



VEH Series

Features

- $4\phi \sim 10\phi$, 105°C, 2,000 hours assured
- Vertical chip type miniaturized
- Low impedance capacitors
- Designed for surface mounting on high density PC board
- RoHS Compliance

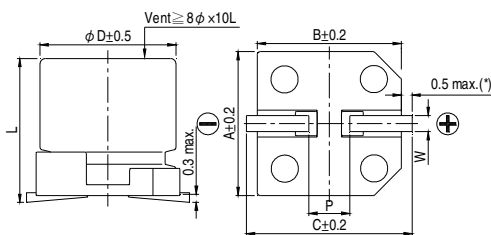


Marking color: Black

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><td>50</td></tr><tr><td>Tanδ (max)</td><td>0.30</td><td>0.26</td><td>0.22</td><td>0.16</td><td>0.13</td><td>0.13</td></tr></table>							Rated Voltage	6.3	10	16	25	35	50	Tanδ (max)	0.30	0.26	0.22	0.16	0.13	0.13														
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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><td>50</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><td>2</td></tr><tr><td>Z(-55℃)/Z(+20℃)</td><td>10</td><td>7</td><td>5</td><td>3</td><td>3</td><td>3</td></tr></table>							Rated Voltage		6.3	10	16	25	35	50	Impedance Ratio	Z(-25℃)/Z(+20℃)	4	3	2	2	2	2	Z(-55℃)/Z(+20℃)	10	7	5	3	3	3					
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Endurance	<table><tr><td>Test Time</td><td colspan="6">2,000 Hrs</td></tr><tr><td>Capacitance Change</td><td colspan="6">Within ±25% of initial value for ϕ D ≤ 6.3 mm; Within ±20% of initial value for ϕ D ≥ 8 mm</td></tr><tr><td>Tanδ</td><td colspan="6">Less than 200% of specified value</td></tr><tr><td>Leakage Current</td><td colspan="6">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 ±25% of initial value for ϕ D ≤ 6.3 mm; Within ±20% of initial value for ϕ D ≥ 8 mm						Tanδ	Less than 200% of specified value						Leakage Current	Within specified value					
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Shelf Life Test	<table><tr><td>Test Time</td><td colspan="6">1,000 Hrs</td></tr><tr><td>Capacitance Change</td><td colspan="6">Within ±25% of initial value for ϕ D ≤ 6.3 mm; Within ±20% of initial value for ϕ D ≥ 8 mm</td></tr><tr><td>Tanδ</td><td colspan="6">Less than 200% of specified value</td></tr><tr><td>Leakage Current</td><td colspan="6">Within specified value</td></tr></table> * The above specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied.							Test Time	1,000 Hrs						Capacitance Change	Within ±25% of initial value for ϕ D ≤ 6.3 mm; Within ±20% of initial value for ϕ D ≥ 8 mm						Tanδ	Less than 200% of specified value						Leakage Current	Within specified value					
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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>0.64</td><td>0.8</td><td>0.93</td><td>1.0</td></tr></table>							Frequency (Hz)	50, 60	120	1k	10k up	Multiplier	0.64	0.8	0.93	1.0																		
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Diagram of Dimensions



Lead Spacing and Diameter

Unit: mm

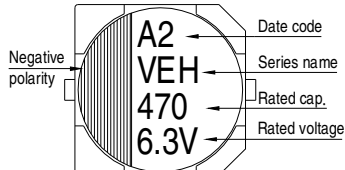
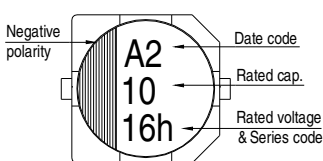
φD	L	A	B	C	W	P ± 0.2
4	5.7 ± 0.3	4.3	4.3	5.1	0.5 ~ 0.8	1.0
5	5.7 ± 0.3	5.3	5.3	5.9	0.5 ~ 0.8	1.5
6.3	5.7 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0
8	10 ± 0.5	8.3	8.3	9.0	0.7 ~ 1.1	3.1
10	10 ± 0.5	10.3	10.3	11.0	0.7 ~ 1.3	4.7

(*): For 4 ~ 6.3φ is 0.4 max.

Marking

φD ≤ 6.3mm

φD = 8 ~ 10 mm





Dimension: $\phi D \times L(\text{mm})$

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

Impedance: $\Omega/$ at 100k Hz, 20°C

Dimension and Permissible Ripple Current

V. DC		6.3V (0J)			10V (1A)			16V (1C)			25V (1E)			35V (1V)			50V (1H)		
μF	Contents	$\phi D \times L$	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	$\phi D \times L$	Imp.	mA
3.3	3R3																4×5.7	5.0	30
4.7	4R7										4×5.7	3.2	65	4×5.7	3.2	65	4×5.7	5.0	30
10	100							4×5.7	3.2	65	5×5.7	1.5	110	5×5.7	1.5	110	5×5.7	3.0	50
22	220				4×5.7	3.2	65	5×5.7	1.5	110	6.3×5.7	0.85	170	6.3×5.7	0.85	170	6.3×5.7	2.0	70
33	330	4×5.7	3.2	65	5×5.7	1.5	110	6.3×5.7	0.85	170	6.3×5.7	0.85	170	6.3×5.7	0.85	170	8×10	0.6	300
47	470	5×5.7	1.5	110	6.3×5.7	0.85	170	6.3×5.7	0.85	170	6.3×5.7	0.85	170	8×10	0.45	450	8×10	0.6	300
100	101	6.3×5.7	0.85	170	6.3×5.7	0.85	170	8×10	0.45	450	8×10	0.45	450	8×10	0.45	450	8×10	0.6	300
150	151	6.3×5.7	0.85	170	6.3×5.7	0.85	170	8×10	0.45	450	8×10	0.45	450	8×10	0.45	450	10×10	0.3	500
220	221	6.3×5.7	0.85	170	8×10	0.45	450	8×10	0.45	450	8×10	0.45	450	10×10	0.25	670			
330	331	8×10	0.45	450	8×10	0.45	450	8×10	0.45	450	10×10	0.25	670						
470	471	8×10	0.45	450	8×10	0.45	450	10×10	0.25	670									
820	821	10×10	0.25	670	10×10	0.25	670												
1,000	102	10×10	0.25	670															

Part Numbering System

VEH Series	470 μF	±20%	6.3V	Carrier Tape	8 ϕ × 10L	Pb-free and PET coating case
VEH	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.

Mouser Electronics

Authorized Distributor

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Lelon:

<u>VEH330M0JTR-0405</u>	<u>VEH470M0JTR-0506</u>	<u>VEH101M0JTR-0606</u>	<u>VEH151M0JTR-0606</u>	<u>VEH331M0JTR-0810</u>
<u>VEH471M0JTR-0810</u>	<u>VEH821M0JTR-1010</u>	<u>VEH102M0JTR-1010</u>	<u>VEH220M1ATR-0406</u>	<u>VEH330M1ATR-0506</u>
<u>VEH470M1ATR-0506</u>	<u>VEH101M1ATR-0606</u>	<u>VEH151M1ATR-0606</u>	<u>VEH221M1ATR-0810</u>	<u>VEH331M1ATR-0810</u>
<u>VEH471M1ATR-0810</u>	<u>VEH821M1ATR-1010</u>	<u>VEH100M1CTR-0406</u>	<u>VEH220M1CTR-0506</u>	<u>VEH330M1CTR-0606</u>
<u>VEH470M1CTR-0606</u>	<u>VEH101M1CTR-0810</u>	<u>VEH151M1CTR-0810</u>	<u>VEH221M1CTR-0810</u>	<u>VEH331M1CTR-0810</u>
<u>VEH471M1CTR-1010</u>	<u>VEH4R7M1ETR-0406</u>	<u>VEH100M1ETR-0506</u>	<u>VEH220M1ETR-0606</u>	<u>VEH330M1ETR-0606</u>
<u>VEH470M1ETR-0606</u>	<u>VEH101M1ETR-0810</u>	<u>VEH151M1ETR-0810</u>	<u>VEH221M1ETR-0810</u>	<u>VEH221M1ETR-1010</u>
<u>VEH331M1ETR-1010</u>	<u>VEH4R7M1VTR-0406</u>	<u>VEH100M1VTR-0506</u>	<u>VEH220M1VTR-0606</u>	<u>VEH330M1VTR-0606</u>
<u>VEH470M1VTR-0810</u>	<u>VEH101M1VTR-0810</u>	<u>VEH151M1VTR-0810</u>	<u>VEH221M1VTR-1010</u>	<u>VEH3R3M1HTR-0406</u>
<u>VEH4R7M1HTR-0406</u>	<u>VEH100M1HTR-0506</u>	<u>VEH220M1HTR-0606</u>	<u>VEH330M1HTR-0810</u>	<u>VEH470M1HTR-0810</u>
<u>VEH101M1HTR-0810</u>	<u>VEH151M1HTR-1010</u>	<u>VEH221M0JTR-0606</u>	<u>VEH-331M1CTR-1010</u>	<u>VEH-152M0JTR-1010</u>