



贝特卫士®

更好的电路安全卫士!
You build electronics, We safeguard them!

承 认 书

APPROVAL SHEET

| | |
|---------|------------------|
| 编号 No. | 2441400200-D/2-B |
| 日期 Date | 2023.11.28 |

| | |
|-----------------|--|
| 客 户 Customer | |
|-----------------|--|

| | |
|----------------|-----------------------------|
| 品 名 Product | 2410 Size Brick Fuse |
| 系 列 Series | 244 Series |

| 料号 Part No. | 规格描述 Specification | 备注 Remark |
|--------------------|--|-----------|
| 贝特电子 Betterfuse | 2410 Low BC, Time-Lag current fuse 250VAC | |
| 客 户 Customer | | |

| |
|--|
| 环保特别提示 Special instructions for environmental protection |
| 本产品: |

| 供应商-贝特电子 Supplier-Betterfuse | 零件承认章 Approval Signet | 客 户 Customer | 零件承认章 Approval Signet |
|---------------------------------|---|-----------------|--------------------------|
| 制 作 Make |  | | |
| 审 核 Check | | | |
| 确 认 Approval | | | |

| | | | |
|--|--------------|--------------|-----------|
| 联络 Contact | | | |
| 业务 Sales | 电话 Telephone | 手机 Cellphone | 邮箱 E-mail |
| | | | |
| 零件承认后敬请回签一份给我司留存, 或将承认后的封面传真(0769-8352 1857)至我司, 谢谢! | | | |

**Document Record**

| NO. | Date | Modified Content | Page | Edition | Prepared/modified by | Checked by |
|-----|------------|--|------|---------|----------------------|--------------|
| 1 | 2014.08.08 | Draft | 9 | A/0 | Kings Luo | Gem Guo |
| 2 | 2015.07.27 | Update 1A I2T value to1.0;Update UR certification. | 7 | A/1 | Jeffery | Lin Gao |
| 3 | 2016.01.28 | Update the soldering curve | 8 | A/2 | Jeffery | Lin Gao |
| 4 | 2016.02.19 | Add the CQC certification | 3,7 | A/3 | Jeffery | Helge |
| 5 | 2016.04.14 | Add the TUV certification | 4,8 | A/4 | Jeffery | Lin Gao |
| 6 | 2016.04.22 | Update the electronic characteristic | 8 | A/5 | Jeffery | Lin Gao |
| 7 | 2016.08.04 | Change the voltage drop,resistance,I2T value | 8 | B/0 | Jeffery | Ning Luo |
| 8 | 2016.12.06 | Corrent the hand soldering temperature | 9 | B/1 | Jeffery | Wen QiangLuo |
| 9 | 2017.06.02 | Add the KC certification | | B/2 | Jeffery | Ning Luo |
| 10 | 2018.03.22 | Update CCC certification | | B/3 | J.Q. | Fei Gao |
| 11 | 2018.07.18 | Update Current | | B/4 | J.Q. | Fei Gao |
| 12 | 2019.09.16 | Add the TUV certification | 3 | B/5 | YaLan Wang | Fei Gao |
| 13 | 2020.02.21 | Add supplementary code description | 4 | C/0 | YaLan Wang | Fei Gao |
| 14 | 2020.05.13 | Add 2.5A~6.3A CQC certification | | C/1 | YaLan Wang | Fei Gao |
| 15 | 2020.07.01 | Update content | | C/2 | YaLan Wang | Fei Gao |
| 16 | 2020.08.10 | Add 2.5A~6.3A KC certification | | C/3 | YaLan Wang | Fei Gao |
| 17 | 2020.09.29 | Add 2.5A~6.3A PSE certification | | C/4 | YaLan Wang | Fei Gao |
| 18 | 2021.11.12 | Add 630mA CQC certification | 3,7 | C/5 | YaLan Wang | Fei Gao |
| 19 | 2021.11.23 | Update parameter | 3,7 | D/0 | YaLan Wang | Fei Gao |
| 20 | 2023.04.28 | Update Average Time Current (I-T) Curves | 6 | D/1 | Hongkun Huang | Fei Gao |
| 21 | 2023.11.28 | Update 1A/2A PSE authentication symbols | 3,7 | D/2 | Hongkun Huang | Zhiwei Wen |

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1. SCOPE AND DESCRIPTION



Following electronic product specifications apply to fuses of the 244 series. The 244 series is a time-lag type brick fuse for over-current protection. As the time-lag characteristics these fuses can resist inrush current. And widely used in notebook PC, telecom system, LCD/PDP TV, wireless goods, LCD monitor, white goods, LCD/PDP panel, game console, power supply, net working and other electronics products.

2. GENERAL INFORMATION

General Description

244 brick fuse for the small size and good electrical performance, reliability and quality. The solder-free design provides excellent on-off and temperature cycling characteristics during use and also makes our brick fuses more heat and shock tolerant than typical brick fuses.

Detailed Features

- Rapid interruption of excessive current
- Compatible with reflow and wave soldering
- Ceramic body and silver plated copper terminal
- Excellent environmental integrity
- One time positive disconnect
- Lead-free, Halogen-free, RoHS compliant

3. AGENCY APPROVALS

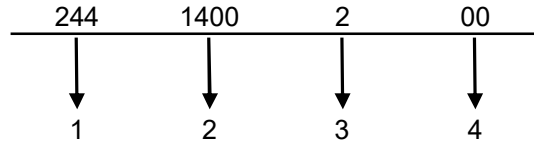
| Agency | Agency File Number | Voltage / Ampere Range |
|--------|--|--|
| | E300003 | 125V / 250V AC:250mA~7A 125V DC:250mA~7A |
| | CQC16012138435 CQC20012244627 | 250V AC:500mA;630mA;1A;2A 125V DC/250V AC:2.5A;3.15A;4A;5A;6.3A |
| | R 50335764 | 250VAC:500mA;630mA;800mA;1A;1.25A;1.6A;2A;2.5A;3.15A;4A;5A;6.3A;7A 125VDC:500mA;630mA;800mA;1A;1.25A;1.6A;2A;2.5A;3.15A |
| | SU05042-17001 SU05042-17002 SU05042-20002 SU05042-20003 | 250V AC:1A;2A 250V AC:500mA 250V AC:2.5A 250V AC:3.15A;4A;5A;6.3A |
| | PSE23022577 PSE20021734 PSE20021735 | 250V AC:1A;2A 250VAC:2.5A;3.15A;4A;5A 250VAC:6.3A |



4. PART NUMBERING SYSTEM

4.1 Part Number

Example: 2441400200



- | | |
|---------------------------|--------------------------|
| 1.Product Series..... | 244 |
| 2.Ampere Rating..... | 4A (see table 4.2 below) |
| 3.Voltage Rating..... | 1: 125V 2: 250V |
| 4.Supplementary Code..... | See table 4.3 below |

4.2. Ampere/ Voltage Rating Table

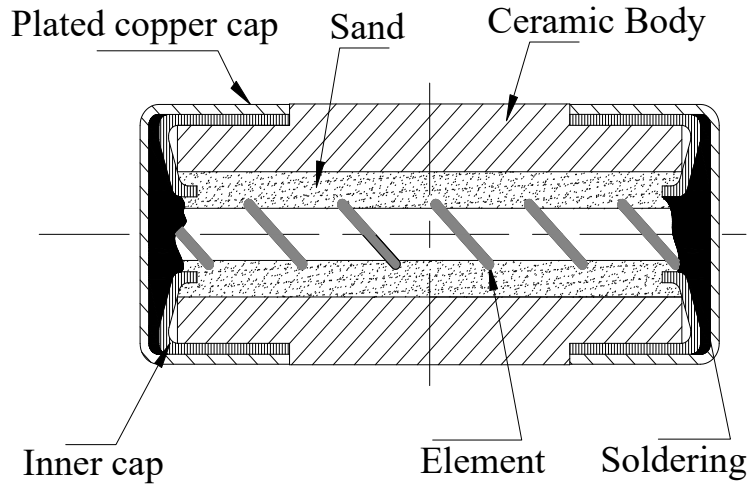
| AMP CODE | CURRENT RATING | VOLTAGE RATING |
|----------|----------------|------------------------|
| 0250 | 250mA | 125VDC ; 250V / 125VAC |
| 0315 | 315mA | 125VDC ; 250V / 125VAC |
| 0375 | 375mA | 125VDC ; 250V / 125VAC |
| 0400 | 400mA | 125VDC ; 250V / 125VAC |
| 0500 | 500mA | 125VDC ; 250V / 125VAC |
| 0630 | 630mA | 125VDC ; 250V / 125VAC |
| 0750 | 750mA | 125VDC ; 250V / 125VAC |
| 0800 | 800mA | 125VDC ; 250V / 125VAC |
| 1100 | 1.00A | 125VDC ; 250V / 125VAC |
| 1125 | 1.25A | 125VDC ; 250V / 125VAC |
| 1160 | 1.60A | 125VDC ; 250V / 125VAC |
| 1200 | 2.00A | 125VDC ; 250V / 125VAC |
| 1250 | 2.50A | 125VDC ; 250V / 125VAC |
| 1300 | 3.00A | 125VDC ; 250V / 125VAC |
| 1315 | 3.15A | 125VDC ; 250V / 125VAC |
| 1350 | 3.50A | 125VDC ; 250V / 125VAC |
| 1400 | 4.00A | 125VDC ; 250V / 125VAC |
| 1500 | 5.00A | 125VDC ; 250V / 125VAC |
| 1630 | 6.30A | 125VDC ; 250V / 125VAC |
| 1700 | 7.00A | 125VDC ; 250V / 125VAC |
| 1800 | 8.00A | 125VDC ; 250V / 125VAC |
| 2100 | 10.00A | 125VDC ; 250V / 125VAC |
| 2120 | 12.00A | 125VDC / 250V / 125VAC |

4.3.Complement Code

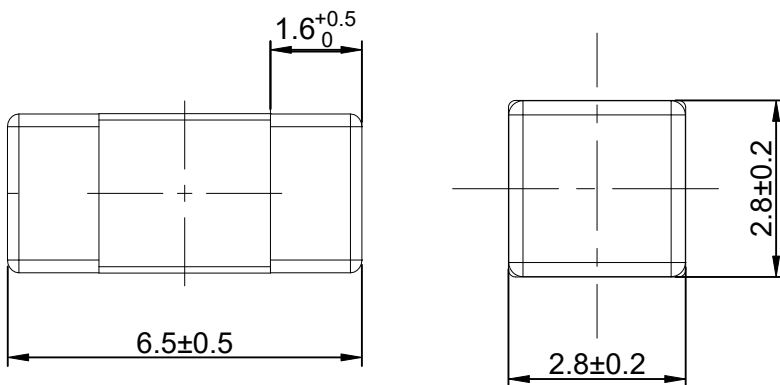
| CODE | DESIGNATION |
|------|--------------|
| 00 | Tape packing |



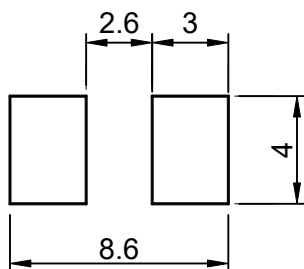
5. MECHANICAL SPECIFICATIONS



Dimensions (units: mm)



Recommended Land Pattern Unit: mm



Operating Temperature:

-55°C to +125°C

Storage Conditions:

+10°C to +60°C

Relative humidity: ≤ 75% yearly average
without dew, maximum 30 days at 95%

Vibration Resistance:

24 cycles at 15 min. each (60068-6)

10-60Hz at 0.75mm amplitude

60-2000Hz at 10g acceleration



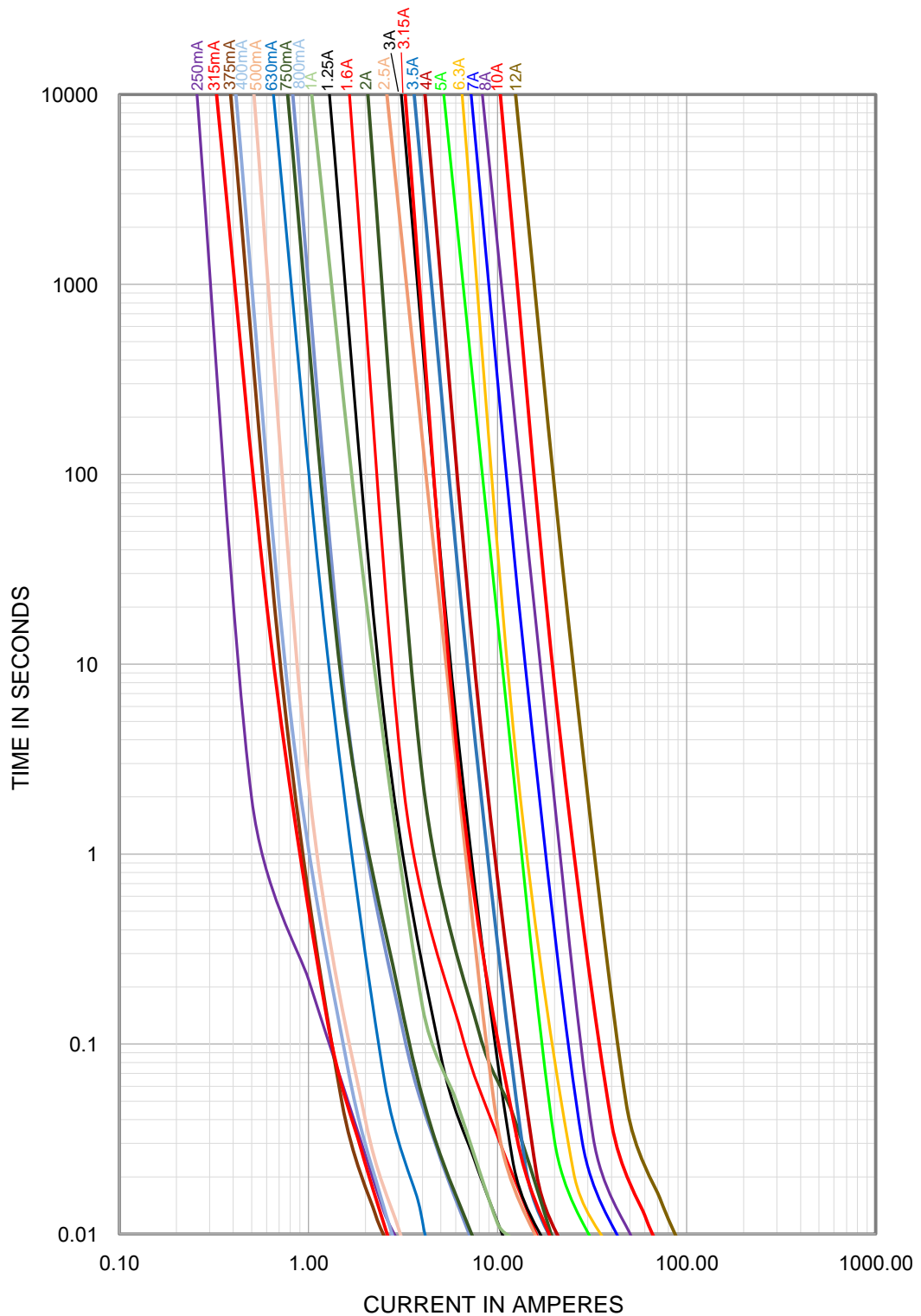
6. ELECTRICAL SPECIFICATIONS

Time vs Current Characteristics Table

(measured with constant current power supply)

| Time vs Current Characteristics: UL248-14 | | |
|---|------|-------|
| Rated current | 100% | 200% |
| 250mA~12A | >4h | <120s |

Average Time Current (I-T) Curves



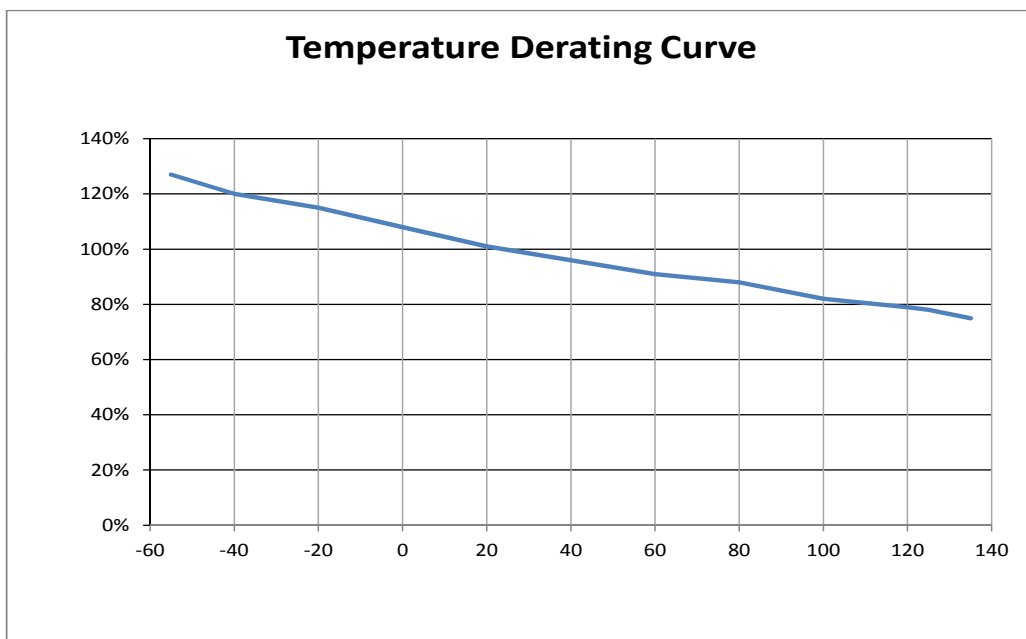


Electrical characteristics

| Electrical Characteristics at 25°C | | | | | | | | | | | |
|------------------------------------|---------------|-------------------------------|------------------------------|---|---|------------------------------|-----------|-----|-----|----|-----|
| Amp Code | Rated Current | Rated Voltage | Typical Voltage Drop Max(mV) | Breaking Capacity | Typical Melting I ² T (A ² s) | Typical cold Resistance (mΩ) | Approvals | | | | |
| | | | | | | | cURus | CQC | TUV | KC | PSE |
| 0250 | 250mA | 125V AC 250V AC 125V DC | 800 | 100A@125V AC 100A@250V AC 50A@125V DC | 0.083 | 620.7 | ● | ○ | ○ | ○ | ○ |
| 0315 | 315mA | | 750 | | 0.054 | 1578.6 | ● | ○ | ○ | ○ | ○ |
| 0375 | 375mA | | 700 | | 0.034 | 987.8 | ● | ○ | ○ | ○ | ○ |
| 0400 | 400mA | | 700 | | 0.051 | 962.7 | ● | ○ | ○ | ○ | ○ |
| 0500 | 500mA | | 600 | | 0.058 | 560.9 | ● | ● | ● | ● | ○ |
| 0630 | 630mA | | 500 | | 0.160 | 400.8 | ● | ● | ● | ○ | ○ |
| 0750 | 750mA | | 500 | | 0.523 | 299.4 | ● | ○ | ○ | ○ | ○ |
| 0800 | 800mA | | 400 | | 0.478 | 307.0 | ● | ○ | ● | ○ | ○ |
| 1100 | 1.00A | | 400 | | 1.133 | 241.7 | ● | ● | ● | ● | ● |
| 1125 | 1.25A | | 300 | | 1.036 | 170.7 | ● | ○ | ● | ○ | ○ |
| 1160 | 1.60A | | 300 | | 2.578 | 127.3 | ● | ○ | ● | ○ | ○ |
| 1200 | 2.00A | | 300 | | 3.492 | 93.2 | ● | ● | ● | ● | ● |
| 1250 | 2.50A | | 300 | | 2.206 | 23.7 | ● | ● | ● | ● | ● |
| 1300 | 3.00A | | 300 | | 2.493 | 21.9 | ● | ○ | ○ | ○ | ○ |
| 1315 | 3.15A | | 300 | | 3.274 | 18.4 | ● | ● | ● | ● | ● |
| 1350 | 3.50A | | 300 | | 3.148 | 20.8 | ● | ○ | ○ | ○ | ○ |
| 1400 | 4.00A | | 300 | | 3.680 | 15.4 | ● | ● | ● | ● | ● |
| 1500 | 5.00A | | 300 | | 8.325 | 10.4 | ● | ● | ● | ● | ● |
| 1630 | 6.30A | | 300 | | 10.44 | 9.06 | ● | ● | ● | ● | ● |
| 1700 | 7.00A | | 300 | | 16.32 | 7.29 | ● | ○ | ● | ○ | ○ |
| 1800 | 8.00A | 300 | 22.59 | 6.58 | ○ | ○ | ○ | ○ | ○ | | |
| 2100 | 10.00A | 300 | 39.70 | 4.78 | ○ | ○ | ○ | ○ | ○ | | |
| 2120 | 12.00A | 300 | 76.75 | 4.00 | ○ | ○ | ○ | ○ | ○ | | |

- Note:** (1) Permissible continuous operating current is ≤100% at ambient temperature of 23°C (73.4°F)
 (2) The current values used for calculating I²T should be within the standard 10In.
 (3) The TUV certification only for 250VAC and 125VDC; the CQC, KC certification only for 250V; the cURus certification for all voltage.
 (4) 250mA No sand filling

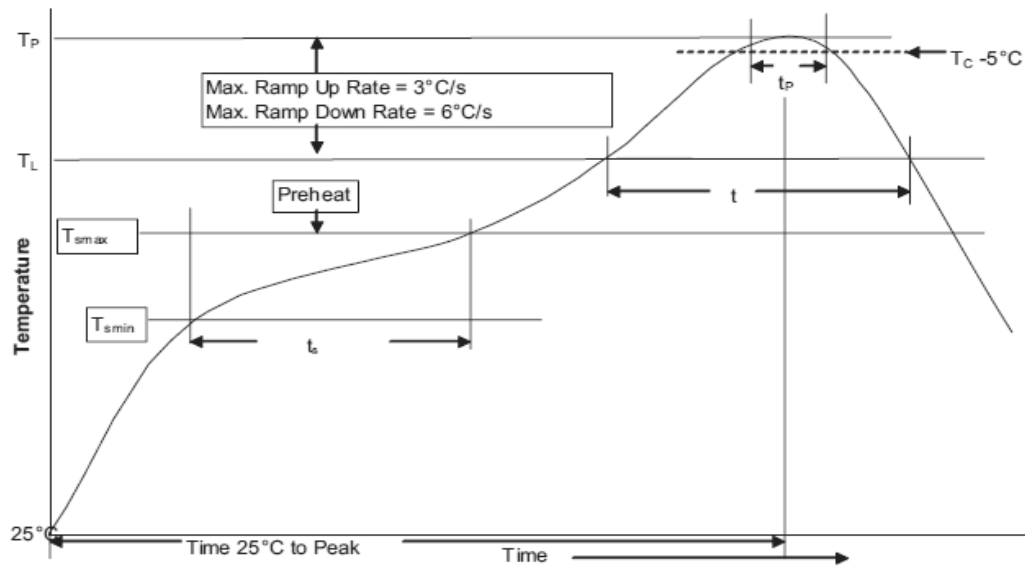
Temperature Derating Curve



$$\text{Calculation for ideal fuse selection} = \frac{\text{Operating Current (A)}}{\text{Rating (\%} \times 0.75)}$$



7.SOLDERING PARAMETERS



1. Infrared Reflow:

Temperature: 260°C

Time: 30sec Max.

Recommend reflow profile

2. Wave Soldering

Reservoir

Temperature: 260°C

Time in Reservoir: 10sec Max.

| | | |
|---|----------------------------|----------------------|
| Profile Feature | | Lead (Pb)free solder |
| Average Ramp-UP Rate (Tsmax to Tp) | | 3°C/s Max. |
| Preheat and soak | Temperature min.(T Amin) | 150°C |
| | Temperature max.(Tsmax) | 200°C |
| | Time (T Amin to Tsmax)(ts) | 60~120s |
| Liquidous temperature(TL) | | 217°C |
| Time at liquidous(tL) | | 60~150s |
| Peak package body temperature(Tp) | | 260°C |
| Time (tP) within 5°C of the specified classification temperature (Tc) | | 30s |
| Average ramp-down rate (Tp to Tsmax) | | 6°C/s Max. |
| Time (25°C to Peak Temperature) | | 8 Minutes Max. |

8.ORDERING INFORMATION

The following information are necessary in order to place your order with us correctly:

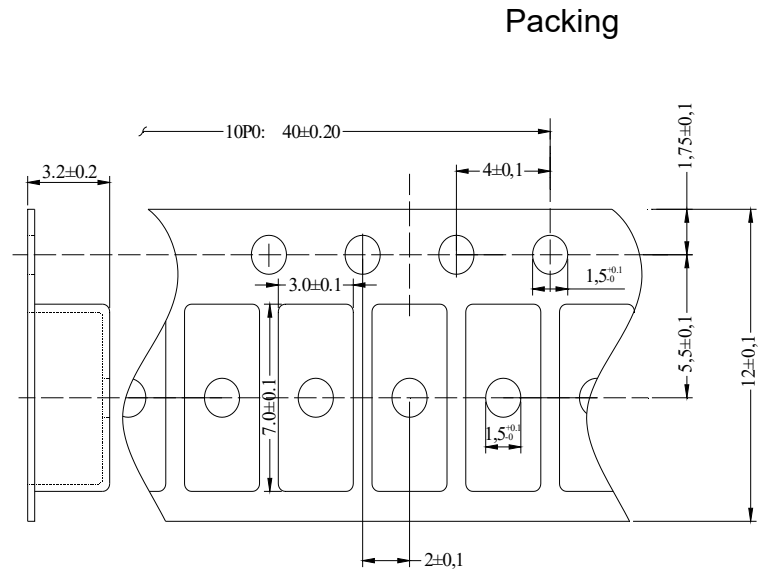
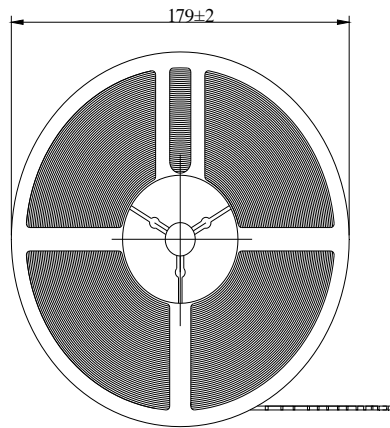
| Series | Amp Code | Supplementary Code | Qty |
|--------|----------|--------------------|-----|
| 244 | | | |



9. PACKING INFORMATION

Taping detail

unit:mm



Quantity per reel

1000pcs

Weight per reel

234.5g

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