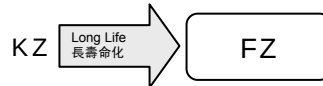


LONG LIFE WITH EXTRA LOWER IMPEDANCE

長壽命極低阻抗品

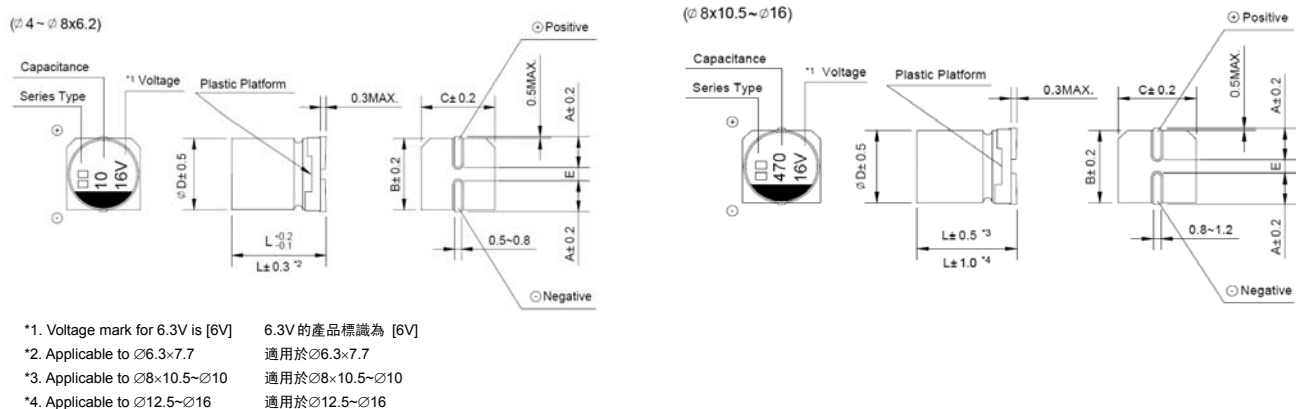
- Extra lower impedance with temperature range -55 ~ +105°C
極低阻抗和適用於 -55 ~ +105°C 的溫度範圍
- Load life of 2000~5000 hours
負荷壽命 2000~5000 小時
- Impedance 5~25% less than KZ series
阻抗值比 KZ 系列低 5~25%
- Comply with the RoHS directive
符合 RoHS 指令



□ 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 ~ 100V																													
Capacitance Range 靜電容量範圍	3.3 ~ 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	Measurement frequency 測試頻率: 120Hz, Temperature 溫度: 20°C <table><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><td>63~80</td><td>100</td></tr><tr><td>tan δ (max.)</td><td>Ø4~Ø10</td><td>0.26</td><td>0.19</td><td>0.16</td><td>0.14</td><td>0.12</td><td>0.10</td><td>0.08</td><td>0.07</td></tr><tr><td>最大損耗角正切</td><td>Ø12.5~Ø16</td><td>0.26</td><td>0.19</td><td>0.18</td><td>0.16</td><td>0.14</td><td>0.10</td><td>0.08</td><td>0.07</td></tr></table>	Rated Voltage (V) 額定工作電壓	6.3	10	16	25	35	50	63~80	100	tan δ (max.)	Ø4~Ø10	0.26	0.19	0.16	0.14	0.12	0.10	0.08	0.07	最大損耗角正切	Ø12.5~Ø16	0.26	0.19	0.18	0.16	0.14	0.10	0.08	0.07
Rated Voltage (V) 額定工作電壓	6.3	10	16	25	35	50	63~80	100																						
tan δ (max.)	Ø4~Ø10	0.26	0.19	0.16	0.14	0.12	0.10	0.08	0.07																					
最大損耗角正切	Ø12.5~Ø16	0.26	0.19	0.18	0.16	0.14	0.10	0.08	0.07																					
Stability at Low Temperature 低溫特性	Measurement frequency 測試頻率: 120Hz <table><tr><td>Rated Voltage (V) 額定工作電壓</td><td>6.3 ~ 16</td><td>25 ~ 100</td></tr><tr><td>Impedance Ratio 阻抗比</td><td>Z(-25°C) / Z(20°C)</td><td>2</td></tr><tr><td></td><td>Z(-40°C) / Z(20°C)</td><td>3</td></tr><tr><td>ZT/Z20 (max.)</td><td>Z(-55°C) / Z(20°C)</td><td>4</td></tr></table>	Rated Voltage (V) 額定工作電壓	6.3 ~ 16	25 ~ 100	Impedance Ratio 阻抗比	Z(-25°C) / Z(20°C)	2		Z(-40°C) / Z(20°C)	3	ZT/Z20 (max.)	Z(-55°C) / Z(20°C)	4																	
Rated Voltage (V) 額定工作電壓	6.3 ~ 16	25 ~ 100																												
Impedance Ratio 阻抗比	Z(-25°C) / Z(20°C)	2																												
	Z(-40°C) / Z(20°C)	3																												
ZT/Z20 (max.)	Z(-55°C) / Z(20°C)	4																												
Load Life 高溫負荷特性	After 5000 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 5000 小時 (Ø4~Ø6.3×5.4 和 Ø8×6.2 為 2000 小時為) 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>200% or less of initial specified value 不大於規範值的 200%</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	200% or less of initial specified value 不大於規範值的 200%	Leakage Current 漏電流	initial specified value or less 不大於規範值																							
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	200% or less of initial specified value 不大於規範值的 200%																													
Leakage Current 漏電流	initial specified value or less 不大於規範值																													
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																							
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																													
Marking 標示	Black print on the case top. 鋁殼頂部黑字印刷。																													

□ DRAWING (Unit: mm) 外形圖



NOTE: All designs and specifications are for reference only and are subject to change without prior notice. If any doubt about safety for your application, please contact us immediately for technical assistance before purchase.

注: 以上所提供的設計及特性參數僅供參考, 任何修改不作預先通知。如果在使用上有疑問, 請在採購前與我們聯繫, 以便提供技術上的協助。

FZ Series

□ DIMENSIONS (Unit: mm) 尺寸表

ØD x L	4 x 5.8	5 x 5.8	6.3 x 5.8	6.3 x 7.7	8 x 6.2	8 x 10.5	10 x 10.5	10 x 13.5	12.5 x 13.5	12.5 x 16	16 x 16.5
A	1.8	2.1	2.4	2.4	3.3	2.9	3.2	3.2	4.7	4.7	5.5
B	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	13.0	13.0	17.0
C	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	13.0	13.0	17.0
E ± 0.2	1.0	1.3	2.2	2.2	2.2	3.1	4.4	4.4	4.4	4.4	6.7
L	5.4	5.4	5.4	7.7	6.2	10.5	10.5	13.5	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

WV Code 代碼 μF		6.3			10			16		
		0J			1A			1C		
10	100							4 x 5.8	1.35	90
15	150							4 x 5.8	1.35	90
22	220	4 x 5.8	1.35	90	4 x 5.8	1.35	90	5 x 5.8 (4 x 5.8)	0.70 (1.35)	160 (90)
33	330	5 x 5.8 (4 x 5.8)	0.70 (1.35)	160 (90)	5 x 5.8 (4 x 5.8)	0.70 (1.35)	160 (90)	6.3 x 5.8 (5 x 5.8)	0.36 (0.70)	240 (160)
47	470	5 x 5.8 (4 x 5.8)	0.70 (1.35)	160 (90)	6.3 x 5.8 (5 x 5.8)	0.36 (0.70)	240 (160)	6.3 x 5.8 (5 x 5.8)	0.36 (0.70)	240 (160)
56	560	5 x 5.8	0.70	160	6.3 x 5.8	0.36	240	6.3 x 5.8	0.36	240
68	680	6.3 x 5.8 (5 x 5.8)	0.36 (0.70)	240 (160)	6.3 x 5.8	0.36	240	6.3 x 7.7 (6.3 x 5.8)	0.26 (0.36)	300 (240)
100	101	6.3 x 5.8 (5 x 5.8)	0.36 (0.70)	240 (160)	6.3 x 7.7 (6.3 x 5.8)	0.26 (0.36)	300 (240)	6.3 x 7.7 (6.3 x 5.8)	0.26 (0.36)	300 (240)
150	151	6.3 x 5.8	0.36	240	6.3 x 7.7	0.26	300	6.3 x 7.7	0.26	300
220	221	6.3 x 7.7 (6.3 x 5.8) (8 x 6.2)	0.26 (0.36) (0.26)	300 (240) (300)	6.3 x 7.7 (8 x 6.2)	0.26 (0.26)	300 (300)	8 x 10.5 (6.3 x 7.7)	0.16 (0.26)	600 (300)
330	331	6.3 x 7.7 (8 x 6.2)	0.26 (0.26)	300 (300)	10 x 10.5 (8 x 10.5)	0.08 (0.16)	850 (600)	10 x 10.5 (8 x 10.5)	0.08 (0.16)	850 (600)
470	471	8 x 10.5	0.16	600	10 x 10.5 (8 x 10.5)	0.08 (0.16)	850 (600)	10 x 10.5 (8 x 10.5)	0.08 (0.16)	850 (600)
680	681	10 x 10.5 (8 x 10.5)	0.08 (0.16)	850 (600)	10 x 10.5	0.08	850	10 x 13.5 (10 x 10.5)	0.07 (0.08)	950 (850)
1000	102	10 x 10.5 (8 x 10.5)	0.08 (0.16)	850 (600)	10 x 13.5 (10 x 10.5)	0.07 (0.08)	950 (850)	16x16.5 (12.5x16) (12.5x13.5)	0.05 (0.055) (0.06)	1450 (1200) (1100)
1500	152	10 x 13.5 (10 x 10.5)	0.07 (0.08)	950 (850)	12.5x13.5	0.06	1100	16 x 16.5	0.05	1450
2200	222	12.5 x 13.5	0.06	1100	12.5 x 16	0.055	1200			
3300	332	12.5 x 16	0.055	1200	16 x 16.5	0.05	1450			
4700	472	16 x 16.5	0.05	1450				Case size 尺寸	Impedance 阻抗值	Ripple current 紋波電流

WV Code 代碼 μF		25			35			50		
		1E			1V			1H		
4.7	4R7				4 x 5.8	1.35	90	5 x 5.8 (4 x 5.8)	1.52 (2.9)	85 (60)
10	100	4 x 5.8	1.35	90	5 x 5.8 (4 x 5.8)	0.70 (1.35)	160 (90)	6.3 x 5.8 (5 x 5.8)	0.88 (1.52)	165 (85)
15	150	5 x 5.8	0.70	160	5 x 5.8	0.70	160	6.3 x 5.8	0.88	165
22	220	6.3 x 5.8 (5 x 5.8)	0.36 (0.70)	240 (160)	6.3 x 5.8 (5 x 5.8)	0.36 (0.70)	240 (160)	6.3 x 7.7 (6.3 x 5.8) (8 x 6.2)	0.68 (0.88) (0.68)	195 (165) (195)
33	330	6.3 x 5.8 (5 x 5.8)	0.36 (0.70)	240 (160)	6.3 x 5.8 (8 x 6.2)	0.36 (0.26)	240 (300)	6.3 x 7.7 (8 x 6.2)	0.68 (0.68)	195 (195)
47	470	6.3 x 7.7 (6.3 x 5.8) (8 x 6.2)	0.26 (0.36) (0.26)	300 (240) (300)	6.3 x 7.7 (6.3 x 5.8) (8 x 6.2)	0.26 (0.36) (0.26)	300 (240) (300)	6.3 x 7.7 (8 x 6.2)	0.68 (0.68)	195 (195)
56	560	6.3 x 7.7 (6.3 x 5.8)	0.26 (0.36)	300 (240)	6.3 x 7.7	0.26	300	8 x 10.5	0.34	350
68	680	6.3 x 7.7	0.26	300	6.3 x 7.7	0.26	300	8 x 10.5	0.34	350
100	101	6.3 x 7.7 (8 x 6.2)	0.26 (0.26)	300 (300)	8 x 10.5	0.16	600	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)	0.16 (0.26)	600 (300)	10 x 10.5 (8 x 10.5)	0.08 (0.16)	850 (600)	10 x 10.5	0.18	670
220	221	8 x 10.5	0.16	600	10 x 10.5 (8 x 10.5)	0.08 (0.16)	850 (600)	10 x 13.5 (10 x 10.5)	0.14 (0.18)	780 (670)
330	331	10 x 10.5 (8 x 10.5)	0.08 (0.16)	850 (600)	10 x 10.5	0.08	850	12.5x13.5	0.12	900
470	471	10 x 13.5 (10 x 10.5)	0.07 (0.08)	950 (850)	12.5 x 13.5 (10 x 13.5)	0.06 (0.07)	1100 (950)	16 x 16.5 (12.5 x 16)	0.08 (0.10)	1250 (1050)
680	681	12.5 x 13.5	0.06	1100	12.5 x 16	0.055	1200			
1000	102	16 x 16.5 (12.5 x 16)	0.05 (0.055)	1450 (1200)	16 x 16.5	0.05	1450			
1500	152	16 x 16.5	0.05	1450				Case size 尺寸	Impedance 阻抗值	Ripple current 紋波電流

•Case size 尺寸 ØDxL(mm), impedance 阻抗值 (Ω) at 20°C 100KHz, ripple current 紋波電流 (mA rms) at 105°C 100KHz

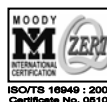
NOTE: All designs and specifications are for reference only and are subject to change without prior notice. If any doubt about safety for your application, please contact us immediately for technical assistance before purchase.

注: 以上所提供的設計及特性參數僅供參考, 任何修改不作預先通知。如果在使用上有疑問, 請在採購前與我們聯繫, 以便提供技術上的協助。



KELIWEI ELECTRONICS

www.KLWDZ.com



□ 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	63			80			100		
		1J			1K			2A		
3.3	3R3				5 × 5.8	5.0	25			
4.7	4R7	5 × 5.8	3.0	50	6.3 × 5.8	3.0	40			
10	100	6.3 × 7.7 (6.3 × 5.8)	1.2 (1.5)	120 (80)	6.3 × 7.7 (8 × 6.2)	2.4 (2.4)	60 (60)	8 × 10.5	1.3	130
22	220	8 × 10.5 (6.3 × 7.7) (8 × 6.2)	0.65 (1.2) (1.2)	250 (120) (120)	8 × 10.5	1.3	130	10 × 10.5 (8 × 10.5)	0.7 (1.3)	200 (130)
33	330	8 × 10.5	0.65	250	8 × 10.5	1.3	130	10 × 10.5	0.7	200
47	470	8 × 10.5	0.65	250	10 × 10.5	0.7	200	12.5 × 13.5 (10 × 13.5)	0.32 (0.60)	500 (250)
68	680	12.5 × 13.5 (8 × 10.5)	0.16 (0.65)	800 (250)	12.5 × 13.5	0.32	500	12.5 × 13.5	0.32	500
100	101	12.5 × 13.5 (10 × 10.5)	0.16 (0.35)	800 (400)	12.5 × 13.5	0.32	500	16 × 16.5 (12.5 × 16)	0.17 (0.26)	795 (550)
150	151	12.5 × 13.5 (10 × 13.5)	0.16 (0.25)	800 (650)	12.5 × 13.5	0.32	500			
220	221	12.5 × 13.5 (10 × 13.5)	0.16 (0.25)	800 (650)	12.5 × 16	0.26	550			
330	331	16 × 16.5	0.082	1400	16 × 16.5	0.17	795	Case size 尺寸	Impedance 阻抗值	Ripple current 紋波電流

• Case size 尺寸 $\varnothing D \times L$ (mm), impedance 阻抗值 (Ω) at 20°C 100KHz, ripple current 紋波電流 (mA rms) at 105°C 100KHz

□ FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT 紋波電流頻率補償係數

Frequency 頻率			50Hz	120Hz	300Hz	1KHz	10KHz~
Coefficient 系數	$\varnothing 4 \sim \varnothing 10$	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
	$\varnothing 12.5 \sim \varnothing 16$	~ 68μF	0.40	0.55	0.70	0.85	1.00
		100 ~ 680μF	0.45	0.65	0.80	0.90	1.00
		1000 ~ 4700μF	0.65	0.85	0.95	1.00	1.00

- Taping specifications are given in page 11. 編帶標準請參閱第 11 頁。
- Please refer to page 12 for the minimum package quantity. 最小包裝數量請參閱第 12 頁。

NOTE: All designs and specifications are for reference only and are subject to change without prior notice. If any doubt about safety for your application, please contact us immediately for technical assistance before purchase.

注：以上所提供的設計及特性參數僅供參考，任何修改不作預先通知。如果在使用上有疑問，請在採購前與我們聯繫，以便提供技術上的協助。



KELIWEI ELECTRONICS

www.KLWDZ.com

