

M5 Series

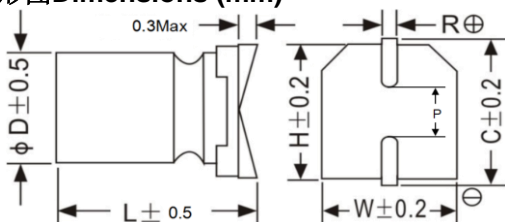
- Low ESR, High ripple, miniaturized
- SMD type: lead free reflow soldering condition at 260°C peak correspondence
- RoHS Compliant



规格表 Specifications

| 项目 Items | 特性参数 Characteristics | | | |
|--|--|------------------------------|---------------------|---------------------|
| 使用温度范围 Category Temperature Range | -55 ~ +105°C | | | |
| 额定工作电压范围 Rated Voltage Range | 2.5 ~ 100V | | | |
| 静电容量允许偏差 Capacitance tolerance | ±20%(M) (at 20°C,120Hz) | | | |
| 漏电流 Leakage Current | 施加额定工作电压2分钟后读数, 小于或等于规格值 (at 20°C) Less than or equal to the specified value. After 2 minutes application of rated Voltage at 20°C | | 2.5~25V | 35~100V |
| | | | ≤0.2CV 或 500μA(取大值) | ≤0.1CV 或 299μA(取大值) |
| 损耗角正切值tanδ Dissipation Factor | Rated voltage (V) | 2.5~6.3 | 10~100 | (at 20°C,120Hz) |
| | tanδ (Max.) | 0.08 | 0.12 | |
| 温度特性 Low Temperature Characteristics (Max.Impedance Ratio) | Z(-25°C)/Z(+20°C) | ≤1.25 | | (100KHz) |
| | Z(-55°C)/Z(+20°C) | ≤1.25 | | |
| 耐久性 Endurance | 105°C施加额定工作电压5000小时, 恢复到20°C后, 产品性能应满足以下要求 The specifications listed below shall be satisfied when the capacitors are restored to 20°C after application of rated voltage for 5000 hours at 105°C. | | | |
| | Appearance | No significant damage | | |
| | Capacitance change | ≤±20% of the initial value | | |
| | D.F.(tanδ) | ≤150% of the specified value | | |
| | ESR | ≤150% of the specified value | | |
| | Leakage current | ≤The specified value | | |
| 耐湿负荷特性 Damp Heat (Steady State) | 在60°C 温度, 湿度90%~95%RH的环境中, 施加额定电压1000小时后, 恢复到20°C后, 产品性能应满足以下要求 The specifications listed below shall be satisfied when the capacitors are restored to 20°C after application of rated voltage for 1000 hours at 60°C,90%~ 95% RH. | | | |
| | Appearance | No significant damage | | |
| | Capacitance change | ≤±20% of the initial value | | |
| | D.F.(tanδ) | ≤150% of the specified value | | |
| | ESR | ≤150% of the specified value | | |
| | Leakage current | ≤The specified value | | |
| 浪涌电压特性 (Surge Voltage) | 浪涌电压=额定电压×1.15(V) Surge Voltage=Rated voltage × 1.15(V) 在105°C环境中, 按充电30秒; 放电5分30秒, 连续施加浪涌电压1000次(Rc=1kΩ), 待恢复测试, 应满足以下要求 The capacitors shall be subjected to 1000 cycles each consisting of charge with the surge voltages specified at 105°C for 30 seconds through a protective resistor (Rc=1kΩ) and discharge for 5 minutes 30 seconds. | | | |
| | Appearance | No significant damage | | |
| | Capacitance change | ≤±20% of the initial value | | |
| | D.F.(tanδ) | ≤150% of the specified value | | |
| | ESR | ≤150% of the specified value | | |
| | Leakage current | ≤The specified value | | |
| 焊接耐热性 Resistance to soldering heat | 按回流焊试验后, 应满足以下要求 Measurement for solder temperature profile shall be made at the capacitor top and the terminal. | | | |
| | Capacitance change | ≤±10% of the initial value | | |
| | D.F.(tanδ) | ≤130% of the specified value | | |
| | ESR | ≤130% of the specified value | | |
| | Leakage current | ≤The specified value | | |

外形图 Dimensions (mm)



| ΦD | W | H | C | R | P |
|-----|------|------|------|---------|-----|
| 5 | 5.3 | 5.3 | 5.9 | 0.5~0.8 | 1.4 |
| 6.3 | 6.5 | 6.5 | 7.2 | 0.5~0.8 | 2.2 |
| 8 | 8.3 | 8.3 | 9.0 | 0.7~1.1 | 3.1 |
| 10 | 10.3 | 10.3 | 11.0 | 0.7~1.1 | 4.5 |

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◆ 纹波电流修正系数 Rated Ripple Current Coefficient

| 频率Frequency(Hz) | 120Hz \leq f < 1kHz | 1kHz \leq f < 10kHz | 10kHz \leq f < 100kHz | 100kHz \leq f < 500kHz |
|-----------------|-----------------------|-----------------------|-------------------------|--------------------------|
| 系数 Coefficient | 0.05 | 0.30 | 0.70 | 1.00 |

◆ 尺寸与个技术参数一览表 Standard Ratings

| Rated voltage (V) | Rated capacitance (μ F) | Case size Φ D×L(mm) | ESR(m Ω) at 20°C, 100 KHz | Leakage Current (μ A) | Rated ripple current (mA _{rms} /105°C/100kHz) |
|-------------------|------------------------------|--------------------------|-----------------------------------|----------------------------|--|
| 2.5 | 470 | 6.3*9 | 30 | 500 | 4100 |
| | 470 | 6.3*9 | 30 | 500 | 4100 |
| | 560 | 6.3*9 | 30 | 500 | 4100 |
| | 560 | 6.3*9 | 30 | 500 | 4100 |
| | 680 | 6.3*9 | 30 | 500 | 4100 |
| | 820 | 6.3*9 | 30 | 500 | 4100 |
| 4 | 560 | 6.3*9 | 30 | 500 | 4100 |
| | 680 | 6.3*9 | 30 | 544 | 4100 |
| | 820 | 6.3*9 | 30 | 656 | 4100 |
| | 1000 | 6.3*9 | 30 | 800 | 4100 |
| | 1200 | 6.3*9 | 30 | 960 | 4100 |
| 6.3 | 220 | 5*7.5 | 45 | 500 | 2500 |
| | 220 | 6.3*7 | 35 | 500 | 3500 |
| | 330 | 6.3*7 | 35 | 500 | 3500 |
| | 330 | 6.3*7.7 | 35 | 500 | 3500 |
| | 470 | 6.3*7.7 | 35 | 592 | 3500 |
| | 560 | 6.3*7.7 | 35 | 706 | 3500 |
| | 680 | 6.3*9 | 30 | 857 | 3800 |
| | 820 | 6.3*9 | 30 | 1033 | 3800 |
| | 1000 | 8*9.8 | 25 | 1260 | 4100 |
| | 1500 | 10*12.6 | 20 | 1890 | 4800 |
| 10 | 220 | 6.3*7 | 35 | 500 | 2650 |
| | 330 | 6.3*7 | 35 | 660 | 2650 |
| | 470 | 6.3*7.7 | 35 | 940 | 2700 |
| | 560 | 6.3*9 | 35 | 1120 | 2900 |
| | 680 | 8*9.8 | 25 | 1360 | 3500 |
| | 820 | 10*10.2 | 25 | 1640 | 4100 |
| | 820 | 8*12.6 | 25 | 1640 | 4100 |
| | 1000 | 8*12.6 | 25 | 2000 | 4100 |
| | 1500 | 10*12.6 | 25 | 2000 | 4500 |
| 16 | 47 | 6.3*7 | 50 | 500 | 2100 |
| | 68 | 6.3*7 | 40 | 500 | 2100 |
| | 100 | 6.3*7 | 40 | 500 | 2100 |

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◆ 尺寸与个技术参数一览表Standard Ratings

| Rated voltage (V) | Rated capacitance (uF) | Case size ΦD×L(mm) | ESR(mΩ) at 20°C,100 KHz | Leakage Current (μA) | Rated ripple current (mArms/105°C/100kHz) |
|-------------------|------------------------|--------------------|-------------------------|----------------------|---|
| 16 | 220 | 6.3*7 | 40 | 704 | 2100 |
| | 220 | 6.3*7.7 | 40 | 704 | 2260 |
| | 220 | 8*9.8 | 35 | 704 | 2690 |
| | 330 | 6.3*7.7 | 40 | 1056 | 2260 |
| | 330 | 8*9.8 | 40 | 1056 | 2900 |
| | 330 | 8*12.6 | 30 | 1056 | 3500 |
| | 470 | 8*9.8 | 40 | 1504 | 2900 |
| | 470 | 8*12.6 | 30 | 1504 | 3500 |
| | 680 | 8*12.6 | 30 | 2176 | 3500 |
| | 820 | 8*12.6 | 30 | 2624 | 3500 |
| | 1000 | 8*12.6 | 30 | 3200 | 3500 |
| | 1500 | 10*12.6 | 30 | 4800 | 4100 |
| 25 | 47 | 6.3*7 | 60 | 500 | 1950 |
| | 100 | 5*7.5 | 70 | 500 | 1650 |
| | 100 | 6.3*7 | 50 | 500 | 1950 |
| | 100 | 6.3*9 | 50 | 500 | 2100 |
| | 220 | 6.3*9 | 50 | 1100 | 2100 |
| | 220 | 8*9.8 | 50 | 1100 | 2690 |
| | 270 | 6.3*10 | 50 | 1350 | 2400 |
| | 330 | 8*9.8 | 50 | 1650 | 2690 |
| | 470 | 8*12.6 | 45 | 2350 | 3100 |
| | 470 | 10*10.2 | 45 | 2350 | 3100 |
| | 680 | 8*12.6 | 40 | 3400 | 3100 |
| | 680 | 10*12.6 | 35 | 3400 | 3800 |
| | 820 | 10*12.6 | 35 | 4100 | 3800 |
| | 1000 | 10*12.6 | 35 | 5000 | 3800 |
| 35 | 47 | 6.3*7 | 80 | 299 | 1410 |
| | 100 | 6.3*7 | 80 | 350 | 1516 |
| | 100 | 6.3*7.7 | 80 | 350 | 1870 |
| | 100 | 6.3*9 | 80 | 350 | 1950 |
| | 100 | 8*9.8 | 50 | 350 | 2450 |
| | 150 | 6.3*10 | 70 | 525 | 2100 |
| | 220 | 8*9.8 | 50 | 770 | 2450 |
| | 220 | 8*12.6 | 50 | 770 | 2910 |
| | 330 | 8*12.6 | 50 | 1155 | 2910 |
| | 330 | 10*12.6 | 40 | 1155 | 3640 |
| | 470 | 10*12.6 | 40 | 1155 | 3640 |

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◆ 尺寸与个技术参数一览表Standard Ratings

| Rated voltage (V) | Rated capacitance (uF) | Case size ΦD×L(mm) | ESR(mΩ) at 20°C,100 KHz | Leakage Current (μA) | Rated ripple current (mArms/105°C/100kHz) |
|-------------------|------------------------|--------------------|-------------------------|----------------------|---|
| 50 | 10 | 5*9 | 100 | 299 | 550 |
| | 22 | 6.3*9 | 100 | 299 | 850 |
| | 33 | 6.3*9 | 100 | 299 | 850 |
| | 47 | 6.3*9 | 80 | 299 | 920 |
| | 47 | 8*9.8 | 60 | 299 | 1200 |
| | 47 | 8*12.6 | 60 | 299 | 1500 |
| | 100 | 8*9.8 | 60 | 500 | 1320 |
| | 100 | 8*12.6 | 60 | 500 | 1550 |
| | 100 | 10*12.6 | 55 | 500 | 2100 |
| | 150 | 8*12.6 | 60 | 750 | 1550 |
| | 220 | 10*12.6 | 55 | 1100 | 2100 |
| 63 | 10 | 6.3*9 | 110 | 299 | 750 |
| | 22 | 6.3*9 | 110 | 299 | 750 |
| | 33 | 6.3*9 | 100 | 299 | 820 |
| | 33 | 8*9.8 | 60 | 299 | 1100 |
| | 47 | 8*9.8 | 60 | 299 | 1100 |
| | 47 | 8*12.6 | 60 | 299 | 1300 |
| | 82 | 8*12.6 | 60 | 517 | 1550 |
| | 100 | 8*12.6 | 60 | 630 | 1550 |
| | 100 | 10*12.6 | 55 | 630 | 1800 |
| | 150 | 10*12.6 | 55 | 945 | 1800 |
| | 80 | 10 | 6.3*9 | 120 | 299 |
| 22 | | 6.3*9 | 120 | 299 | 600 |
| 22 | | 8*9.8 | 70 | 299 | 950 |
| 33 | | 8*9.8 | 70 | 299 | 950 |
| 33 | | 8*12.6 | 70 | 299 | 1300 |
| 47 | | 8*12.6 | 70 | 376 | 1300 |
| 56 | | 8*12.6 | 70 | 448 | 1400 |
| 68 | | 10*12.6 | 50 | 544 | 1750 |
| 100 | | 10*12.6 | 50 | 800 | 1750 |
| 100 | | 10 | 6.3*9 | 120 | 299 |
| | 22 | 8*9.8 | 80 | 299 | 950 |
| | 22 | 8*12.6 | 70 | 299 | 1300 |
| | 33 | 8*12.6 | 70 | 330 | 1300 |
| | 47 | 10*12.6 | 50 | 470 | 1700 |
| | 68 | 10*12.6 | 50 | 680 | 1750 |

Packaging Quantity 包裝數量

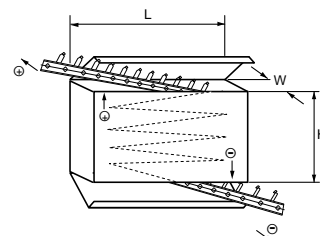
- For Chip Type Conductive Polymer Aluminum Solid Electrolytic Capacitors & Chip Type Conductive Polymer Hybrid Aluminum Electrolytic Capacitors
適用於貼片式導電性高分子固態鋁電解電容器及貼片式導電性高分子混合型鋁電解電容器

| Case Size ∅D × L (mm) 尺寸 | Quantity/Reel (pcs) 數量/卷 (個) | Reels/Box 卷盤/箱 | Quantity/Carton (pcs) 數量/外箱 (個) |
|--------------------------------|------------------------------------|-------------------|---------------------------------------|
| 4 × 5.5 | 2,000* | 12 | 24,000 |
| 5 × 5.5~8 | 1,000* | 12 | 12,000 |
| 5 × 9 | 750* | 12 | 9,000 |
| 6.3 × 5.5~8 | 1,000* | 10 | 10,000 |
| 6.3 × 9~9.5 | 750* | 10 | 7,500 |
| 8 × 6.7~7.7 | 1,000* | 7 | 7,000 |
| 8 × 8~12 | 500* | 7 | 3,500 |
| 10 × 8~13 | 450* | 8 | 3,600 |

■ Taping Type (Ammo pack) 編帶品 (折疊式包裝)

- For Conductive Polymer Aluminum Solid Electrolytic Capacitors & Conductive Polymer Hybrid Aluminum Electrolytic Capacitors
適用於導電性高分子固態鋁電解電容器及導電性高分子混合型鋁電解電容器

| Type 類型 | Diameter (mm) 直徑 | In-box Size 內盒尺寸 | | | Carton Box Size 外箱尺寸 | | | Quantity/In-box (pcs) 數量/內盒 (個) | Quantity/Carton (pcs) 數量/外箱 (個) |
|------------|------------------------|---------------------|--------|--------|-------------------------|--------|--------|------------------------------------|------------------------------------|
| | | L (mm) | H (mm) | W (mm) | L (mm) | H (mm) | W (mm) | | |
| Type 類型 | ∅5 | 337 | 234 | 50 | 490 | 350 | 280 | 2,000* | 20,000 |
| | ∅6.3 | 340 | 300 | 53 | 360 | 325 | 300 | 2,000* | 10,000 |
| | ∅8 | 320 | 240 | 45 | 520 | 340 | 225 | 1,000* | 10,000 |
| | ∅10 | 325 | 195 | 45 | 410 | 340 | 255 | 500* | 4,000 |



■ Bulk Type 散裝品

- For Conductive Polymer Aluminum Solid Electrolytic Capacitors & Conductive Polymer Hybrid Aluminum Electrolytic Capacitors
適用於導電性高分子固態鋁電解電容器及導電性高分子混合型鋁電解電容器

| Type 類型 | Case Size ∅D × L (mm) 尺寸 | Vinyl Bag Quantity 膠袋數量 | | Small Box Quantity 內箱數量 | | | | Carton Box Quantity 外箱數量 | | | Small Box Size 內箱尺寸 | | | Carton Box Size 外箱尺寸 | | | |
|-------------------------|--------------------------------|----------------------------|----------------------------------|------------------------------|----------------------------------|-----------------------|----------------------------------|-----------------------------------|----------------------------------|------------------------|----------------------------------|--------|--------|-------------------------|--------|--------|--------|
| | | pcs/Bag 個/膠袋 | | Vinyl Bag/Small Box 膠袋/內箱 | | pcs/Small Box 個/內箱 | | Small Box/ Carton Box 內箱/外箱 | | pcs/Carton Box 個/外箱 | | L (mm) | H (mm) | W (mm) | L (mm) | H (mm) | W (mm) |
| | | Long Lead 長腳 | Lead Cutting/Forming 剪腳/成型 | Long Lead 長腳 | Lead Cutting/Forming 剪腳/成型 | Long Lead 長腳 | Lead Cutting/Forming 剪腳/成型 | Long Lead 長腳 | Lead Cutting/Forming 剪腳/成型 | Long Lead 長腳 | Lead Cutting/Forming 剪腳/成型 | | | | | | |
| Radial Lead Type 直插式 | 5 × 7~12 | 1,000* | 1,000* | 8 | 16 | 8,000 | 16,000 | 4 | 32,000 | 64,000 | 310 | 140 | 200 | 420 | 220 | 295 | |
| | 6.3 × 6~9 | 1,000* | 1,000* | 8 | 8 | 8,000 | 8,000 | | 32,000 | 32,000 | | | | | | | |
| | 6.3 × 10.5~12 | 500* | 1,000* | 8 | 8 | 4,000 | 8,000 | | 16,000 | 32,000 | | | | | | | |
| | 8 × 7~9 | 500* | 1,000* | 8 | 8 | 4,000 | 8,000 | | 16,000 | 32,000 | | | | | | | |
| | 8 × 11~16 | 500* | 500* | 8 | 8 | 4,000 | 4,000 | | 16,000 | 16,000 | | | | | | | |
| | 10 × 8~13 | 250* | 500* | 8 | 8 | 2,000 | 4,000 | | 8,000 | 16,000 | | | | | | | |
| | 10 × 16~21 | 200* | 400* | 8 | 8 | 1,600 | 3,200 | | 6,400 | 12,800 | | | | | | | |

* Minimum package quantity *最小包裝數量

- There are some differences between actual package quantity and above list. Please confirm before you order.
- Please order by minimum package quantity.
- 以上包裝標準可能會與實際的包裝數量有所不同，請在訂購前確認。
- 請以最小包裝數量訂購。

Note: All design and specifications are for reference only and is 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。