

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

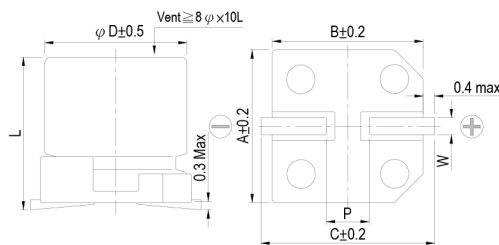


Marking color: Black

Specifications

Items	Performance																									
Category Temperature Range	-55°C ~ +105°C																									
Capacitance Tolerance	±20% (at 120Hz, 20°C)																									
Leakage Current (at 20°C)	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°C)	<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								
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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°C)/Z(+20°C)</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z(-55°C)/Z(+20°C)</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°C)/Z(+20°C)	4	3	2	2	2	Z(-55°C)/Z(+20°C)	8	5	4	3	3
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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°C after the rated voltage applied for 2,000 hours at 105°C.						Test Time	2,000 Hrs	Capacitance Change	Within ±30% of initial value	Tanδ	Less than 300% of specified value	Leakage Current	Within specified value												
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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 & 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										
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Diagram of Dimensions



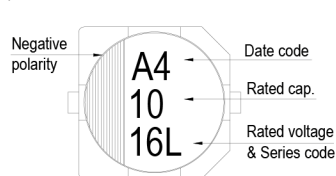
Lead Spacing and Diameter

Unit: mm

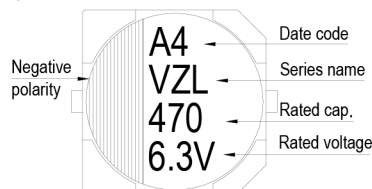
ϕD	L	A	B	C	W	P ± 0.2
4	5.8 ± 0.3	4.3	4.3	5.1	0.5 ~ 0.8	1.0
5	5.8 ± 0.3	5.3	5.3	5.9	0.5 ~ 0.8	1.5
6.3	5.8 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0
6.3	7.7 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0
8	10 ± 0.5	8.4	8.4	9.0	0.7 ~ 1.1	3.1
10	10 ± 0.5	10.4	10.4	11.0	0.7 ~ 1.3	4.7

Marking

$\phi D \leq 6.3mm$



$\phi D = 8 \sim 10mm$



Dimension: $\phi D \times L$ (mm)

Ripple Current: mA/rms at 100k Hz, 105°C

Impedance: Ω / at 100k Hz, 20°C

Dimension & Permissible Ripple Current

μF	Contents	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	$\pm 20\%$	6.3V	Carrier Tape	8 $\phi \times 10L$	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 12.