

HP Series

Lug/Snap-in Terminal Type (插入/自立型), Wide Temperature(宽温度)

FEATURES 特点

- 1. Highly reliable capacitors that withstand under high ripple current.
- 2. Two or three dimensions with same ratings.
- 3. Aluminum case designed explosion-proof vent.
- 4. Best for switching power supplies.

SPECIFICATIONS 规格表

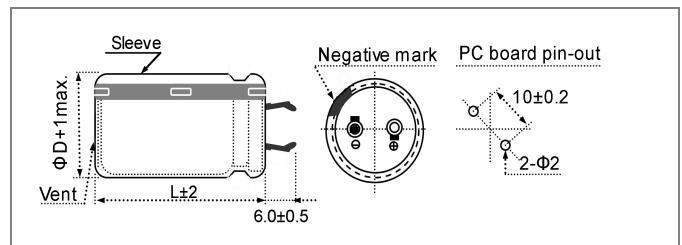
| Item 项目 | Performance Characteristics 特性参数 | | | | | | | | | | | |
|--|---|--|---------|---------|---------|--|------------------------|--|-----|--|--|--|
| Operation Temperature Range 工作温度范围 | -40 to +105°C | | | | | -25 to +105°C | | | | | | |
| Rated Working Voltage Range 额定电压范围 | 10 to 100V | | | | | 160 to 450V | | | | | | |
| Nominal Capacitance Range 静电容量范围 | 68 to 47000 μF | | | | | | | | | | | |
| Capacitance Tolerance 静电容量允许偏差 | ±20% (120Hz 20°C) | | | | | | | | | | | |
| Leakage Current 漏电流 | LC ≤ 3√CV (μA) after 5 minutes application of rated working voltage at +20°C 施加额定工作电压充电5分钟后读数, [C: 静电容量(μF), V: 额定电压(V)] | | | | | | | | | | | |
| Dissipation Factor (tan δ) 损失角正切值 (120Hz, +20°C) | Working Voltage(V) | 10 | 16 | 25 | 35 | 50 | 63 | 80 | 100 | | | |
| | tan δ(max.) | 0.55 | 0.5 | 0.45 | 0.35 | 0.3 | 0.3 | 0.25 | 0.2 | | | |
| | Working Voltage(V) | 160~220 | 250 | 315~385 | 400~500 | | | | | | | |
| | tan δ(max) | 0.15 | 0.15 | 0.15 | 0.2 | | | | | | | |
| For capacitance value > 33000μF, add following calculated value: $\frac{(\text{rated capacitance}) - 33000\mu\text{F}}{10000\mu\text{F}} \times 0.1$ | | | | | | | | | | | | |
| Low Temperature characteristics 温度特性(阻抗比) | Impedance ratio max. at 120 Hz 阻抗比最大值 | | | | | | | | | | | |
| | Working Voltage(V) | 10 | 16 | 25 | 35 | 50 | 63 | 80 | 100 | | | |
| | Z(-25°C)/Z(+20°C) | 6 | 6 | 6 | 6 | 4 | 3 | 3 | 3 | | | |
| | Z(-40°C)/Z(+20°C) | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | | | |
| | Working Voltage(V) | 160~180 | 200~220 | 250 | 315~385 | 400 | 450 | | | | | |
| Z(-25°C)/Z(+20°C) | 8 | 8 | 8 | 8 | 8 | 8 | | | | | | |
| Z(-40°C)/Z(+20°C) | - | - | - | - | - | - | | | | | | |
| High Temperature Loading (Endurance) 高温负荷寿命(耐久性) | Test conditions 试验条件 | | | | | Post test requirements at +20°C 试验后特性应满足如下要求 | | | | | | |
| | Duration 持续时间 | 2,000 hours | | | | | Leakage current 漏电流 | ≤ Initial specified value 初始规格值 | | | | |
| | Ambient temp. 环境温度 | +105°C | | | | | Cap. Change 静电容量变化率 | within ±20% of initial measured value 测试值的±20%内 | | | | |
| | Applied voltage 施加电压 | DC voltage with maximum permissible ripple current specified at +105°C 施加直流电压与额定纹波电流(所加电压峰值[DC+AC]不超过额定工作电压) | | | | | D.F.(tan δ) 损失角正切值 | ≤ 200% of initial specified value 2倍初始规格值 | | | | |
| Before test requirement: Resumed 16 hours at normal temperature 测试前将电容在常温中放置16小时 | | | | | | | | | | | | |
| Shelf Life 高温储存寿命 | Test conditions 试验条件 | | | | | Post test requirements at +20°C 试验后特性应满足如下要求 | | | | | | |
| | Duration 持续时间 | 1,000 hours | | | | | Leakage current 漏电流 | ≤ Initial specified value 初始规格值 | | | | |
| | Ambient temp. 环境温度 | +105°C | | | | | Cap. Change 静电容量变化率 | within ±20% of initial measured value 测试值的±20%内 | | | | |
| | Applied voltage 施加电压 | (None) 无 | | | | | D.F.(tan δ) 损失角正切值 | ≤ 200% of initial specified value 2倍初始规格值 | | | | |
| ◆(Before the measurements, the capacitor shall be pretreated by applying DC working voltage for 30min, after discharged and then stored under standard atmospheric conditions for 24-48 hours) 测试前应将电容在常温中施加工作电压30分钟, 放电后在标准气压下放置24-48小时 | | | | | | | | | | | | |
| Other 其他 | JIS C-5101 (IEC 60384) | | | | | | | | | | | |

Multiplier for Ripple Current vs. Frequency 纹波电流频率修正系数

Frequency multiplying factor. If capacitors are used to filter circuits at a frequency other than 120Hz, the maximum ripple current must be multiplied by the figure shown in the table below.

| Freq.(Hz) | 60 | 120 | 1K | 10~50K |
|-----------|------|------|------|--------|
| 10~100V | 0.90 | 1.00 | 1.15 | 1.25 |
| 160~250V | 0.80 | 1.00 | 1.15 | 1.47 |
| 350~450V | 0.80 | 1.00 | 1.15 | 1.47 |

CASE SIZE TABLE 尺寸图 (Unit : mm)



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Lug/Snap-in Terminal Type (插入/自立型) , Wide Temperature(宽温度)

STANDARD RATINGS 标准品一览表

| Voltage(Code) | | 10V(1A) | | 16V(1C) | | 25V(1E) | | 35V(1V) | |
|---------------|------|-----------|------|-----------|------|-----------|------|-----------|------|
| Cap.(μF) | Code | Case Size | R.C | Case Size | R.C | Case Size | R.C | Case Size | R.C |
| 3300 | 332 | | | | | | | 20×30 | 1.94 |
| | | | | | | | | 22×25 | 1.9 |
| 3900 | 392 | | | | | 20×25 | 1.72 | 20×35 | 2.02 |
| | | | | | | | | 22×30 | 2 |
| 4700 | 472 | | | | | 20×30 | 2.04 | 20×40 | 2.21 |
| | | | | | | | | 22×35 | 2.2 |
| | | | | | | 22×25 | 2 | 25×25 | 2.2 |
| 5600 | 562 | | | 20×25 | 1.89 | 20×35 | 2.23 | 22×35 | 2.4 |
| | | | | | | 22×30 | 2.2 | 25×30 | 2.4 |
| 6800 | 682 | 20×25 | 1.41 | 20×30 | 2.25 | 20×40 | 2.72 | 22×40 | 2.6 |
| | | | | | | 22×30 | 2.4 | 25×35 | 2.6 |
| | | | | | | 22×25 | 2.2 | 25×25 | 2.4 |
| 8200 | 822 | 20×30 | 1.67 | 20×35 | 2.43 | 22×35 | 2.7 | 22×50 | 2.9 |
| | | | | | | 25×30 | 2.7 | 25×40 | 2.9 |
| | | | | | | 22×30 | 2.4 | 30×25 | 2.7 |
| 10000 | 103 | 20×30 | 1.88 | 20×40 | 2.79 | 22×40 | 3 | 25×45 | 3.2 |
| | | | | | | 22×30 | 2.6 | | |
| | | | | | | 22×25 | 1.8 | 25×25 | 2.6 |
| 12000 | 123 | 20×35 | 2.23 | 22×35 | 2.9 | 22×50 | 3.2 | 25×50 | 3.5 |
| | | 22×30 | 2.2 | 25×30 | 2.9 | 25×40 | 3.2 | 30×40 | 3.5 |
| | | 25×25 | 2.2 | 30×25 | 2.9 | 30×30 | 3.2 | 35×30 | 3.5 |
| 15000 | 153 | 20×40 | 2.31 | 22×40 | 3.2 | 25×45 | 3.6 | 30×45 | 3.9 |
| | | 22×35 | 2.3 | 25×35 | 3.2 | 30×35 | 3.6 | | |
| | | 25×25 | 2.3 | 30×30 | 3.2 | 35×30 | 3.6 | 35×35 | 3.9 |
| 18000 | 183 | 22×40 | 2.52 | 22×45 | 3.5 | 30×40 | 3.9 | 35×40 | 4.51 |
| | | 25×30 | 2.4 | 25×40 | 3.5 | | | | |
| | | 30×25 | 2.49 | 30×30 | 3.5 | 35×35 | 3.9 | | |
| 22000 | 223 | 22×45 | 2.6 | 25×45 | 3.8 | 30×45 | 4.3 | 35×45 | 5.24 |
| | | 25×35 | 2.6 | 30×35 | 3.8 | | | | |
| | | 30×25 | 2.6 | 35×30 | 3.8 | 35×35 | 4.3 | | |
| 33000 | 333 | 25×45 | 3.4 | 30×45 | 4.7 | 35×50 | 5.5 | | |
| | | 30×35 | 3.4 | | | | | | |
| | | 35×30 | 3.4 | 35×35 | 4.7 | | | | |
| 39000 | 393 | 30×40 | 3.79 | 30×50 | 5.1 | | | | |
| | | 35×30 | 3.7 | 35×40 | 5.1 | | | | |
| 47000 | 473 | 30×45 | 4.26 | 35×45 | 5.5 | | | | |
| | | 35×35 | 4.2 | | | | | | |

Maximum Allowable Ripple Current (A rms) at 105°C 120Hz

Case Size ΦD xL(mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately

HP Series

Lug/Snap-in Terminal Type (插入/自立型) , Wide Temperature(宽温度)

STANDARD RATINGS 标准品一览表

| Voltage(Code) | | 50V(1H) | | 63V(1J) | | 80V(1K) | | 100V(2A) | |
|----------------|------|-----------|------|-----------|------|-----------|------|-----------|------|
| Cap.(μ F) | Code | Case Size | R.C | Case Size | R.C | Case Size | R.C | Case Size | R.C |
| 680 | 681 | | | | | | | 20×30 | 1.15 |
| | | | | | | | | 22×25 | 1.09 |
| 820 | 821 | | | | | 20×25 | 1.04 | 20×35 | 1.31 |
| | | | | | | | | 22×30 | 1.4 |
| 1000 | 102 | | | 20×25 | 1.21 | 20×30 | 1.24 | 20×35 | 1.43 |
| | | | | | | 22×25 | 1.19 | 22×30 | 1.47 |
| | | | | | | | | 25×25 | 1.45 |
| 1200 | 122 | | | 20×30 | 1.43 | 20×35 | 1.43 | 20×40 | 1.61 |
| | | | | 22×25 | 1.4 | 22×30 | 1.5 | 22×35 | 1.69 |
| | | | | | | | | 25×30 | 1.68 |
| 1500 | 152 | 20×25 | 1.29 | 20×35 | 1.52 | 20×35 | 1.57 | 22×40 | 1.97 |
| | | | | 22×30 | 1.5 | 22×30 | 1.59 | 25×35 | 1.98 |
| | | | | | | 25×25 | 1.59 | 30×25 | 1.95 |
| 1800 | 182 | 20×30 | 1.53 | 20×35 | 1.72 | 20×40 | 1.77 | 22×45 | 2.23 |
| | | 22×25 | 1.5 | 22×30 | 1.7 | 22×35 | 1.79 | 25×40 | 2.2 |
| | | | | 25×25 | 1.7 | 25×30 | 1.71 | 30×30 | 2.2 |
| 2200 | 222 | 20×35 | 1.72 | 20×40 | 2.01 | 22×40 | 2.03 | 25×45 | 2.53 |
| | | 22×30 | 1.7 | 22×30 | 1.87 | 25×35 | 2.1 | 30×35 | 2.55 |
| | | | | 25×30 | 1 | 30×25 | 1.98 | 35×30 | 2.6 |
| 3300 | 332 | 20×40 | 2.01 | 22×45 | 2.6 | 25×45 | 2.64 | 30×45 | 3.3 |
| | | 22×35 | 2 | 25×35 | 2.39 | 30×35 | 2.61 | 35×35 | 3.25 |
| | | 25×30 | 2 | 30×30 | 2.5 | 25×30 | 2.6 | | |
| 3900 | 392 | 22×40 | 2.23 | 25×40 | 2.57 | 25×50 | 2.92 | 30×50 | 3.6 |
| | | 25×30 | 2.2 | 30×35 | 2.7 | 30×40 | 2.82 | 35×40 | 3.67 |
| | | 30×25 | 2.2 | | | 35×30 | 2.97 | | |
| 4700 | 472 | 22×45 | 2.5 | 25×50 | 3 | 30×45 | 3.34 | 35×45 | 3.8 |
| | | 25×35 | 2.43 | 30×40 | 3 | 35×35 | 3.38 | | |
| | | 30×30 | 2.5 | 35×30 | 3 | | | | |
| 6800 | 682 | 25×45 | 3.3 | 30×50 | 3.86 | 35×45 | 3.9 | | |
| | | 30×35 | 3.3 | 35×40 | 3.84 | | | | |
| | | 35×30 | 3.3 | | | | | | |
| 8200 | 822 | 30×40 | 3.71 | 35×45 | 4.43 | 35×50 | 4.2 | | |
| | | 35×35 | 3.85 | | | | | | |
| 10000 | 103 | 30×45 | 4.3 | 35×50 | 5.11 | | | | |
| | | 35×40 | 4.49 | | | | | | |
| 12000 | 123 | 35×45 | 4.56 | | | | | | |
| 15000 | 153 | 35×50 | 4.8 | | | | | | |

Maximum Allowable Ripple Current (A rms) at 105°C 120Hz

Case Size Φ D xL(mm)

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HP Series

Lug/Snap-in Terminal Type (插入/自立型) , Wide Temperature(宽温度)

STANDARD RATINGS 标准品一览表

| Voltage(Code) | | 160V(2C) | | 200V(2D) | | 220V(2N) | |
|----------------|------|-----------|------|-----------|------|-----------|------|
| Cap.(μ F) | Code | Case Size | R.C | Case Size | R.C | Case Size | R.C |
| 180 | 181 | | | 22×30 | 1.00 | 20×25 | 0.90 |
| 220 | 221 | | | 20×25 | 1.00 | 20×30 | 1.00 |
| | | | | | | 22×25 | 1.00 |
| 330 | 331 | 20×30 | 1.20 | 20×35 | 1.20 | 20×40 | 1.25 |
| | | | | 22×30 | 1.25 | 22×35 | 1.25 |
| | | 22×25 | 1.20 | 25×25 | 1.25 | 25×25 | 1.25 |
| 390 | 391 | 20×35 | 1.42 | 20×40 | 1.31 | 20×45 | 1.40 |
| | | | | 22×30 | 1.35 | 22×35 | 1.40 |
| | | 25×25 | 1.35 | 25×30 | 1.40 | | |
| 470 | 471 | 20×40 | 1.34 | 22×40 | 1.50 | 22×40 | 1.51 |
| | | 22×30 | 1.55 | 25×30 | 1.50 | 25×30 | 1.44 |
| | | 25×25 | 1.55 | 30×25 | 1.50 | 30×25 | 1.50 |
| 680 | 681 | 22×40 | 1.82 | 22×45 | 1.78 | 25×40 | 1.84 |
| | | 25×35 | 1.85 | 25×35 | 1.72 | 30×35 | 1.93 |
| | | 30×25 | 1.82 | 30×30 | 1.78 | 35×30 | 1.89 |
| 820 | 821 | 22×45 | 2.04 | 25×40 | 1.99 | 25×45 | 2.08 |
| | | 25×35 | 2.04 | 30×35 | 2.04 | 30×40 | 2.19 |
| | | 30×30 | 2.04 | 35×25 | 2.04 | 35×30 | 2.16 |
| 1000 | 102 | 25×45 | 2.40 | 25×50 | 2.42 | 30×45 | 2.50 |
| | | | | 30×35 | 2.30 | | |
| | | 30×30 | 2.25 | 35×30 | 2.30 | 35×35 | 2.44 |
| 1200 | 122 | 25×50 | 2.62 | 30×40 | 2.65 | 35×40 | 2.79 |
| | | 30×35 | 2.49 | | | | |
| | | 35×30 | 2.49 | 35×35 | 2.65 | | |
| 1500 | 152 | 30×40 | 2.84 | 35×40 | 3.08 | 35×45 | 3.22 |
| | | 35×35 | 2.84 | | | | |
| 1800 | 182 | 30×50 | 3.32 | 35×45 | 3.48 | | |
| | | 35×35 | 3.00 | | | | |
| 2200 | 222 | 35×45 | 3.50 | 35×40 | 3.55 | | |

Maximum Allowable Ripple Current (A rms) at 105°C 120Hz

Case Size Φ D xL(mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately

HP Series

Lug/Snap-in Terminal Type (插入/自立型) , Wide Temperature(宽温度)

STANDARD RATINGS 标准品一览表

| Voltage(Code) | | 250V (2E) | | 315V(2F) | | 350V(2V) | |
|----------------|------|-----------|------|-----------|------|-----------|------|
| Cap.(μ F) | Code | Case Size | R.C | Case Size | R.C | Case Size | R.C |
| 68 | 068 | | | | | 20×25 | 0.47 |
| 82 | 082 | | | 20×25 | 0.64 | 20×30 | 0.54 |
| 100 | 101 | | | 20×30 | 0.69 | 20×30 | 0.60 |
| | | | | | | 22×25 | 0.69 |
| 120 | 121 | | | 20×30 | 0.75 | 20×35 | 0.68 |
| | | | | 22×25 | 0.75 | 22×25 | 0.70 |
| 150 | 151 | 20×25 | 0.79 | 20×35 | 0.82 | 20×40 | 0.78 |
| | | | | 22×30 | 0.82 | | |
| | | | | 25×25 | 0.82 | | |
| 180 | 181 | 20×30 | 0.9 | 20×40 | 0.90 | 22×35 | 0.87 |
| | | | | 22×25 | 0.88 | 22×30 | 0.86 |
| | | | | 25×25 | 0.86 | 30×25 | 0.90 |
| 220 | 221 | 20×35 | 1 | 22×35 | 0.98 | 22×40 | 1.00 |
| | | | | 25×30 | 1.04 | 25×35 | 1.04 |
| | | 22×25 | 1 | 30×25 | 1.04 | 30×30 | 1.02 |
| 330 | 331 | 22×35 | 1.3 | 22×45 | 1.27 | 25×45 | 1.29 |
| | | 25×30 | 1.3 | 25×40 | 1.33 | 30×35 | 1.34 |
| | | 30×25 | 1.35 | 30×30 | 1.33 | 35×30 | 1.22 |
| 390 | 391 | 22×40 | 1.49 | 25×40 | 1.40 | 25×50 | 1.51 |
| | | 25×35 | 1.49 | 30×35 | 1.47 | | |
| | | 30×25 | 1.49 | 35×30 | 1.47 | 30×35 | 1.43 |
| | | | | 22×45 | 1.65 | 30×40 | 1.70 |
| | | 25×40 | 1.65 | | | | |
| 470 | 471 | 30×30 | 1.65 | 35×30 | 1.70 | 35×35 | 1.69 |
| | | | | | | | |
| | | | | 25×50 | 2.03 | 35×40 | 2.17 |
| | | 30×35 | 2.00 | | | | |
| | | 35×30 | 2.00 | | | | |
| 820 | 827 | 30×40 | 2.30 | 35×45 | 2.20 | | |
| | | 35×35 | 2.30 | | | | |
| 1000 | 108 | 30×50 | 2.70 | | | | |
| | | 35×40 | 2.69 | | | | |
| 1200 | 128 | 35×45 | 3.09 | | | | |

Maximum Allowable Ripple Current (A rms) at 105°C 120Hz

Case Size Φ D xL(mm)

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HP Series

Lug/Snap-in Terminal Type (插入/自立型) , Wide Temperature(宽温度)

STANDARD RATINGS 标准品一览表

| Voltage(Code) | | 400V(2G) | | 420V(2M) | | 450V(2W) | |
|----------------|------|-----------|------|-----------|------|-----------|------|
| Cap.(μ F) | Code | Case Size | R.C | Case Size | R.C | Case Size | R.C |
| 100 | 101 | 20×35 | 0.70 | 20×35 | 0.70 | 22×30 | 0.65 |
| | | 22×30 | 0.70 | 22×30 | 0.70 | 25×25 | 0.64 |
| | | 25×25 | 0.70 | 25×25 | 0.70 | 30×25 | 0.72 |
| 120 | 121 | 20×40 | 0.75 | 20×40 | 0.75 | 22×40 | 0.8 |
| | | | | 22×30 | 0.70 | 25×30 | 0.8 |
| | | | | 30×25 | 0.78 | 30×25 | 0.8 |
| 150 | 151 | 22×40 | 0.88 | 22×40 | 0.88 | 22×40 | 0.84 |
| | | 25×25 | 0.79 | 25×35 | 0.88 | 25×30 | 0.86 |
| | | 25×30 | 0.83 | 30×25 | 0.88 | 25×35 | 0.88 |
| | | 30×25 | 0.88 | | | 30×30 | 0.88 |
| 180 | 181 | 22×40 | 0.93 | 22×40 | 0.9 | 25×40 | 1.00 |
| | | 25×40 | 0.98 | 25×35 | 0.92 | | |
| | | 30×30 | 0.98 | 30×30 | 0.96 | 30×30 | 1.00 |
| | | | | 35×25 | 0.94 | | |
| 220 | 221 | 22×45 | 1.05 | 22×45 | 1.05 | 25×45 | 1.12 |
| | | 25×45 | 1.10 | 30×30 | 1.03 | 30×30 | 1.05 |
| | | 30×30 | 1.10 | | | 30×35 | 1.12 |
| | | | | 35×25 | 1.10 | 35×30 | 1.12 |
| 270 | 271 | 25×35 | 1.20 | | | | |
| 330 | 331 | 30×45 | 1.55 | 30×45 | 1.49 | 30×45 | 1.39 |
| | | 35×30 | 1.44 | 35×30 | 1.36 | 35×40 | 1.45 |
| 390 | 391 | 30×45 | 1.60 | 30×45 | 1.60 | 35×40 | 1.55 |
| | | 35×35 | 1.60 | 35×40 | 1.66 | | |
| 470 | 471 | 35×40 | 1.90 | 35×40 | 1.81 | 35×50 | 1.85 |
| 560 | 561 | 35×45 | 2.12 | | | | |

Maximum Allowable Ripple Current (A rms) at 105℃ 120Hz

Case Size Φ D xL(mm)

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