



Description

R12.000 Series are the fuses set the industry standard for performance, reliability and quality. The solder-free design provides excellent on-off and temperature cycling characteristics during use and also makes our SMD fuses more heat and shock tolerant than typical subminiature fuses.

Features

- Rapid interruption of excessive current
- Compatible with reflow and wave solder
- Ceramic and glass construction
- One time positive disconnect
- Lead free and Halogen free material

Applications

- Secondary circuit protection
- Laptop, notebook, netbook
- Flat panel displays
- High definition television(HDTV)
- LCD/LED backlighting
- Computers and peripherals
- Gaming console systems
- Handheld/portable equipment
- Mobile device charges
- Automotive
- Central body control module
- Heating ventilation and air conditioning
- Doors,window lift and seat control
- Digital instrument cluster
- In-vehicle infotainment and navigation
- Electric pumps,motor control and
- Powertrain control module(PCU)/Engine
- Transimission Control Unit(TCU)

Electrical Characteristics

| Rated Current | % of Amp Rating | Opening Time |
|---------------|-----------------|-----------------|
| 250mA~30A | 100% | 4hours, min |
| 1A~3A | 200% | 1.0s - 60 s |
| 1A~5A | 250% | 5.0s max |
| 1A~5A | 300% | 0.1s - 3.0 s |
| 250mA~750mA | 350% | 5.0s max |
| 6A~30A | 350% | 5.0s max |
| 250mA~30A | 1000% | 0.2ms - 20.0 ms |

Agency information

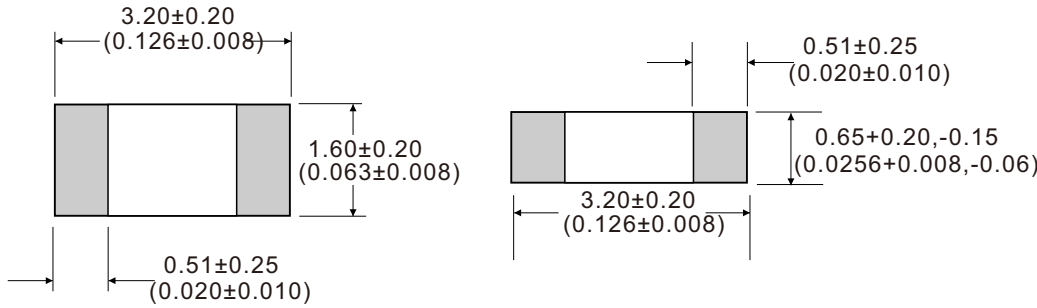
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Specifications

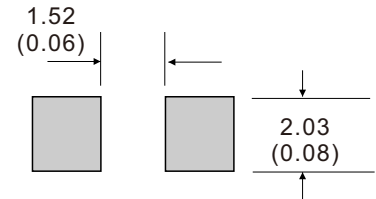
| Part No. | Rated Voltage (V) | | | Rated Current (A) | Breaking Capacity (A) | Typical Cold Resistance (mOhms) | Typical Voltage Drop (mV) | Typical Pre-Arcing I ² t (A ² Sec) | Marking | |
|---------------|-------------------|-------|-------|-------------------|-----------------------|---------------------------------|---------------------------|--|---------|-----|
| R12.000.0.25 | 125Vdc | 72Vdc | 63Vdc | 250mA | 100A@72Vdc | 100A@32Vdc | 3700 | 1350 | 0.00038 | .25 |
| R12.000.0.375 | | | | 375mA | | | 1850 | 720 | 0.00077 | E |
| R12.000.0.5 | | | | 500mA | | | 1050 | 690 | 0.0019 | B |
| R12.000.0.75 | | | | 750mA | | | 775 | 680 | 0.15 | G |
| R12.000.1 | | | | 1A | | | 485 | 550 | 0.18 | H |
| R12.000.1.5 | | | | 1.5A | | | 218 | 355 | 0.4 | K |
| R12.000.2 | | | | 2A | | | 133 | 310 | 1.1 | N |
| R12.000.2.5 | | | | 2.5A | | | 79 | 230 | 1.7 | O |
| R12.000.3 | | | | 3A | | | 49 | 185 | 2.2 | P |
| R12.000.3.5 | | | | 3.5A | | | 37 | 175 | 2.7 | R |
| R12.000.4 | | | | 4A | | | 33 | 160 | 3.2 | S |
| R12.000.4.5 | | | | 4.5A | | | 28 | 150 | 4.2 | X |
| R12.000.5 | | | | 5A | | | 22 | 135 | 6 | T |
| R12.000.6 | | | | 6A | | | 15.5 | 140 | 12 | F |
| R12.000.7 | | | | 7A | | | 11.5 | 120 | 18 | J |
| R12.000.8 | 8A | 8.0 | 100 | 18 | V | | | | | |
| R12.000.10 | 10A | 7.0 | 90 | 30 | U | | | | | |
| R12.000.12 | 12A | 5.9 | 85 | 45 | W | | | | | |
| R12.000.15 | 15A | 3.8 | 75 | 63 | Y | | | | | |
| R12.000.20 | 20A | 2.9 | 70 | 80 | Q | | | | | |
| R12.000.25 | 25A | 1.6 | 60 | 90 | 25 | | | | | |
| R12.000.30 | 30A | 1.3 | 60 | 100 | 30 | | | | | |

Dimensions

(Unit: mm/inch)



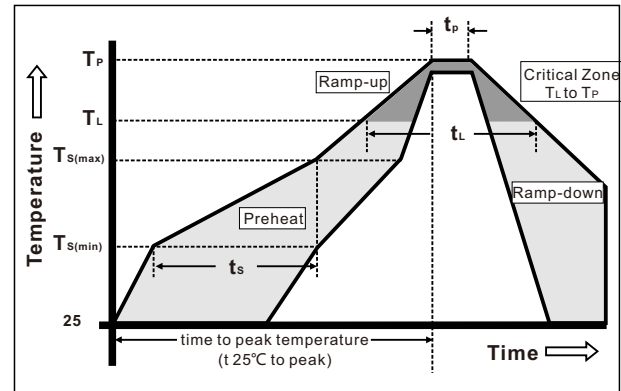
Pad layout



Installation Recommendations

1 Wave Soldering Parameters

| Reflow Condition | | Pb-free assembly |
|--|------------------------------------|------------------|
| Pre Heat | - Temperature Min ($T_{s(min)}$) | 150°C |
| | - Temperature Max ($T_{s(max)}$) | 200°C |
| | - Time (Min to Max) (t_s) | 60 – 120 seconds |
| Average Ramp-up Rate (Liquidus Temp (TL) to peak) | | 3°C/second max. |
| TS(max) to TL - Ramp-up Rate | | 5°C/second max. |
| Reflow | - Temperature (TL) (Liquidus) | 217°C |
| | - Temperature (tL) | 60 – 150 seconds |
| Peak Temperature (T_P) | | 260+0/-5°C |
| Time within 5°C of actual peak Temperature (t_p) | | 30 seconds |
| Ramp-down Rate | | 6°C/second max |
| Time 25°C to peak Temperature (T_P) | | 8 minutes max. |
| Do not exceed | | 260°C |



Solder Pot Temperature: 260°C max

Solder Dwell Time: 10 Seconds max

2 Hand-Solder Parameters

Solder Iron Temperature: 280±5°C

Heating Time: 5 Seconds min

Generally, hand-soldering is not recommended

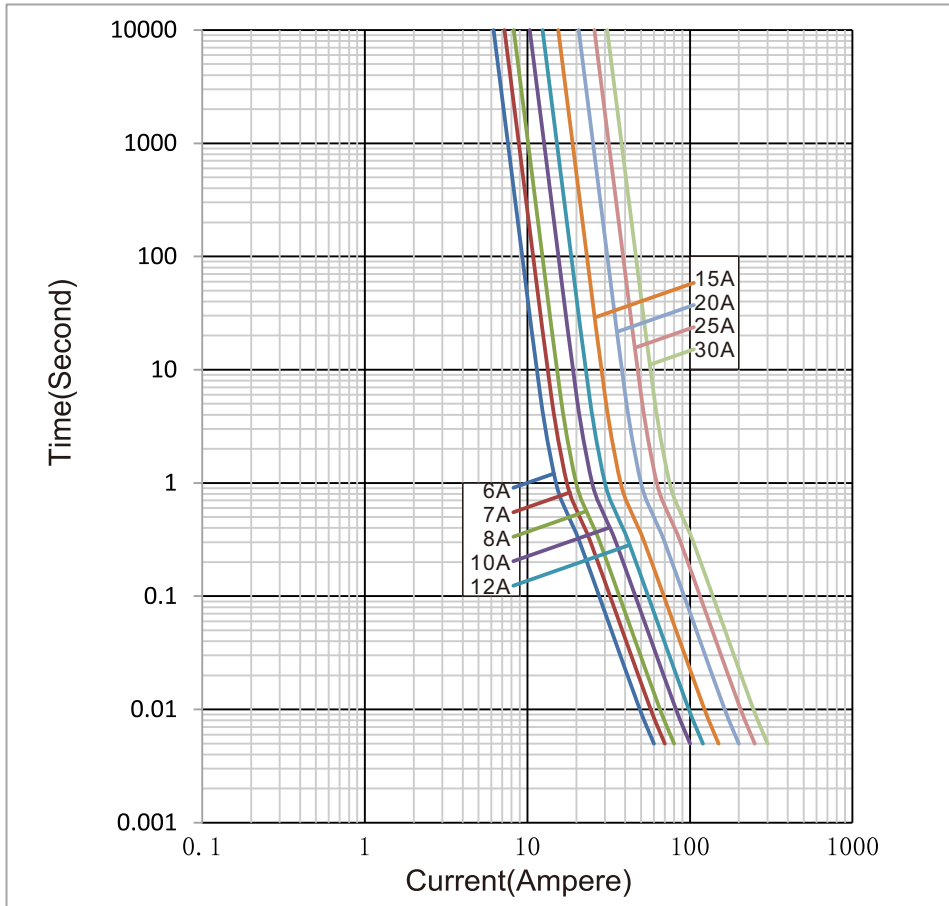
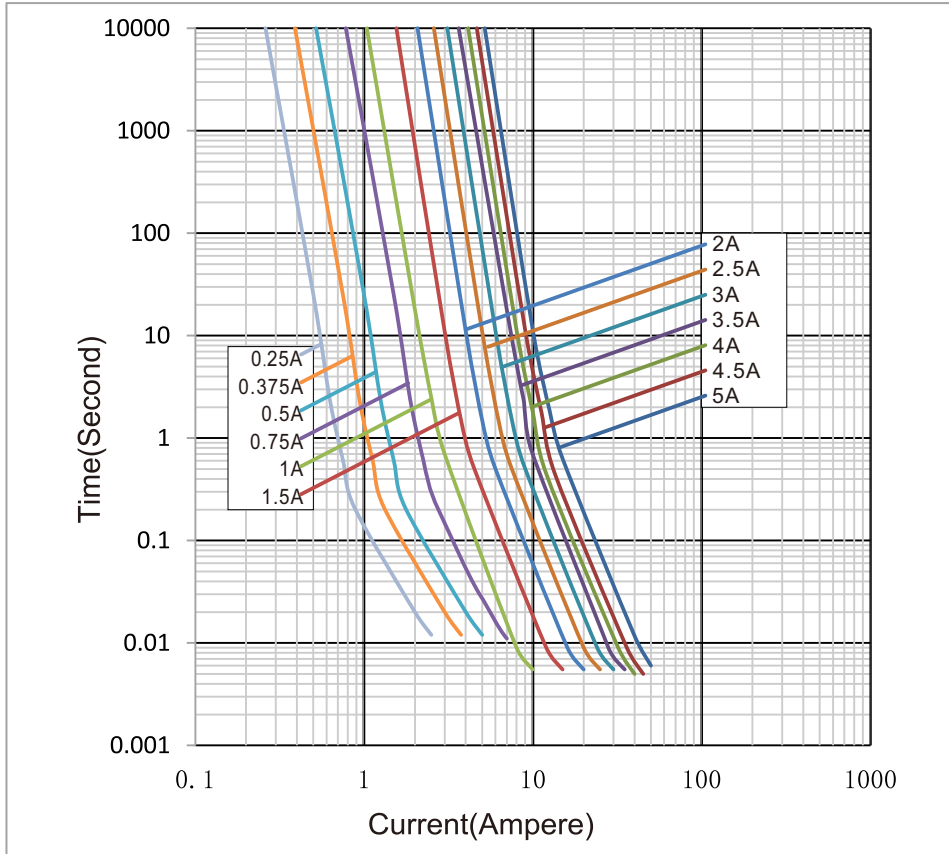
Part Numbering System



Product Characteristics

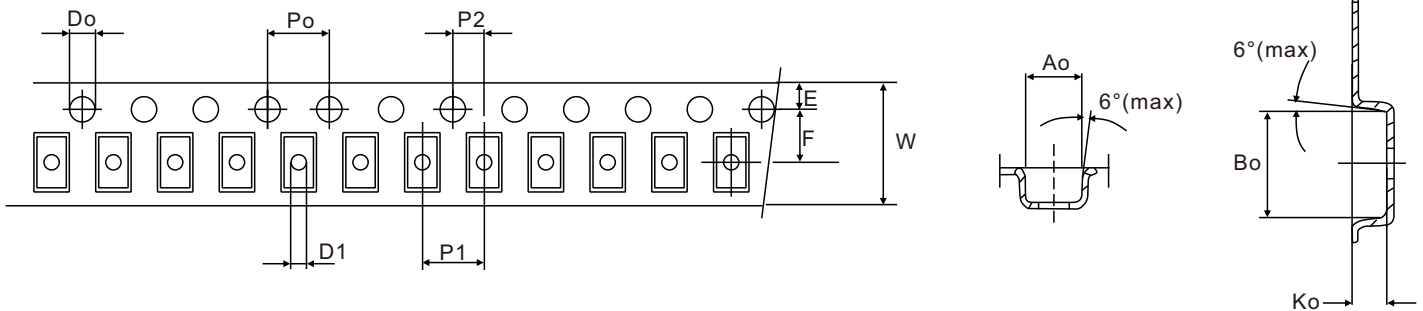
| | |
|---------------------------------------|---|
| Materials | Body: Ceramic Terminations: Silver over-plated with tin Element: Alloy(Ag,Cu,Zn) Cover Coat: Glass |
| Operating Temperature | -55°C to 125°C Consult temperature derating curve chart. |
| Thermal Shock | 300 cycles -55°C to 125°C |
| Humidity | MIL-STD-202F, Method 103B, Condition D |
| Vibration | Per MIL-STD-202F, Method 201A |
| Insulation Resistance (After Opening) | Greater than 10,000 ohms |
| Resistance to Soldering Heat | MIL-STD-202G, Method 210F, Condition D |

Time Current Curve



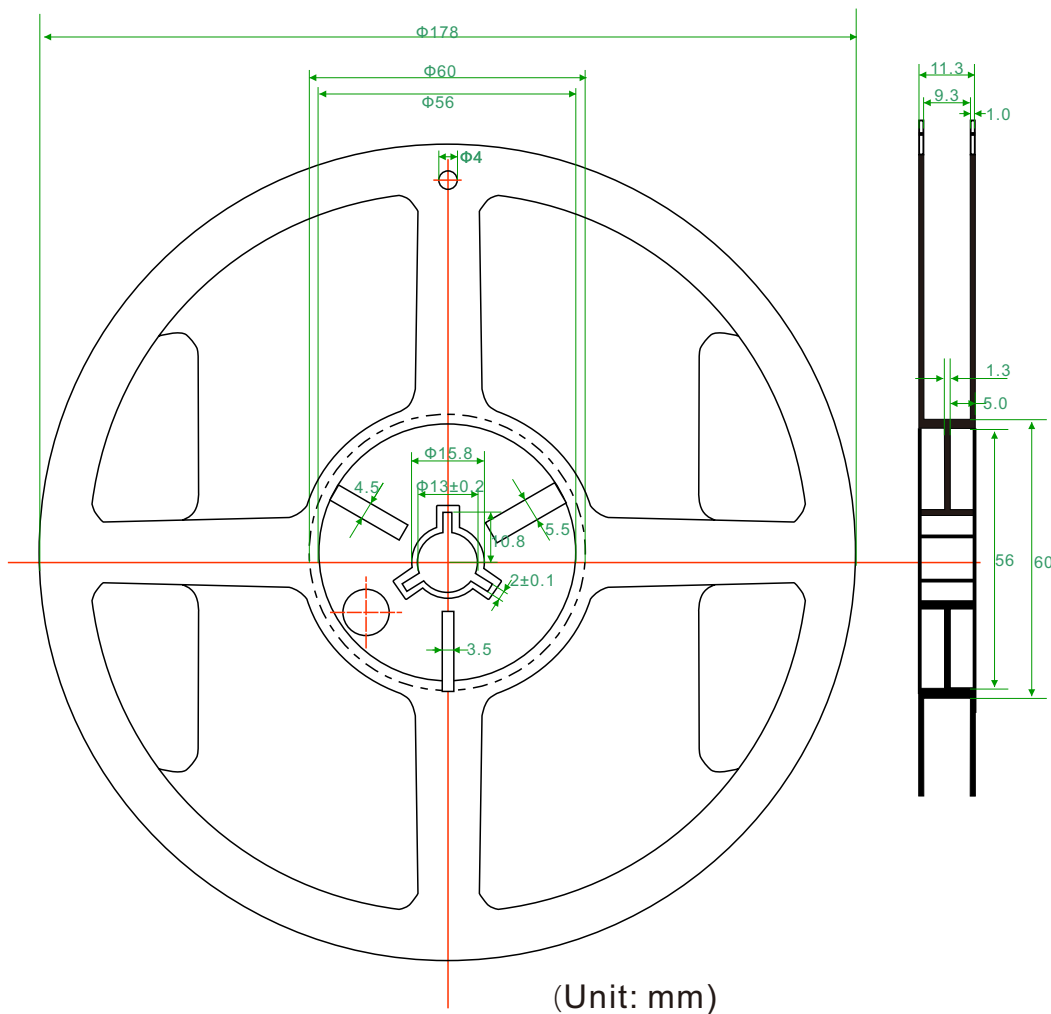
Packaging

3,000 pieces of fuses in plastic or paper taper (3000pcs)



| | | | | | | |
|--------|-----------|-----------|-----------|-----------|-----------|-----------|
| Symbol | Ao | Bo | Ko | Po | P1 | P2 |
| Spec | 1.80±0.10 | 3.50±0.10 | 1.27±0.10 | 4.00±0.10 | 4.00±0.10 | 2.00±0.10 |
| Symbol | E | F | Do | D1 | W | T |
| Spec | 1.75±0.10 | 3.50±0.10 | 1.50±0.10 | 1.00(Max) | 8.00±0.10 | 0.25±0.05 |

(Unit: mm)



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