Features

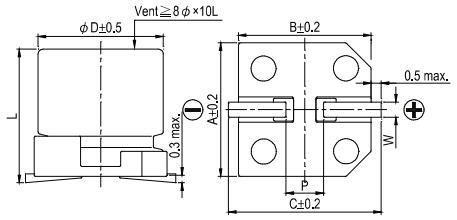
- 4φ ~ 10φ, 105℃, 2,000 hours assured
- Large capacitance with ultra low impedance capacitors
- Designed for surface mounting on high density PC board
- RoHS compliance
- AEC-Q200 qualified

Marking color: Black

Specifications

Items	Performance
Category Temperature Range	-55℃ ~ +105℃
Capacitance Tolerance	±20% (at 120 Hz, 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 120 Hz, 20℃)	Rated Voltage: 6.3 / 10 / 16 / 25 / 35 / 50 Tanδ (max): 0.26 / 0.19 / 0.16 / 0.14 / 0.12 / 0.10
Low Temperature Characteristics (at 120 Hz)	Impedance ratio shall not exceed the values given in the table below. Impedance Ratio Z(-25℃)/Z(+20℃): 4 / 3 / 2 / 2 / 2 / 2 Impedance Ratio Z(-55℃)/Z(+20℃): 8 / 5 / 4 / 3 / 3 / 3
Endurance	Test Time: 2,000 Hrs Capacitance Change: Within ±30% of initial value Tanδ: Less than 300% of specified value Leakage Current: Within specified value * The above specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage applied for 2,000 hours at 105℃.
Shelf Life Test	Test time: 1,000 hours; other items are the same as those for the Endurance.
Ripple Current and Frequency Multipliers	Frequency(Hz): 50, 60 / 120 / 1k / 10k up Multiplier: 0.60 / 0.70 / 0.85 / 1.0

Diagram of Dimensions

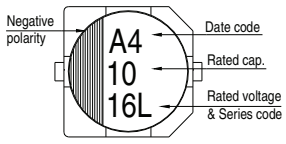


Lead Spacing and Diameter Unit: mm

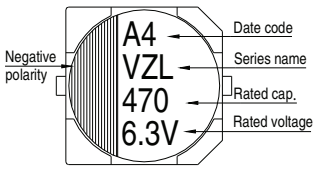
φD	L	A	B	C	W	P ± 0.2
4	5.8 ± 0.3	4.3	4.3	5.1	0.5 ~ 0.8	1.0
5	5.8 ± 0.3	5.3	5.3	5.9	0.5 ~ 0.8	1.5
6.3	5.8 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0
6.3	7.7 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0
8	6.5 ± 0.3	8.3	8.3	9.0	0.5 ~ 0.8	2.3
8	10 ± 0.5	8.3	8.3	9.0	0.7 ~ 1.1	3.1
10	10 ± 0.5	10.3	10.3	11.0	0.7 ~ 1.3	4.7

Marking

φD ≦ 6.3 mm



φD = 8 ~ 10 mm



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Dimension: ϕD × L(mm)
Ripple Current: mA/rms at 100k Hz, 105℃
Impedance: Ω/ at 100k Hz, 20℃

Dimension and Permissible Ripple Current

Rated Volt. (V_{DC}) / Cap. (μF)	Contents	6.3V (0J)			10V (1A)			16V (1C)			25V (1E)			35V (1V)			50V (1H)		
		ϕD×L	Imp.	mA	ϕD×L	Imp.	mA	ϕD×L	Imp.	mA	ϕD×L	Imp.	mA	ϕD×L	Imp.	mA	ϕD×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 8×6.5	0.32 0.26	290 300			
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 8×6.5	0.32 0.26	290 300	6.3×7.7 8×10	0.32 0.16	290 600	8×10	0.34	350
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 8×6.5	0.32 0.26	290 300	6.3×7.7 8×6.5	0.32 0.26	290 300	8×10	0.16	600	10×10	0.08	850	10×10	0.18	670
330	331	6.3×7.7 8×6.5 8×10	0.32 0.26 0.16	290 300 600	8×10	0.16	600	8×10	0.16	600	8×10	0.16	600	10×10	0.08	850			
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	470μF	±20%	6.3V	Carrier Tape		8ϕ×10L	
VZL	**471**	**M**	**0J**	**TR**	**-**	**0810**	**xx**
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Package Type	Terminal Type	Case Size	

S = Standard
KS = AEC-Q200 Qualified, Safety Critical Application
LS = AEC-Q200 Qualified, Non-Safety Critical Application

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