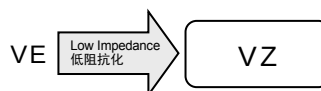


VZ Series

EXTRA LOWER IMPEDANCE

極低阻抗品

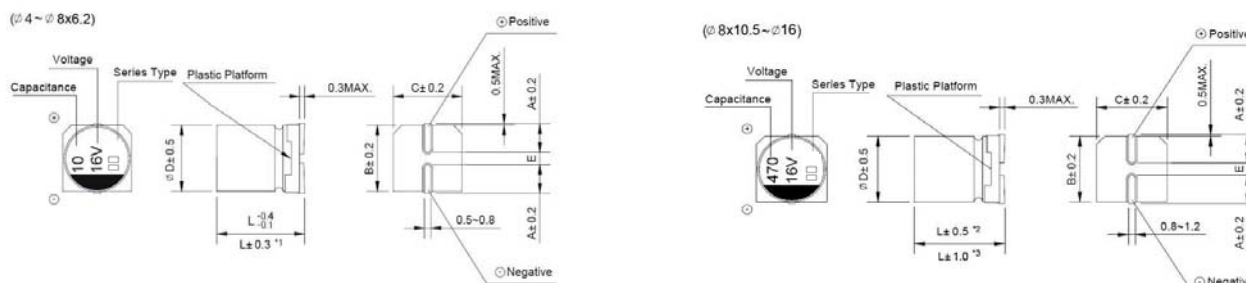
- Extra low impedance with temperature range -55 ~ +105°C
極低阻抗和適用於 -55 ~ +105°C 的溫度範圍
- Impedance 40~60% less than VE series
阻抗值比 VE 系列低 40~60%
- Comply with the RoHS directive
符合 RoHS 指令



□ SPECIFICATIONS 特性表

Items 項目	Characteristics 主要特性																																											
Operation Temperature Range 使用溫度範圍	-55 ~ +105°C																																											
Voltage Range 額定工作電壓範圍	6.3 ~ 50V																																											
Capacitance Range 靜電容量範圍	4.7 ~ 4700μF																																											
Capacitance Tolerance 靜電容量允許偏差	±20% at 120Hz, 20°C																																											
Leakage Current 漏電流	Leakage current (Ø4~Ø10) ≦0.01CV or 3μA, whichever is greater (after 2 minutes application of rated voltage) Leakage current (Ø12.5~Ø16) ≦0.03CV or 4μA, whichever is greater (after 1 minute application of rated voltage) 漏電流 (Ø4~Ø10) ≦0.01CV 或 3μA，取較大值（施加額定工作電壓 2 分鐘後） 漏電流 (Ø12.5~Ø16) ≦0.03CV 或 4μA，取較大值（施加額定工作電壓 1 分鐘後）																																											
Dissipation Factor (tan δ) 損耗角正切	<table><tr><td colspan="2">Measurement frequency 測試頻率: 120Hz, Temperature 溫度: 20°C</td></tr><tr><td>Rated Voltage (V) 額定工作電壓</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td></tr><tr><td>tan δ (max.)</td><td>Ø4~Ø10</td><td>0.22</td><td>0.19</td><td>0.16</td><td>0.14</td><td>0.12</td></tr><tr><td>最大損耗角正切</td><td>Ø12.5~Ø16</td><td>0.26</td><td>0.22</td><td>0.18</td><td>0.16</td><td>0.14</td></tr></table>							Measurement frequency 測試頻率: 120Hz, Temperature 溫度: 20°C		Rated Voltage (V) 額定工作電壓	6.3	10	16	25	35	50	tan δ (max.)	Ø4~Ø10	0.22	0.19	0.16	0.14	0.12	最大損耗角正切	Ø12.5~Ø16	0.26	0.22	0.18	0.16	0.14														
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Stability at Low Temperature 低溫特性	<table><tr><td colspan="2">Measurement frequency 測試頻率: 120Hz</td></tr><tr><td colspan="2">Rated Voltage (V) 額定工作電壓</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td></tr><tr><td rowspan="4">Impedance Ratio 阻抗比 ZT/Z20 (max.)</td><td rowspan="2">Ø4~Ø10</td><td>Z(-25°C) / Z(20°C)</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z(-55°C) / Z(20°C)</td><td>5</td><td>4</td><td>4</td><td>3</td><td>3</td></tr><tr><td rowspan="2">Ø12.5~Ø16</td><td>Z(-25°C) / Z(20°C)</td><td>3</td><td>3</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z(-55°C) / Z(20°C)</td><td>10</td><td>8</td><td>6</td><td>4</td><td>3</td></tr></table>							Measurement frequency 測試頻率: 120Hz		Rated Voltage (V) 額定工作電壓		6.3	10	16	25	35	50	Impedance Ratio 阻抗比 ZT/Z20 (max.)	Ø4~Ø10	Z(-25°C) / Z(20°C)	2	2	2	2	2	Z(-55°C) / Z(20°C)	5	4	4	3	3	Ø12.5~Ø16	Z(-25°C) / Z(20°C)	3	3	2	2	2	Z(-55°C) / Z(20°C)	10	8	6	4	3
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		Z(-55°C) / Z(20°C)	10	8	6	4	3																																					
Load Life 高溫負荷特性	After 3000 hrs. (2000 hrs. for Ø4~Ø6.3×5.4&Ø8×6.2) application of the rated voltage at 105°C, they meet the characteristics listed below. 在 105°C 環境中施加額定工作電壓 3000 小時（Ø4~Ø6.3×5.4&Ø8×6.2 為 2000 小時）後，電容器的特性符合下表的要求。 <table><tr><td>Capacitance Change 靜電容量變化率</td><td>Within ±30% of initial value 初始值的±30%以內</td></tr><tr><td>Dissipation Factor 損耗角正切</td><td>300% or less of initial specified value 不大於規範值的 300%</td></tr><tr><td>Leakage Current 漏電流</td><td>initial specified value or less 不大於規範值</td></tr></table>							Capacitance Change 靜電容量變化率	Within ±30% of initial value 初始值的±30%以內	Dissipation Factor 損耗角正切	300% or less of initial specified value 不大於規範值的 300%	Leakage Current 漏電流	initial specified value or less 不大於規範值																															
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Shelf Life 高溫貯存特性	After leaving capacitors under no load at 105°C for 1000 hours, they meet the specified value for load life characteristics listed above. 在 105°C 環境中無負荷放置 1000 小時後，電容器的特性符合高溫負荷特性中所列的規定值。																																											
Resistance to Soldering Heat 耐焊接熱特性	After reflow soldering and restored at room temperature, they meet the characteristics listed below. 經過回流焊並冷卻至室溫後，電容器的特性符合下表的要求。 <table><tr><td>Capacitance Change 靜電容量變化率</td><td>Within ±10% of initial value 初始值的±10%以內</td></tr><tr><td>Dissipation Factor 損耗角正切</td><td>initial specified value or less 不大於規範值</td></tr><tr><td>Leakage Current 漏電流</td><td>initial specified value or less 不大於規範值</td></tr></table>							Capacitance Change 靜電容量變化率	Within ±10% of initial value 初始值的±10%以內	Dissipation Factor 損耗角正切	initial specified value or less 不大於規範值	Leakage Current 漏電流	initial specified value or less 不大於規範值																															
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Leakage Current 漏電流	initial specified value or less 不大於規範值																																											
Marking 標示	Black print on the case top. 鋁殼頂部黑字印刷。																																											

□ DRAWING (Unit: mm) 外形圖



- *1. Applicable to Ø6.3x7.7 適用於Ø6.3x7.7
*2. Applicable to Ø8x10.5~Ø10 適用於Ø8x10.5~Ø10
*3. Applicable to Ø12.5~Ø16 適用於Ø12.5~Ø16

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VZ Series

□ DIMENSIONS (Unit: mm) 尺寸表

∅D x L	4 x 5.4	5 x 5.4	6.3 x 5.4	6.3 x 7.7	8 x 6.2	8 x 10.5	10 x 10.5	10 x 12.5	12.5 x 13.5	12.5 x 16	16 x 16.5
A	2.0	2.2	2.6	2.6	3.3	3.0	3.2	3.2	4.7	4.7	5.8
B	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	12.8	12.8	17.0
C	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	12.8	12.8	17.0
E ± 0.2	1.0	1.5	2.1	2.1	2.2	3.1	4.6	4.6	4.6	4.6	6.4
L	5.4	5.4	5.4	7.7	6.2	10.5	10.5	12.5	13.5	16.0	16.5

□ DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT & IMPEDANCE 規格尺寸及最大允許紋波電流及阻抗值

μF	WV Code 代碼	6.3			10			16		
		0J			1A			1C		
10	100							4 x 5.4	1.8	80
15	150							4 x 5.4	1.8	80
22	220	4 x 5.4	1.8	80	4 x 5.4	1.8	80	5 x 5.4 (4 x 5.4)	0.76 (1.8)	150 (80)
33	330	5 x 5.4 (4 x 5.4)	0.76 (1.8)	150 (80)	5 x 5.4 (4 x 5.4)	0.76 (1.8)	150 (80)	6.3 x 5.4 (5 x 5.4)	0.44 (0.76)	230 (150)
47	470	5 x 5.4 (4 x 5.4)	0.76 (1.8)	150 (80)	6.3 x 5.4 (5 x 5.4)	0.44 (0.76)	230 (150)	6.3 x 5.4 (5 x 5.4)	0.44 (0.76)	230 (150)
56	560	5 x 5.4	0.76	150	6.3 x 5.4	0.44	230	6.3 x 5.4	0.44	230
68	680	6.3 x 5.4 (5 x 5.4)	0.44 (0.76)	230 (150)	6.3 x 5.4	0.44	230	6.3 x 7.7 (6.3 x 5.4) (8 x 6.2)	0.34 (0.44) (0.34)	280 (230) (280)
100	101	6.3 x 5.4 (5 x 5.4)	0.44 (0.76)	230 (150)	6.3 x 7.7 (6.3 x 5.4) (8 x 6.2)	0.34 (0.44) (0.34)	280 (230) (280)	6.3 x 7.7 (6.3 x 5.4) (8 x 6.2)	0.34 (0.44) (0.34)	280 (230) (280)
150	151	6.3 x 5.4	0.44	230	6.3 x 7.7	0.34	280	6.3 x 7.7	0.34	280
220	221	6.3 x 7.7 (6.3 x 5.4) (8 x 6.2)	0.34 (0.44) (0.34)	280 (230) (280)	6.3 x 7.7 (8 x 6.2)	0.34 (0.34)	280 (280)	8 x 10.5 (6.3 x 7.7)	0.17 (0.34)	450 (280)
330	331	6.3 x 7.7 (8 x 6.2)	0.34 (0.34)	280 (280)	8 x 10.5	0.17	450	10 x 10.5 (8 x 10.5)	0.09 (0.17)	670 (450)
470	471	8 x 10.5	0.17	450	8 x 10.5	0.17	450	10 x 10.5 (8 x 10.5)	0.09 (0.17)	670 (450)
680	681	10 x 10.5 (8 x 10.5)	0.09 (0.17)	670 (450)	10 x 10.5	0.09	670	10 x 12.5 (10 x 10.5)	0.075 (0.09)	800 (670)
1000	102	10 x 10.5 (8 x 10.5)	0.09 (0.17)	670 (450)	10 x 10.5	0.09	670	16 x 16.5 (12.5 x 16) (12.5 x 13.5)	0.055 (0.06) (0.065)	1350 (1050) (900)
1500	152	10 x 12.5 (10 x 10.5)	0.075 (0.09)	800 (670)	12.5 x 13.5	0.065	900	16 x 16.5	0.055	1350
2200	222	12.5 x 13.5	0.065	900	12.5 x 16	0.060	1050	16 x 16.5	0.055	1350
3300	332	12.5 x 16	0.060	1050	16 x 16.5	0.055	1350			
4700	472	16 x 16.5	0.055	1350						

μF	WV Code 代碼	25			35			50		
		1E			1V			1H		
4.7	4R7				4 x 5.4	1.8	80	5 x 5.4 (4 x 5.4)	1.52 (3.0)	85 (60)
10	100	4 x 5.4	1.8	80	5 x 5.4 (4 x 5.4)	0.76 (1.8)	150 (80)	6.3 x 5.4 (5 x 5.4)	0.88 (1.52)	165 (85)
15	150	5 x 5.4	0.76	150	5 x 5.4	0.76	150	6.3 x 5.4	0.88	165
22	220	6.3 x 5.4 (5 x 5.4)	0.44 (0.76)	230 (150)	6.3 x 5.4 (5 x 5.4)	0.44 (0.76)	230 (150)	6.3 x 7.7 (6.3 x 5.4) (8 x 6.2)	0.68 (0.88) (0.68)	185 (165) (185)
33	330	6.3 x 5.4 (5 x 5.4)	0.44 (0.76)	230 (150)	6.3 x 5.4 (8 x 6.2)	0.44 (0.34)	230 (280)	6.3 x 7.7 (8 x 6.2)	0.68 (0.68)	185 (185)
47	470	6.3 x 7.7 (6.3 x 5.4) (8 x 6.2)	0.34 (0.44) (0.34)	280 (230) (280)	6.3 x 7.7 (6.3 x 5.4) (8 x 6.2)	0.34 (0.44) (0.34)	280 (230) (280)	6.3 x 7.7 (8 x 6.2)	0.68 (0.68)	185 (185)
56	560	6.3 x 7.7 (6.3 x 5.4)	0.34 (0.44)	280 (230)	6.3 x 7.7	0.34	280	8 x 10.5 (6.3 x 7.7)	0.34 (0.68)	350 (185)
68	680	6.3 x 7.7	0.34	280	6.3 x 7.7	0.34	280	8 x 10.5	0.34	350
100	101	6.3 x 7.7 (8 x 6.2)	0.34 (0.34)	280 (280)	6.3 x 7.7 8 x 6.2 8 x 10.5	0.34 0.34 0.17	280 280 450	10 x 10.5 (8 x 10.5)	0.18 (0.34)	670 (350)
150	151	8 x 10.5 (6.3 x 7.7)	0.17 (0.34)	450 (280)	10 x 10.5	0.09	670	10 x 10.5	0.18	670
								Case size ∅D x L (mm) 尺寸	Impedance (Ω) at 20°C 100KHz 阻抗值	Ripple current (mA rms) at 105°C 100KHz 紋波電流

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□ DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT & IMPEDANCE 規格尺寸及最大允許紋波電流及阻抗值

μF	Code 代碼	25			35			50		
		1E			1V			1H		
220	221	8 × 10.5	0.17	450	10 × 10.5	0.09	670	10 × 12.5 (10 × 10.5)	0.16 (0.18)	750 (670)
330	331	10 × 10.5 (8 × 10.5)	0.09 (0.17)	670 (450)	10 × 10.5	0.09	670	12.5×13.5	0.14	800
470	471	10 × 12.5 (10 × 10.5)	0.075 (0.09)	800 (670)	12.5×13.5 (10×12.5)	0.065 (0.075)	900 (800)	16×16.5 (12.5×16)	0.10 (0.12)	1150 (900)
680	681	12.5×13.5	0.065	900	12.5×16 (12.5×13.5)	0.060 (0.065)	1050 (900)			
1000	102	16×16.5 (12.5×16)	0.055 (0.060)	1350 (1050)	16×16.5	0.055	1350	Case size ØD×L(mm) 尺寸	Impedance (Ω) at 20°C 100KHz 阻抗值	Ripple current (mA rms) at 105°C 100KHz 紋波電流
1500	152	16×16.5	0.055	1350						

□ FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT 紋波電流頻率補償系數

Frequency 頻率			50Hz	120Hz	300Hz	1KHz	10KHz~
Coefficient 系數	Ø4 ~ Ø10	4.7 ~ 68μF	0.35	0.50	0.64	0.83	1.00
		100 ~ 1500μF	0.40	0.55	0.70	0.85	1.00
	Ø12.5 ~ Ø16	~ 680μF	0.45	0.65	0.80	0.90	1.00
		1000 ~ 4700μF	0.65	0.85	0.95	1.00	1.00

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