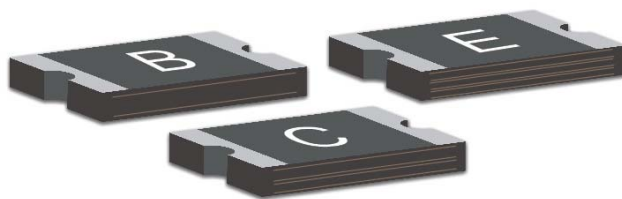


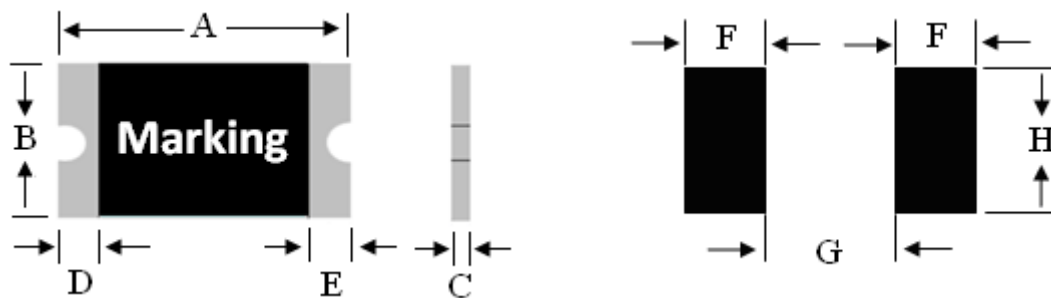
PPTC of JK-SMD 0603 (L) Series Surface-mount Devices

Features:

- ✧ RoHS Compliant & Halogen Free
- ✧ Faster tripping, 0603 Dimension, Surface mountable, Solid state
- ✧ Operating Current: 0.35A~3.0A
- ✧ Maximum Voltage: 6V
- ✧ Operating Temperature: -40°C~ 85°C
- ✧ Certification: CSA



Product Dimensions (mm)



| Part number | Marking | A | | B | | C | | D | E |
|------------------|---------|------|------|------|------|-----|-----|------|-----|
| | | Min | Max | Min | Max | Min | Max | Min | Min |
| JK-SMD-0603-035L | A | 1.45 | 1.85 | 0.65 | 1.05 | 0.3 | 0.7 | 0.15 | 0.1 |
| JK-SMD-0603-050L | A | 1.45 | 1.85 | 0.65 | 1.05 | 0.3 | 0.7 | 0.15 | 0.1 |
| JK-SMD-0603-075L | A | 1.45 | 1.85 | 0.65 | 1.05 | 0.3 | 0.7 | 0.15 | 0.1 |
| JK-SMD-0603-100L | B | 1.45 | 1.85 | 0.65 | 1.05 | 0.4 | 1.0 | 0.15 | 0.1 |
| JK-SMD-0603-125L | B | 1.45 | 1.85 | 0.65 | 1.05 | 0.4 | 1.0 | 0.15 | 0.1 |
| JK-SMD-0603-150L | C | 1.45 | 1.85 | 0.65 | 1.05 | 0.5 | 1.2 | 0.15 | 0.1 |
| JK-SMD-0603-175L | C | 1.45 | 1.85 | 0.65 | 1.05 | 0.5 | 1.2 | 0.15 | 0.1 |
| JK-SMD-0603-200L | C | 1.45 | 1.85 | 0.65 | 1.05 | 0.7 | 1.4 | 0.15 | 0.1 |
| JK-SMD-0603-260L | E | 1.45 | 1.85 | 0.65 | 1.05 | 0.7 | 1.4 | 0.15 | 0.1 |
| JK-SMD-0603-300L | E | 1.45 | 1.85 | 0.65 | 1.05 | 0.7 | 1.4 | 0.15 | 0.1 |

Recommended Solder Pad Layout Dimensions (mm)

| Device | F | G | H |
|-------------|--------------|--------------|--------------|
| | Normal Value | Normal Value | Normal Value |
| 0603 Series | 1.0 | 0.8 | 1.0 |

Electrical Characteristics

| Model | V _{MAX} (V) | I _{MAX} (A) | I _H (A) | I _T (A) | P _D (W) | Maximum Time-to-Trip | | Resistance | |
|------------------|-------------------------|-------------------------|-----------------------|-----------------------|-----------------------|----------------------|-------|-------------------|-------------------|
| | | | | | | Current | Time | R _{iMIN} | R _{lMAX} |
| | | | | | | (A) | (Sec) | (Ω) | (Ω) |
| JK-SMD-0603-035L | 6.0 | 50.0 | 0.35 | 0.70 | 0.5 | 8.0 | 0.1 | 0.15 | 1.0 |
| JK-SMD-0603-050L | 6.0 | 50.0 | 0.5 | 1.0 | 0.5 | 8.0 | 0.6 | 0.07 | 0.4 |
| JK-SMD-0603-075L | 6.0 | 50.0 | 0.75 | 1.5 | 0.5 | 8.0 | 1.0 | 0.055 | 0.25 |
| JK-SMD-0603-100L | 6.0 | 50.0 | 1.0 | 2.0 | 0.5 | 8.0 | 2.0 | 0.045 | 0.12 |
| JK-SMD-0603-125L | 6.0 | 50.0 | 1.25 | 2.5 | 0.5 | 8.0 | 3.0 | 0.035 | 0.10 |
| JK-SMD-0603-150L | 6.0 | 50.0 | 1.5 | 3.0 | 0.5 | 8.0 | 4.0 | 0.025 | 0.08 |
| JK-SMD-0603-175L | 6.0 | 50.0 | 1.75 | 3.5 | 0.5 | 8.0 | 5.0 | 0.015 | 0.07 |
| JK-SMD-0603-200L | 6.0 | 50.0 | 2.0 | 4.0 | 0.5 | 8.0 | 5.0 | 0.012 | 0.06 |
| JK-SMD-0603-260L | 6.0 | 50.0 | 2.6 | 5.2 | 0.5 | 8.0 | 5.0 | 0.008 | 0.05 |
| JK-SMD-0603-300L | 6.0 | 50.0 | 3.0 | 6.0 | 0.5 | 8.0 | 5.0 | 0.008 | 0.04 |

Thermal Derating Chart-I_H(A)

| Model | Maximum ambient operating temperature (°C) | | | | | | | | |
|------------------|--------------------------------------------|------|------|------|------|------|------|------|------|
| | -40 | -20 | 0 | 25 | 40 | 50 | 60 | 70 | 85 |
| JK-SMD-0603-035L | 0.46 | 0.40 | 0.37 | 0.35 | 0.29 | 0.25 | 0.24 | 0.20 | 0.14 |
| JK-SMD-0603-050L | 0.66 | 0.57 | 0.53 | 0.50 | 0.41 | 0.36 | 0.34 | 0.28 | 0.21 |
| JK-SMD-0603-075L | 0.99 | 0.85 | 0.79 | 0.75 | 0.61 | 0.44 | 0.30 | 0.17 | 0.07 |
| JK-SMD-0603-100L | 1.32 | 1.14 | 1.05 | 1.00 | 0.82 | 0.73 | 0.69 | 0.56 | 0.41 |
| JK-SMD-0603-125L | 1.96 | 1.49 | 1.31 | 1.25 | 1.02 | 0.91 | 0.86 | 0.70 | 0.51 |
| JK-SMD-0603-150L | 2.35 | 1.79 | 1.58 | 1.50 | 1.22 | 1.09 | 1.03 | 0.84 | 0.62 |
| JK-SMD-0603-175L | 2.30 | 1.99 | 1.84 | 1.75 | 1.43 | 1.27 | 1.20 | 0.98 | 0.72 |
| JK-SMD-0603-200L | 2.63 | 2.27 | 2.10 | 2.00 | 1.63 | 1.45 | 1.37 | 1.12 | 0.82 |
| JK-SMD-0603-260L | 3.42 | 2.95 | 2.73 | 2.60 | 2.12 | 1.89 | 1.78 | 1.46 | 1.07 |
| JK-SMD-0603-300L | 3.95 | 3.41 | 3.15 | 3.00 | 2.45 | 2.18 | 2.06 | 1.68 | 1.23 |

Test Procedures and Requirements

| Test Item | Test Conditions | Accept/Reject Criteria |
|--------------------|-------------------------------------|---------------------------------------|
| Initial Resistance | In still air at 25°C | $R_{i_{min}} \leq R \leq R_{1_{max}}$ |
| Time to Trip | Specified current, V_{max} , 25°C | $T \leq$ Maximum Time to Trip |
| Holding Current | 30min, at I_H , 25°C | No trip |
| Trip Cycle Life | V_{max} , I_{max} , 100 cycles | No arcing or burning |
| Trip Endurance | V_{max} , 1 hour | No arcing or burning |

Physical Characteristics

| | |
|----------------------|------------------------------------------------------------------|
| Terminal Materials | Tin-Plated Nickle-copper |
| Soldering Zone | Meets EIA specification RS 186-9E and ANSI/J-STD-002 Category 3. |
| Moisture Sensitivity | Level 2a, per IPC/JEDEC J-STD 020C |

Environmental Specifications

| Test Item | Test Conditions | Resistance Change |
|--------------------|---------------------------------------------------|-------------------|
| Passive Aging | 85°C, 1000 hours | ±10% typical |
| Humidity Aging | 85°C/85%RH, 100 hours | ±5% typical |
| Thermal Shock | MIL-STD-202, Method 107G +85°C/-40°C, 20 times | -30% typical |
| Solvent Resistance | MIL-STD-202, Method 215 | No change |
| Vibration | ML-STD-883C, Test Condition A | No change |

Electrical Specifications

I_H =Hold current: Maximum current at which the device will not interrupt in 25°C still air.

I_T =Trip current: Minimum current at which the device from low resistance to high resistance in 25°C still air.

V_{MAX} =Maximum continuous voltage device can withstand without damage at rated current.

I_{MAX} =Maximum fault current device can withstand without damage at rated voltage.

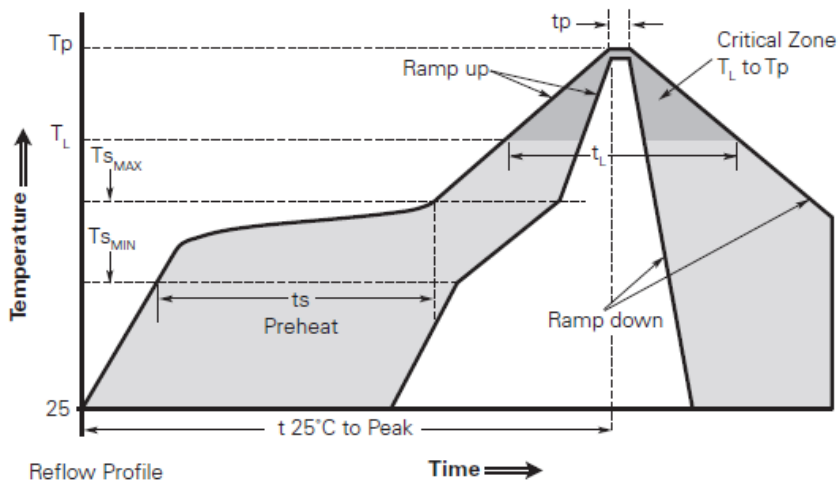
Maximum Time-to-trip: Maximum time to trip at assigned current.

P_D =Typical power dissipation: Typical amount of power dissipated from the device when in 25°C still air environment.

$R_{i_{MIN}}$ =Minimum resistance of device at 25°C prior to tripping.

$R_{1_{MAX}}$ = Maximum device resistance is measured one hour post reflow.

Solder Reflow Profiles



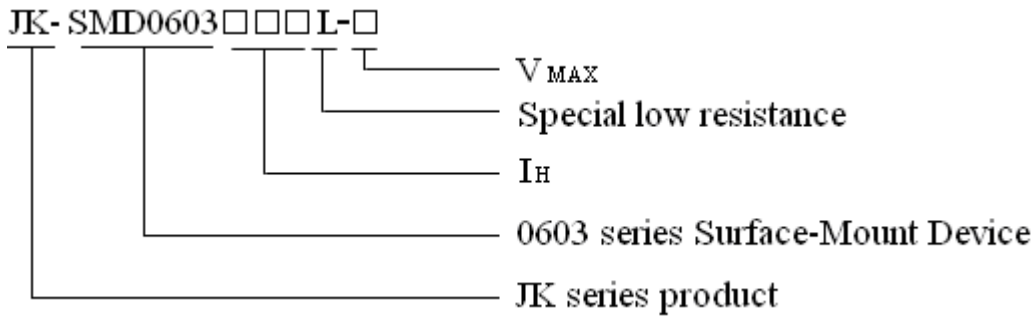
| Profile Feature | Pb-Free Assembly |
|---------------------------------------------------|------------------|
| Average ramp up rate(TsMAX to Tp) | 3°C/second max. |
| Preheat | |
| ● Temperature min.(TsMIN) | 150°C |
| ● Temperature max.(TsMAX) | 200°C |
| ● Time (TsMIN to TsMAX) | 60-120 seconds |
| Time maintained above: | |
| ● Temperature (Tl) | 217°C |
| ● Time (Tl) | 60-150 seconds |
| Peak/Classification temperature (Tp) | 260°C |
| Time within 5°C of actual peak temperature | |
| Time (Tp) | 30 seconds max. |
| Ramp down rate | 3°C/second max. |
| Time 25°C to peak temperature | 8 minutes max. |

- Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free.
- Devices are not designed to be wave soldered to the bottom side of the board.
- Recommended maximum paste thickness is 0.25mm (0.010inch).
- Devices can be cleaned using standard industry methods and solvents.

Note 1: All temperature refer to topside of the package, measured on the package body surface.

Note 2: If reflow temperature exceed the recommended profile, devices may not meet the performance requirements.

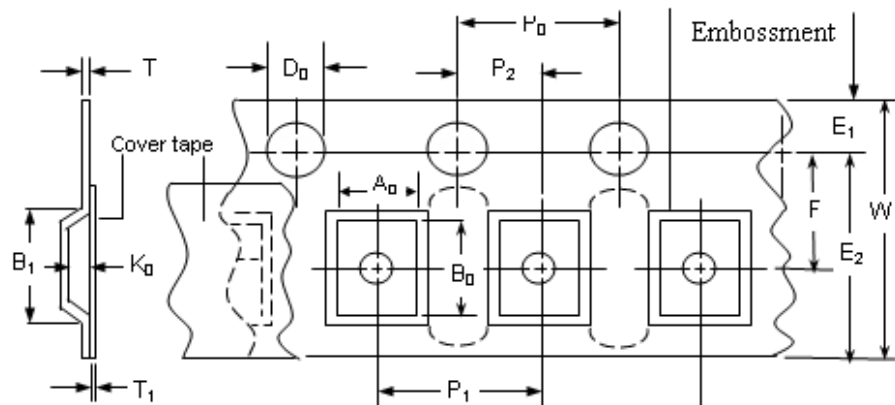
Part Numbering System



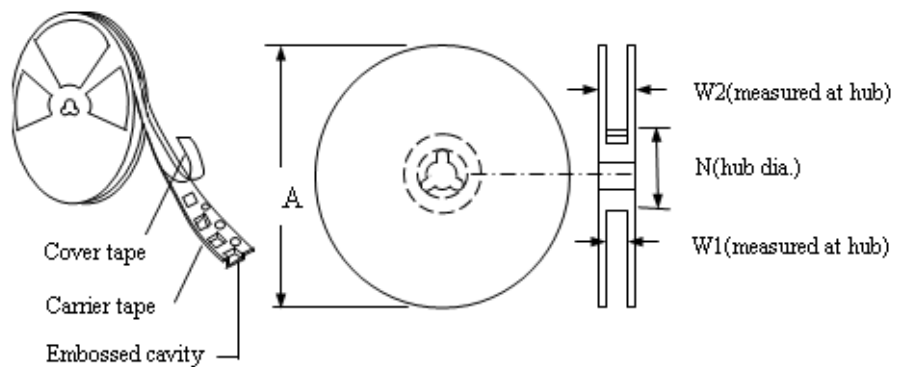
Tape Specifications and Reel Dimensions

| Covering Specifications EIA 481-1 | |
|-----------------------------------|--------------|
| W | 8.0± 0.1 |
| P ₀ | 4.0 ± 0.1 |
| P ₁ | 4.0± 0.10 |
| P ₂ | 2.0 ± 0.05 |
| A ₀ | 0.95± 0.10 |
| B ₀ | 1.85± 0.05 |
| D ₀ | 1.55± 0.05 |
| F | 3.5 ± 0.05 |
| E ₁ | 1.75 ± 0.10 |
| T | 0.20± 0.02 |
| Leader min. | 390 |
| Trailer min. | 160 |
| Reel Dimensions | |
| A | 178 ± 1 |
| N | 59 ± 1 |
| W ₁ | 8.5+1.0/-0.2 |
| W ₂ | 12.0±1 |

EIA Tape Component Dimensions



EIA Reel Dimensions



Packaging Quantity

| Model | Quantity | Model | Quantity |
|------------------|----------|------------------|----------|
| JK-SMD-0603-035L | 5000 | JK-SMD-0603-150L | 4000 |
| JK-SMD-0603-050L | 5000 | JK-SMD-0603-175L | 4000 |
| JK-SMD-0603-075L | 5000 | JK-SMD-0603-200L | 4000 |
| JK-SMD-0603-100L | 4000 | JK-SMD-0603-260L | 4000 |
| JK-SMD-0603-125L | 4000 | JK-SMD-0603-300L | 4000 |

Storage

The maximum ambient temperature shall not exceed 40°C. Storage temperatures higher than 40°C could result in the deformation of packaging materials. The maximum relative humidity recommended for storage is 70%. High humidity with high temperature can accelerate the oxidation the oxidation of the solder plating on the termination and reduce the solderability of the components. Sealed plastic bags with desiccant shall be used to reduce the oxidation of the termination and shall only be opened prior to use, the products shall not be stored in areas where harmful gases containing sulfur or chlorine are present.

Warning

- Please read this specification before using the product.
- Use PPTC beyond the maximum ratings or improper use may result in device damage, electrical arcing and flame.
- PPTC are intended for protection against occasional over current or over temperature fault conditions and should not be used when repeated fault conditions or prolonged trip events are anticipated.
- Device performance can be impacted negatively if devices are handled in a manner inconsistent with recommended electronic, thermal, and mechanical procedures for electronic components.
- Use PPTC with a large inductance in circuit will generate a circuit voltage above the rated voltage of the PPTC.
- Avoid impact PPTC device its thermal expansion like placed under pressure or installed in limited space.
- Contamination of the PPTC material with certain silicon based oils or some aggressive solvents can adversely impact the performance of the devices. PPTC can be cleaned by standard methods.
- Requests that customers comply with our recommended solder pad layouts and recommended reflow profile. Improper board layouts or reflow profile could negatively impact solderability performance of our devices.

Notes

The specification is intended to present application product and technical data to assist the user in selecting PPTC circuit production devices, However, users should independently evaluate and test the suitability of each product. Jinrui makes no warranties as to the accuracy or completeness of the information and disclaims any liability resulting from its use, Jinrui's only obligations are those in the Jinrui Standard Terms and Conditions of Sale and in no case will Jinrui be liable for any incidental, indirect, or consequential damages arising from the sale, resale, or misuse of its products. Jinrui reserves the right to change or update any information contained in this specification without notice.