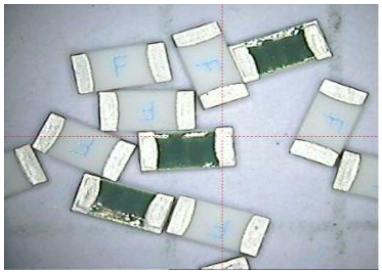
# 深圳市多迈电子有限公司 12 111 慢断系列

## Description



12 111 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.

| | Electrical Characteristics | | | | |
|---|---|---|---|---|---|
| Rated Current | 1.0In | 2.5In | 3.0In | 3.5In | 10.0In |
| 4.5A~5A | 4 hour min. | 5 sec max. | 0.1sec – 3sec | - | 0.2ms – 20ms |
| 6A~30A | 4 hour min. | - | - | 5 sec max. | 0.2ms – 10ms |

## Features

- High inrush current withstanding capability
- AEC-Q200 Automotive Grade Certified
- Compatible with reflow and wave solder
- Ceramic and glass construction
- Excellent environmental integrity
- One time positive disconnect
- Lead Free and Halogen free material

## Specifications

| Specification | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Part No. | Rated Voltage DC | | Rated Curren (A) | Breaking Capacit | Typical Cold. Resistance (mOhms) [2] | Typical Voltage Drop | Typical Pre-Arcing | Alpha Mar |
| 12 111.4.5 | 72V 63V | 32V | 4.5 | 50A | 27 | 164 | 2.65 | X |
| 12 111.5 | | | 5 | 50A | 22 | 145 | 4 | T |
| 12 111.6 | 72V 63V | 32V | 6 | 50A | 14.5 | 140 | 12 | F |
| 12 111.7 | | | 7 | 50A | 10.5 | 130 | 14 | 7 |
| 12 111.8 | 48V | 32V | 8 | 150A | 7.0 | 123 | 16 | V |
| 12 111.10 | | | 10 | 150A | 5.0 | 110 | 22 | U |
| 12 111.12 | | | 12 | 150A | 3.7 | 80 | 40 | W |
| 12 111.15 | | | 15 | 150A | 3.0 | 85 | 45 | Y |
| 12 111.20 | | | 20 | 150A | 2.0 | 80 | 50 | Q |
| 12 111.25 | 36V | 32V | 25 | 150 | 1.55 | 90 | 58 | L |
| 12 111.30 | | | 30 | 150 | 1.32 | 90 | 95 | Z |

1. DC Interrupting Rating (Measured at rated voltage, time constant of less than 50 microseconds, battery source)

2. DC Cold Resistance are measured at <10% of rated current in ambient temperature of 25℃

3.Typical Pre-arcing I2t are measured at 10In Current

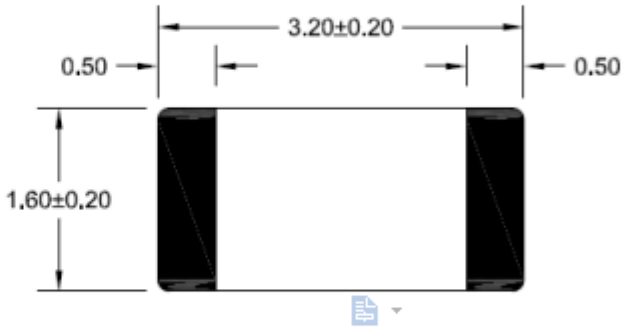
Choice fuse for surge application (USB charger etc.), make sure the $I^2t$ of fuse is 4 times than surge

Specifications are subject to change without notice. Application testing is strongly recommended.

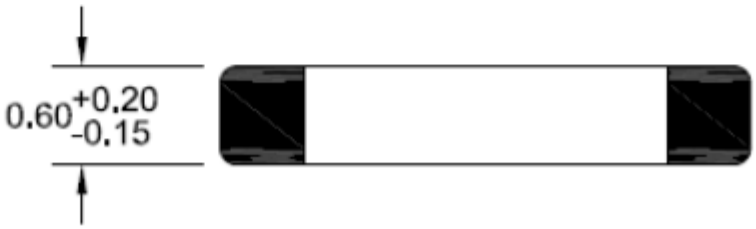
**Dimension**

Drawing not to scale (Unit: mm)

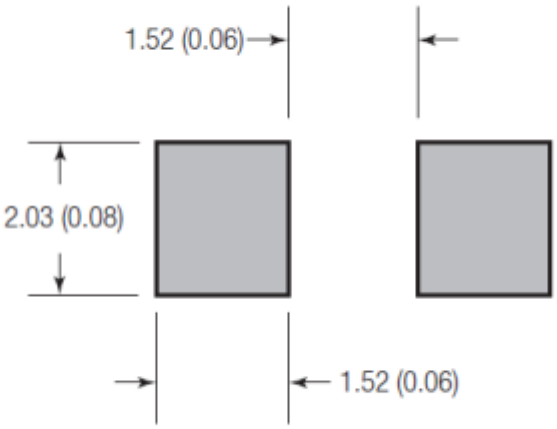
Top view



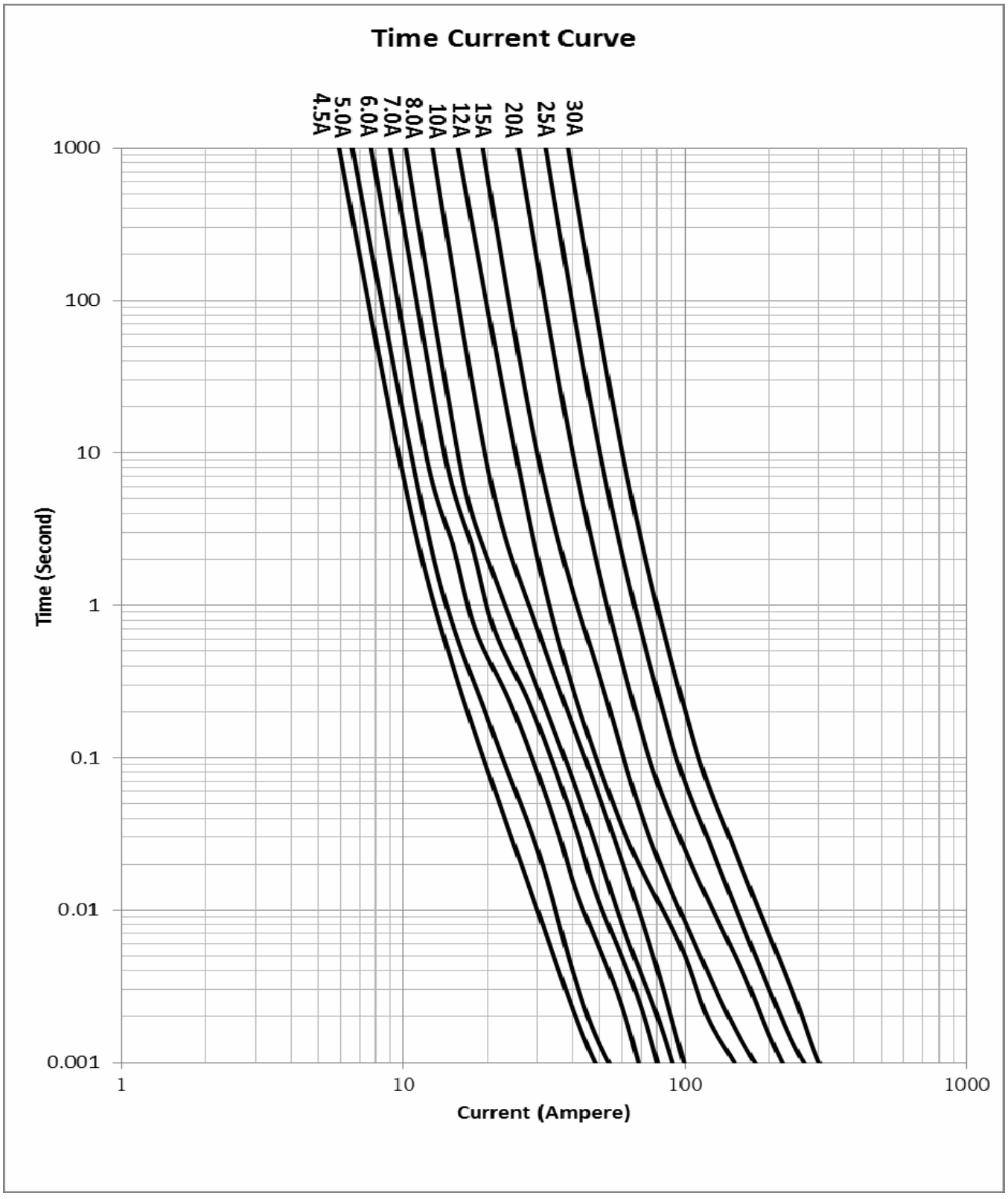

Side view




**Recommended land pattern**



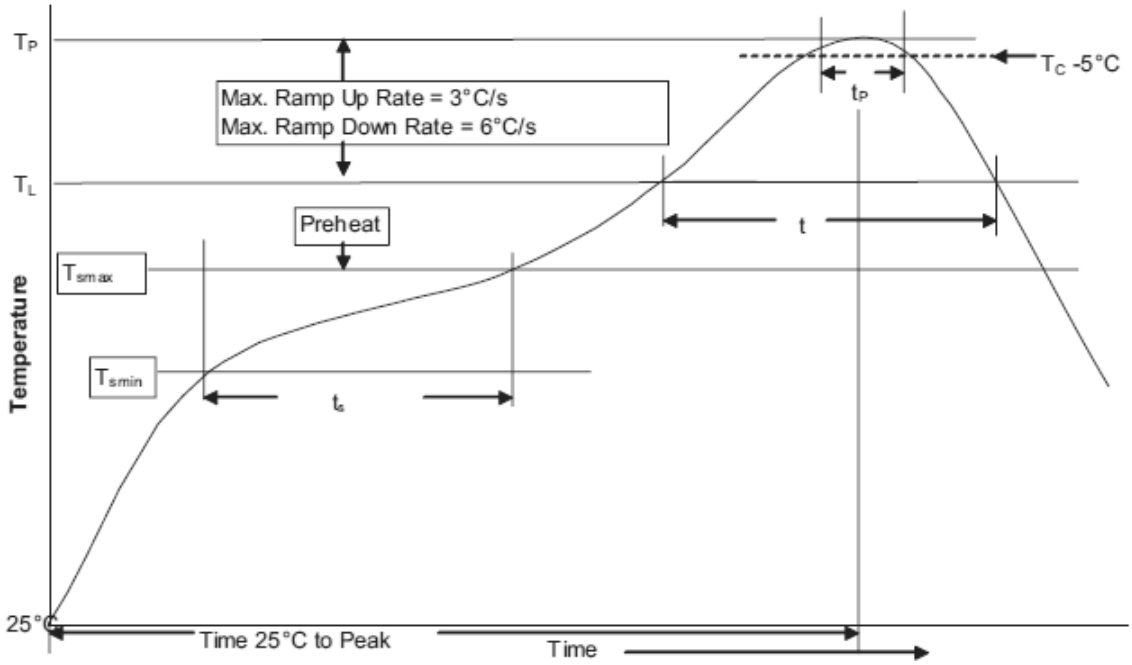

Unit: mm(inch)


Time Current Curve
4.5A
5.0A
6.0A
7.0A
8.0A
10A
12A
15A
20A
25A
30A
1000
100
10
1
0.1
0.01
0.001
Time (Second)
1
10
100
1000
Current (Ampere)

**Soldering method**

- Wave solder
  - Reservoir temperature: 260℃
  - Time in reservoir: 10 seconds maximum
- Infrared reflow
  - Temperature: 260℃
  - Time: 30 seconds maximum

**Solder reflow profile**

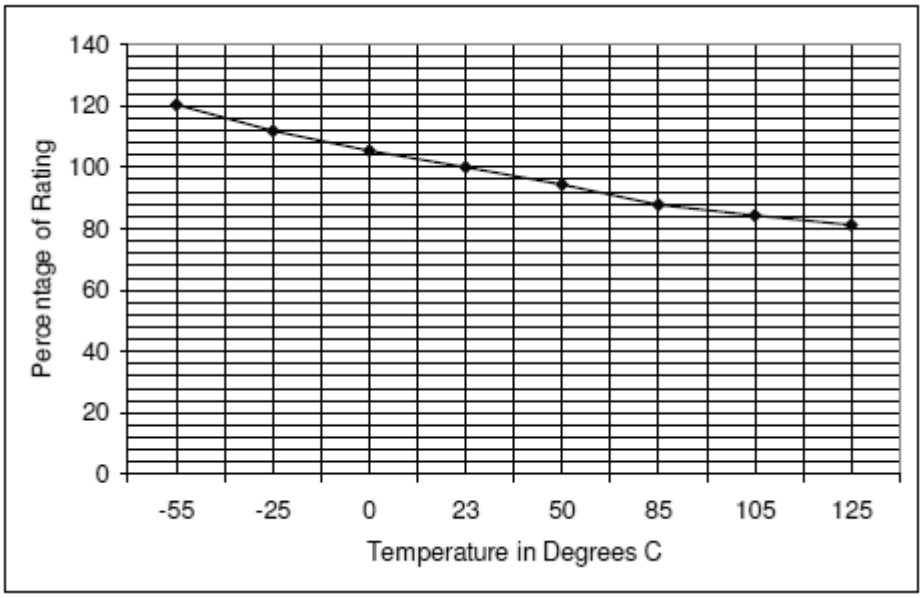



| | | Lead(Pb) free solder |
|---|---|---|
| Preheat and soak | • Temperature min.($T_{smin}$) | 150℃ |
| | • Temperature max. ($T_{smax}$) | 200℃ |
| | • Time ($T_{smin}$ to $T_{smax}$) ($t_S$) | 60 - 120 Seconds |
| Average ramp up rate $T_{smax}$ to $T_p$ | | 3℃ / Second Max. |
| Liquidous temperature ($T_L$) Time at liquidous ($t_L$) | | 217℃<br>60 - 150 Seconds |
| Peak package body temperature ($T_P$) | | 260℃ |
| Time ($t_P$) within 5℃ of the specified classification temperature | | 30 Seconds |
| Average ramp-down rate ($T_P$ to $T_{smax}$) | | 6℃ / Second Max. |
| Time (25℃ to Peak Temperature) | | 8 Minutes Max. |

**Temperature Derating Curve**

Normal ambient temperature: 23+/-3℃

Operating temperature: -55 ~ 125℃, with proper correction factor applied




**Package**

3000 fuses on 8mm tape-and-reel on a 7 inch (178mm) reel per EIA Standard 481.

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