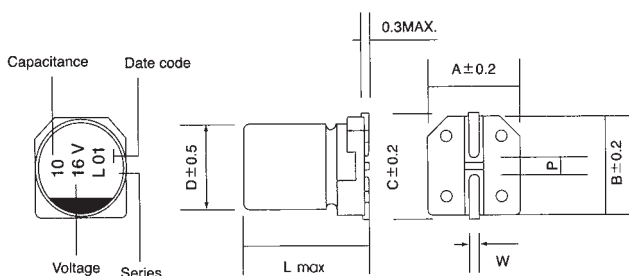
Specifications

Item	Performance Characteristics																					
Operating Temperature Range	-55~ +105°C																					
Rated Voltage Range	6.3~50 VDC																					
Capacitance Range	1 to 6800 μ F																					
Capacitance Tolerance	$\pm 20\%$ (120Hz, +20°C)																					
Leakage Current (+20°C, max.)	0.01CV or 3(μ A) After 2 minutes, whichever is greater measured with rated working voltage applied																					
Dissipation Factor ($\tan \delta$ · at 20°C · 120Hz)	<table border="1"> <tr> <td>Working voltage(VDC)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <td>D.F. (%) max.</td> <td>26</td> <td>19</td> <td>16</td> <td>14</td> <td>14</td> <td>12</td> </tr> </table>	Working voltage(VDC)	6.3	10	16	25	35	50	D.F. (%) max.	26	19	16	14	14	12							
	Working voltage(VDC)	6.3	10	16	25	35	50															
D.F. (%) max.	26	19	16	14	14	12																
For capacitance value > 1000 μ F, add 2 per another 1000 μ F.																						
Low Temperature Characteristics (at 120Hz)	Impedance ratio max																					
	<table border="1"> <tr> <td>Working voltage(VDC)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <td>Z-25°C / Z+20°C</td> <td>2</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z-55°C / Z+20°C</td> <td>8</td> <td>6</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> </tr> </table>	Working voltage(VDC)	6.3	10	16	25	35	50	Z-25°C / Z+20°C	2	3	2	2	2	2	Z-55°C / Z+20°C	8	6	4	4	3	3
	Working voltage(VDC)	6.3	10	16	25	35	50															
Z-25°C / Z+20°C	2	3	2	2	2	2																
Z-55°C / Z+20°C	8	6	4	4	3	3																
Endurance	Test conditions Duration time :2000 Hrs (ϕ 12.5~16:5000H) Ambient temperature :+105°C Applied voltage :Rated DC working voltage																					
	After test requirement at +105°C : Capacitance change : $\leq \pm 25\%$ of the initial measured value Dissipation factor : $\leq 200\%$ of the initial specified value Leakage current : \leq The initial specified value																					
Shelf Life	Test conditions Duration time :1000 Hrs Ambient temperature :+105°C Applied voltage :None																					
	After test requirement at +20°C : Same limits as Endurance. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.																					
Resistance to soldering heat	The capacitors shall be kept on the hot plate maintained at 250°C for 30 seconds. After removing from the hot plate and restored at room temperature, they meet the characteristic requirements listed under.																					
	<table border="1"> <tr> <td>Leakage current</td> <td>Less than specified value</td> </tr> <tr> <td>Capacitance change</td> <td>Within $\pm 10\%$ of initial value</td> </tr> <tr> <td>$\tan \delta$</td> <td>Less than specified value</td> </tr> </table>	Leakage current	Less than specified value	Capacitance change	Within $\pm 10\%$ of initial value	$\tan \delta$	Less than specified value															
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Multiplier for Ripple Current vs. Frequency

CAP(μ F)\Frequency(Hz)	60(50)	120	400	1K	10K	50K-100K
CAP ≤ 10	0.47	0.59	0.76	0.85	0.97	1.0
10 < CAP	0.52	0.65	0.80	0.89	0.97	1.0

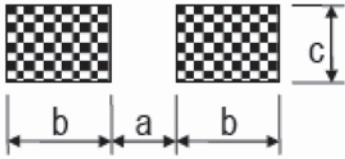
Diagram of Dimensions:(unit:mm)



(ϕ 16:L \pm 0.5)

ϕ D	L	A	B	C	W	P
4	5.5	4.3	4.3	4.9	0.5~0.8	1.0
5	5.5	5.3	5.3	5.9	0.5~0.8	1.4
6.3	5.5	6.6	6.6	7.2	0.5~0.8	2.2
6.3	7.7	6.6	6.6	7.2	0.5~0.8	2.2
8	6.5	8.3	8.3	9.0	0.5~0.8	2.3
8	10.5	8.3	8.3	9.0	0.7~1.1	3.1
10	10.5	10.3	10.3	11.0	0.7~1.1	4.5
12.5	14	13.5	13.5	15.0	1.0~1.4	4.5
16	17	17.1	17.1	18.0	1.0~1.4	7.0

Recommended land pattern:(unit:mm)



Φ DxL	a	b	c
4 x all	1.0	2.6	1.6
5 x all	1.4	3.0	1.6
6.3 x all	2.1	3.5	1.6
8 x 6.5(height ≤6.5)	2.1	4.5	1.6
8 x 6.5(height >6.5)	2.8	4.2	1.9
10 x all	4.3	4.4	1.9
12.5 x all	4.3	5.8	2.5
16 x all	6.0	6.5	3.5

Case Size

φ DxL(mm)

WV(V) Cap(μF)	6.3			10			16			25			35			50		
	Size	Ripple	imp.	Size	Ripple	imp.	Size	Ripple	imp.	Size	Ripple	imp.	Size	Ripple	imp.	Size	Ripple	imp.
2.2													4x5.5	53	5	4x5.5	53	5
3.3													4x5.5	53	5	4x5.5	53	5
4.7										4x5.5	53	5	4x5.5	53	5	4x5.5	53	5
6.8										4x5.5	58	4.5	4x5.5	65	4.0	5x5.5	65	4
10							4x5.5	65	5	4x5.5	74	3.7	4x5.5	90	3.5	5x5.5	90	3.5
										5x5.5	80	2.6	5x5.5	98	2.5	6.3x5.5	100	2.5
													6.3x5.5	110	2.4			
15							4x5.5	70	4.6	5x5.5	100	2.2	5x5.5	120	1.8	6.3x5.5	130	1.8
										6.3x5.5	115	1.8	6.3x5.5	140	1.5			
22	4x5.5	53	3.5	4x5.5	80	2.6	4x5.5	83	3.0	5x5.5	128	1.7	5x5.5	140	1.4	6.3x5.5	140	1.5
							5x5.5	110	2.6	6.3x5.5	140	1.5	6.3x5.5	150	1.3			
27	4x5.5	65	3.2	5x5.5	85	2.4	5x5.5	135	1.9	6.3x5.5	145	1.4	6.3x5.5	165	1.2	6.3x7.7	160	1.35
33	4x5.5	80	2.8	4x5.5	85	2.3	5x5.5	160	2.2	5x5.5	145	1.4	6.3x5.5	185	1.2	6.3x7.7	170	0.8
	5x5.5	82	2.6	5x5.5	110	2.1	6.3x5.5	170	1.5	6.3x5.5	175	1.3	6.3x7.7	210	0.9	8x6.5	180	0.75
													8x6.5	230	0.8			
47	4x5.5	82	2.4	5x5.5	130	2.0	5x5.5	170	2.0	6.3x5.5	180	1.2	6.3x5.5	200	1.0	6.3x7.7	200	0.79
	5x5.5	85	2.2	6.3x5.5	160	1.5	6.3x5.5	185	1.5	6.3x7.7	195	0.8	6.3x7.7	220	0.75	8x6.5	220	0.72
										8x6.5	220	0.75	8x6.5	240	0.7			
56	5x5.5	94	1.70	6.3x5.5	180	1.45	6.3x5.5	195	1.3	6.3x5.5	195	1.15	6.3x7.7	230	0.73	8x10.5	260	0.68
68	5x5.5	100	1.6	6.3x5.5	195	1.4	6.3x5.5	205	1.2	6.3x5.5	200	1.1	6.3x7.7	240	0.7	8x10.5	300	0.6
	6.3x5.5	120	1.3	6.3x7.7	210	1.3	6.3x7.7	210	1.1	6.3x7.7	210	0.75	8x6.5	250	0.68			
							8x6.5	220	1.0	8x6.5	230	0.7						
100	5x5.5	110	1.5	6.3x5.5	210	1.3	6.3x5.5	210	1.1	6.3x7.7	220	0.75	6.3x7.7	270	0.67	8x10.5	310	0.55
	6.3x5.5	160	1.1	6.3x7.7	230	1.2	6.3x7.7	220	0.9	8x6.5	250	0.7	8x10.5	350	0.5			
150	6.3x5.5	170	0.95	6.3x5.5	220	1.0	6.3x7.7	225	0.8	8x10.5	420	0.5	8x10.5	430	0.45	10x10.5	540	0.28
	6.3x7.7	195	0.85	8x6.5	240	0.8	8x6.5	240	0.7									
220	6.3x5.5	195	0.6	6.3x7.7	245	0.60	6.3x7.7	250	0.75	8x10.5	480	0.3	8x10.5	450	0.25	10x10.5	570	0.26
	6.3x7.7	210	0.57	8x6.5	255	0.55	8x6.5	260	0.66	10x10.5	500	0.28						
330	6.3x7.7	230	0.51															
	8x6.5	250	0.49	8x10.5	400	0.36	8x10.5	470	0.34	8x10.5	510	0.26	10x10.5	570	0.23	12.5x14	620	0.25
470	8x10.5	380	0.45	8x10.5	470	0.32	8x10.5	520	0.3	10x10.5	570	0.18	12.5x14	900	0.15			
680	8x10.5	420	0.42	10x10.5	620	0.29	10x10.5	600	0.26				12.5x14	900	0.15			
1000	8x10.5	470	0.28													16x17	820	0.2
	10x10.5	500	0.25	10x10.5	670	0.25				12.5x14	900	0.15						
1200	10x10.5	530	0.20				12.5x14	900	0.15									
1500	10x10.5	570	0.17				12.5x14	900	0.15				16x17	1030	0.11			
2200				12.5x14	900	0.15				16x17	1030	0.11						
3300	12.5x14	900	0.15				16x17	1030	0.11									
4700				16x17	1030	0.11												
6800	16x17	1030	0.11															

Ripple current (mArms) at 105°C 100KHz
Max Impedance at 20°C 100KHz