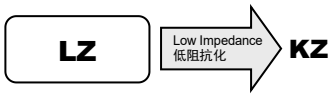
LOW IMPEDANCE

低阻抗品

- Low impedance with temperature range -55 ~ +105°C
  低阻抗和适用于 -55 ~ +105°C 的温度范围
- Load life of 1000 ~ 2000 hours
  负荷寿命 1000 ~ 2000 小时
- Comply with the RoHS directive
  符合 RoHS 指令



☐ SPECIFICATIONS 特性表

Items 项目	Characteristics 主要特性
Operation Temperature Range 使用温度范围	-55 ~ +105°C
Voltage Range 额定工作电压范围	6.3 ~ 50V
Capacitance Range 静电容量范围	1 ~ 4700μF
Capacitance Tolerance 静电容量允许偏差	±20% at 120Hz, 20°C
Leakage Current 漏电流	Leakage current (∅4~∅10) ≦0.01CV or 3μA, whichever is greater (after 2 minutes application of rated voltage) Leakage current (∅12.5~∅16) ≦0.03CV or 4μA, whichever is greater (after 1 minute application of rated voltage) 漏电流 (∅4~∅10) ≦0.01CV 或 3μA，取较大值（施加额定工作电压 2 分钟后） 漏电流 (∅12.5~∅16) ≦0.03CV 或 4μA，取较大值（施加额定工作电压 1 分钟后）
Dissipation Factor (tan δ) 损耗角正切	Measurement frequency 测试频率: 120Hz, Temperature 温度: 20°C

Rated Voltage (V) 额定工作电压		6.3	10	16	25	35	50
tan δ (max.) 最大损耗角正切	∅4~∅10	0.22	0.19	0.16	0.14	0.12	0.12
	∅12.5~∅16	0.26	0.22	0.18	0.16	0.14	0.12

Stability at Low Temperature
低温特性

Measurement frequency 测试频率: 120Hz

Rated Voltage (V) 额定工作电压			6.3	10	16	25	35	50
Impedance Ratio 阻抗比 ZT/Z20 (max.)	∅4~∅10	Z(-25°C) / Z(20°C)	2	2	2	2	2	2
		Z(-55°C) / Z(20°C)	5	4	4	3	3	3
	∅12.5~∅16	Z(-25°C) / Z(20°C)	3	3	2	2	2	2
		Z(-55°C) / Z(20°C)	10	8	6	4	3	3

Load Life
高温负荷特性

After 2000 hrs. (1000 hrs. for ∅4~∅6.3×5.4) application of the rated voltage at 105°C, they meet the characteristics listed below. 在 105°C 环境中施加额定工作电压 2000 小时（∅4~∅6.3×5.4 为 1000 小时）后，电容器的特性符合下表的要求。

Capacitance Change 静电容量变化率	Within ±30% of initial value 初始值的±30%以内
Dissipation Factor 损耗角正切	300% or less of initial specified value 不大于规范值的 300%
Leakage Current 漏电流	initial specified value or less 不大于规范值

Shelf Life
高温贮存特性

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 环境中无负荷放置 1000 小时后，电容器的特性符合高温负荷特性中所列的规定值。

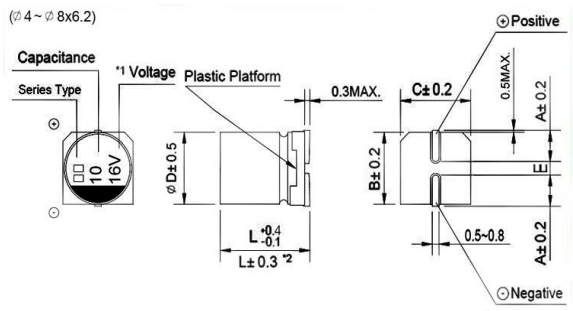
Resistance to Soldering Heat
耐焊接热特性

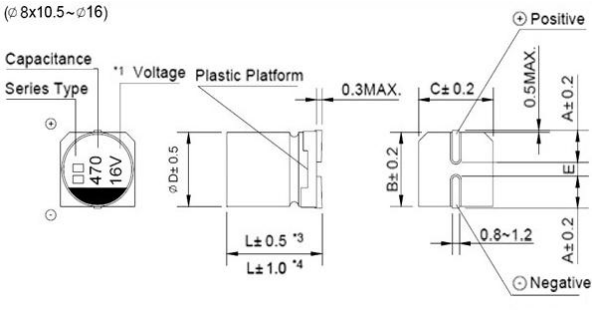
After reflow soldering and restored at room temperature, they meet the characteristics listed below.
经过回流焊并冷却至室温后，电容器的特性符合下表的要求。

Capacitance Change 静电容量变化率	Within ±10% of initial value 初始值的±10%以内
Dissipation Factor 损耗角正切	initial specified value or less 不大于规范值
Leakage Current 漏电流	initial specified value or less 不大于规范值

Marking 标示	Black print on the case top. 铝壳顶部黑字印刷。

☐ DRAWING (Unit: mm) 外形图





*1. Voltage mark for 6.3V is [6V] 6.3V 的产品标识为 [6V]
*2. Applicable to ∅6.3×7.7 适用于∅6.3×7.7
*3. Applicable to ∅8×10.5~∅10 适用于∅8×10.5~∅10
*4. Applicable to ∅12.5~∅16 适用于∅12.5~∅16

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Rev:10

☐ DIMENSIONS (Unit: mm) 尺寸表

ØD 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	4.6	4.6	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	13.5	13.5	16.0	16.5

☐ DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT & IMPEDANCE 规格尺寸及最大允许纹波电流及阻抗值

WV / Code 代码 / μF		6.3			10			16		
		0J			1A			1C		
10	100							4 x 5.4	3.0	60
15	150							5 x 5.4 (4 x 5.4)	1.8 (3.0)	95 (60)
22	220	4 x 5.4	3.0	60	5 x 5.4 (4 x 5.4)	1.8 (3.0)	95 (60)	5 x 5.4 (4 x 5.4)	1.8 (3.0)	95 (60)
33	330	5 x 5.4 (4 x 5.4)	1.8 (3.0)	95 (60)	5 x 5.4 (4 x 5.4)	1.8 (3.0)	95 (60)	6.3 x 5.4 (5 x 5.4)	1.0 (1.8)	140 (95)
47	470	5 x 5.4 (4 x 5.4)	1.8 (3.0)	95 (60)	6.3 x 5.4 (5 x 5.4)	1.0 (1.8)	140 (95)	6.3 x 5.4 (5 x 5.4)	1.0 (1.8)	140 (95)
68	680	6.3 x 5.4 (5 x 5.4)	1.0 (1.8)	140 (95)	6.3 x 5.4	1.0	140	6.3 x 7.7 (6.3 x 5.4)	0.6 (1.0)	230 (140)
100	101	6.3 x 5.4 (5 x 5.4)	1.0 (1.8)	140 (95)	6.3 x 7.7 (6.3 x 5.4) 5x 5.4	0.6 (1.0) 1.8	230 (140) 95	6.3 x 7.7 (6.3 x 5.4)	0.6 (1.0)	230 (140)
150	151	6.3 x 7.7 (6.3 x 5.4)	0.6 (1.0)	230 (140)	6.3 x 7.7 (6.3 x 5.4)	0.6 (1.0)	230 (140)	6.3 x 7.7	0.6	230
220	221	6.3 x 7.7 (6.3 x 5.4)	0.6 (1.0)	230 (140)	6.3 x 7.7	0.6	230	8 x 10.5 (6.3 x 7.7) (8 x 6.2)	0.30 (0.6) (0.6)	450 (230) (230)
330	331	6.3 x 7.7	0.6	230	6.3 x 7.7 8 x 10.5	0.60 0.30	230 450	10 x 10.5 (8 x 10.5)	0.15 (0.30)	670 (450)
470	471	8 x 10.5	0.30	450	8 x 10.5	0.30	450	10 x 10.5 (8 x 10.5)	0.15 (0.30)	670 (450)
680	681	8 x 10.5	0.30	450	8x 10.5 10 x 10.5	0.30 0.15	450 670	10x 10.5	0.15	670
1000	102	10 x 10.5 (8 x 10.5)	0.15 (0.30)	670 (450)	10 x 10.5	0.15	670	10 x 10.5	0.15	670
1500	152	10 × 12.5 (10 × 10.5)	0.13 (0.15)	750 (670)	12.5 × 13.5 (10 × 12.5)	0.11 (0.13)	820 (750)	12.5 × 13.5	0.11	820
2200	222	12.5 × 13.5 (10 × 12.5)	0.11 (0.13)	820 (750)	12.5 × 16	0.09	950	16 × 16.5 (12.5 × 16)	0.08 (0.09)	1260 (950)
3300	332	12.5 × 16 (12.5 × 13.5)	0.09 (0.11)	950 (820)	16 × 16.5	0.08	1260	16 x 16.5	0.08	1260
4700	472	16 × 16.5	0.08	1260	16 × 16.5	0.08	1260			

WV / Code 代码 / μF		25			35			50		
		1E			1V			1H		
1	010				4 x 5.4	3.0	60	4 x 5.4	5.0	30
1.5	1R5				4 x 5.4	3.0	60	4 x 5.4	5.0	30
2.2	2R2				4 x 5.4	3.0	60	4 x 5.4	5.0	30
3.3	3R3				4 x 5.4	3.0	60	4 x 5.4	5.0	30
4.7	4R7	4 x 5.4	3.0	60	4 x 5.4	3.0	60	5 x 5.4	3.0	50
6.8	6R8	4 x 5.4	3.0	60	5 x 5.4	1.8	95	6.3 x 5.4	2.0	70
10	100	5 x 5.4 (4 x 5.4)	1.8 (3.0)	95 (60)	5 x 5.4 (4 x 5.4)	1.8 (3.0)	95 (60)	6.3 x 5.4	2.0	70
15	150	6.3 x 5.4	1.8	95	5 x 5.4	1.8	95	6.3 x 5.4	2.0	70
22	220	6.3 x 5.4 (5 x 5.4)	1.0 (1.8)	140 (95)	6.3 x 5.4 (5 x 5.4)	1.0 (1.8)	140 (95)	6.3 x 7.7 (6.3 x 5.4)	1.0 (2.0)	120 (70)
33	330	6.3 x 5.4 (5 x 5.4)	1.0 (1.8)	140 (95)	6.3 x 5.4	1.0	140	6.3 x 7.7	1.0	120
47	470	6.3 x 7.7 (6.3 x 5.4)	0.6 (1.0)	230 (140)	6.3 x 7.7 (6.3 x 5.4)	0.60 (1.0)	230 (140)	8 x 6.2 6.3 x 7.7	1.0 1.0	120 120
68	680	6.3 x 7.7	0.6	230	6.3 x 7.7	0.60	230	8 x 10.5	0.60	300
100	101	8 x 6.2 6.3 x 7.7	0.6 0.6	230 230	8 x 10.5 (6.3 x 7.7)	0.30 0.6	450 (260)	8 x 10.5	0.60	300
150	151	8 x 10.5 (6.3 x 7.7)	0.30 (0.6)	450 (230)	8 x 10.5	0.30	450	10 x 10.5	0.30	500
								Case size ØD×L(mm) 尺寸	Impedance (Ω) at 20°C 100KHz 阻抗值	Ripple current (mA rms) at 105°C 100KHz 纹波电流

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☐ DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT & IMPEDANCE 规格尺寸及最大允许纹波电流及阻抗值

WV / Code 代碼 / μF		25			35			50		
		1E			1V			1H		
220	221	8 x 10.5	0.30	450	10 x 10.5 (8 x 10.5)	0.15 (0.30)	670 (450)	10 x 10.5	0.30	500
330	331	10 x 10.5 (8 x 10.5)	0.15 (0.30)	670 (450)	10 x 10.5	0.15	670	16 × 16.5 (12.5 × 13.5) (10 × 12.5)	0.12 (0.20) (0.25)	1060 (650) (580)
470	471	10 x 10.5	0.15	670	10 x 10.5	0.15	670	16 × 16.5 (12.5 × 16)	0.12 (0.15)	1060 (700)
680	681	10 x 12.5	0.13	750	12.5 × 13.5 (10 × 12.5)	0.11 (0.13)	820 (750)	16 × 16.5	0.12	1060
1000	102	16 × 16.5 (12.5 × 13.5)	0.08 (0.11)	1260 (820)	16 × 16.5 (12.5 × 16)	0.08 (0.09)	1260 (950)			
1500	152	12.5 × 16	0.09	950	16 × 16.5	0.08	1260	Case size ∅D×L(mm) 尺寸	Impedance (Ω) at 20°C 100KHz 阻抗值	Ripple current (mA rms) at 105°C 100KHz 纹波电流
2200	222	16 × 16.5	0.08	1260						

WV / Code 代碼 / μF		63			100			200		
		1J			2A			2D		
22	220	6.3 x 7.7	0.6	260						
47	470				10 x 10.5	0.6	600	16 × 16.5	0.3	1060
68	680	10 x 10.5	0.6	600						
100	101	10 x 10.5	1.0	750						
220	221	12.5× 13.5	0.5	800						
470	471	16 × 16.5	0. 15	1450				Case size ∅D×L(mm) 尺寸	Impedance (Ω) at 20°C 100KHz 阻抗值	Ripple current (mA rms) at 105°C 100KHz 纹波电流

☐ FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT 纹波电流频率补偿系数

Frequency 频率			50Hz	120Hz	300Hz	1KHz	10KHz~
Coefficient 系数	Ø4 ~ Ø10	1 ~ 68μF	0.35	0.50	0.64	0.83	1.00
		100 ~ 2200μF	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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