



VZL Series

Features

- $4\phi \sim 10\phi$, 105°C, 2,000 hours assured
- Large capacitance with ultra low impedance capacitors
- Designed for surface mounting on high density PC board
- RoHS Compliance

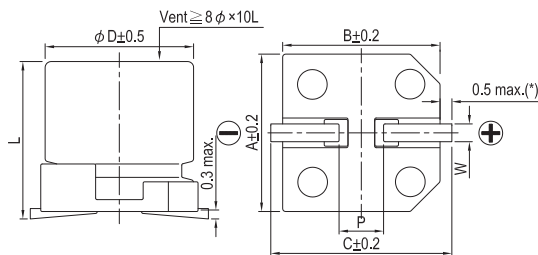


Marking color: Black

Specifications

Items	Performance																									
Category Temperature Range	-55℃ ~ +105℃																									
Capacitance Tolerance	±20% (at 120Hz, 20℃)																									
Leakage Current (at 20℃)	I = 0.01CV or 3 (μA) whichever is greater (after 2 minutes) Where, C = rated capacitance in μF, V = rated DC working voltage in V																									
Tanδ (at 120Hz, 20℃)	<table><tr><td>Rated Voltage</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td></tr><tr><td>Tanδ (max)</td><td>0.26</td><td>0.19</td><td>0.16</td><td>0.14</td><td>0.12</td></tr></table>						Rated Voltage	6.3	10	16	25	35	Tanδ (max)	0.26	0.19	0.16	0.14	0.12								
Rated Voltage	6.3	10	16	25	35																					
Tanδ (max)	0.26	0.19	0.16	0.14	0.12																					
Low Temperature Characteristics (at 120Hz)	Impedance ratio shall not exceed the values given in the table below. <table><tr><td colspan="2">Rated Voltage</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td></tr><tr><td rowspan="2">Impedance Ratio</td><td>Z(-25℃)/Z(+20℃)</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z(-55℃)/Z(+20℃)</td><td>8</td><td>5</td><td>4</td><td>3</td><td>3</td></tr></table>						Rated Voltage		6.3	10	16	25	35	Impedance Ratio	Z(-25℃)/Z(+20℃)	4	3	2	2	2	Z(-55℃)/Z(+20℃)	8	5	4	3	3
Rated Voltage		6.3	10	16	25	35																				
Impedance Ratio	Z(-25℃)/Z(+20℃)	4	3	2	2	2																				
	Z(-55℃)/Z(+20℃)	8	5	4	3	3																				
Endurance	<table><tr><td>Test Time</td><td>2,000 Hrs</td></tr><tr><td>Capacitance Change</td><td>Within ±30% of initial value</td></tr><tr><td>Tanδ</td><td>Less than 300% of specified value</td></tr><tr><td>Leakage Current</td><td>Within specified value</td></tr></table> * The above specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage applied for 2,000 hours at 105℃.						Test Time	2,000 Hrs	Capacitance Change	Within ±30% of initial value	Tanδ	Less than 300% of specified value	Leakage Current	Within specified value												
Test Time	2,000 Hrs																									
Capacitance Change	Within ±30% of initial value																									
Tanδ	Less than 300% of specified value																									
Leakage Current	Within specified value																									
Shelf Life Test	Test time: 1,000 hours; other items are the same as those for the Endurance.																									
Ripple Current and Frequency Multipliers	<table><tr><td>Frequency(Hz)</td><td>50, 60</td><td>120</td><td>1k</td><td>10k up</td></tr><tr><td>Multiplier</td><td>0.60</td><td>0.70</td><td>0.85</td><td>1.0</td></tr></table>						Frequency(Hz)	50, 60	120	1k	10k up	Multiplier	0.60	0.70	0.85	1.0										
Frequency(Hz)	50, 60	120	1k	10k up																						
Multiplier	0.60	0.70	0.85	1.0																						

Diagram of Dimensions



Lead Spacing and Diameter

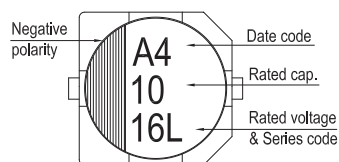
Unit: mm

φD	L	A	B	C	W	P ± 0.2
4	5.8 ± 0.3	4.3	4.3	5.1	0.5 ~ 0.8	1.0
5	5.8 ± 0.3	5.3	5.3	5.9	0.5 ~ 0.8	1.5
6.3	5.8 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0
6.3	7.7 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0
8	10 ± 0.5	8.3	8.3	9.0	0.7 ~ 1.1	3.1
10	10 ± 0.5	10.3	10.3	11.0	0.7 ~ 1.3	4.7

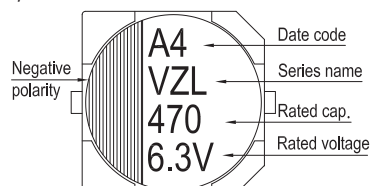
(*): For 4 ~ 6.3φ is 0.4 max.

Marking

φD ≤ 6.3mm



φD = 8 ~ 10mm





Dimension: $\phi D \times L$ (mm)
Ripple Current: mA/rms at 100k Hz, 105°C
Impedance: Ω / at 100k Hz, 20°C

Dimension and Permissible Ripple Current

μF	Contents	V _{DC} 6.3V (0J)			10V (1A)			16V (1C)			25V (1E)			35V (1V)		
		$\phi D \times L$	Imp.	mA	$\phi D \times L$	Imp.	mA	$\phi D \times L$	Imp.	mA	$\phi D \times L$	Imp.	mA	$\phi D \times L$	Imp.	mA
4.7	4R7													4×5.8	1.35	90
10	100							4×5.8	1.35	90	4×5.8	1.35	90	5×5.8	0.70	160
22	220	4×5.8	1.35	90	4×5.8	1.35	90	5×5.8	0.70	160	5×5.8	0.70	160	6.3×5.8	0.36	240
33	330	4×5.8	1.35	90	5×5.8	0.70	160	6.3×5.8	0.36	240	6.3×5.8	0.36	240	6.3×5.8	0.36	240
47	470	5×5.8	0.70	160	6.3×5.8	0.36	240	6.3×5.8	0.36	240	6.3×5.8	0.36	240	6.3×5.8	0.36	240
68	680	6.3×5.8	0.36	240	6.3×5.8	0.36	240	6.3×5.8	0.36	240	6.3×5.8	0.36	240	6.3×7.7	0.32	290
100	101	6.3×5.8	0.36	240	6.3×5.8	0.36	240	6.3×5.8	0.36	240	6.3×7.7	0.32	290	8×10	0.16	600
150	151	6.3×5.8	0.36	240	6.3×5.8	0.36	240	6.3×7.7	0.32	290	8×10	0.16	600	8×10	0.16	600
220	221	6.3×5.8	0.36	240	6.3×7.7	0.32	290	6.3×7.7	0.32	290	8×10	0.16	600	10×10	0.08	850
330	331	6.3×7.7 8×10	0.32 0.16	290 600	8×10	0.16	600	8×10	0.16	600	8×10	0.16	600			
470	471	8×10	0.16	600	8×10	0.16	600	8×10 10×10	0.16 0.08	600 850	10×10	0.08	850			
680	681	8×10	0.16	600	10×10	0.08	850	10×10	0.08	850						
1,000	102	8×10	0.16	600	10×10	0.08	850									
1,500	152	10×10	0.08	850												

Part Numbering System

VZL Series	470 μF	±20%	6.3V	Carrier Tape	8 ϕ ×10L	Pb-free and PET coating case
VZL	471	M	0J	TR	-	0810
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Package Type	Terminal Type	Case size
						Lead Wire and Coating Type

Note: For more details, please refer to "Part Numbering System (SMD Type)" on page 15.