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# 承 认 书

## APPROVAL SHEET

编 号 No.	1222150000-A/0-B
日期 Date	2019.11.04

客 户 Customer	
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品 名 Product	<b>Slow-Acting SMD fuse</b>
系 列 Series	<b>122</b>

料号 Part No.	规格描述 Specification	备注 Remark
贝特电子 Betterfuse		
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	YaLan Wang		
审 核 Check	Fei Gao		
确 认 Approval	Jun Li		

联络 Contact			
业务 Sales	电话 Telephone	手机 Cellphone	邮箱 E-mail
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## 1. SCOPE AND DESCRIPTION



Following electronic product specifications apply to SMD fuses of the 122 series. The 122 series is a Slow-Acting type SMD fuse for over-current protection.

With their small size and layer type, 122 SMD fuses are ideal for industrial products. They are widely used in cellphones, DVD players, battery packs, hard disk drives and digital cameras.

## 2. GENERAL INFORMATION


### General Description

The 122 SMD fuses stand out due to their ultra-small size and excellent electrical performance, reliability and quality. The solder-free design provides outstanding on-off and temperature cycling characteristics during operation and also makes our SMD fuses more heat and shock tolerant than typical subminiature fuses.

### Detailed Features

- Rapid interruption of excessive current
- Compatible with reflow and wave soldering
- Ceramic and glass construction
- Excellent environmental integrity
- Non-resettable fuse design
- Lead-free, Halogen-free, RoHS compliant
- Designed to UL 248-1

## 3. AGENCY APPROVALS

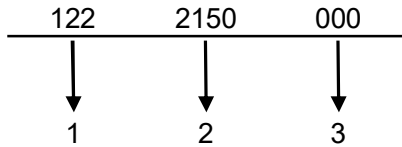
Agency	Agency File Number	Voltage / Ampere Range
	E300003	DC32V:4.5A~30.0A;DC36V:25.0A~30.0A; DC48V:8.0A~20.0A;DC63V:4.5A~7.0A; DC72V:4.5A~7.0A



## 4. PART NUMBERING SYSTEM

### 4.1 Part Number

Example: 1222150000

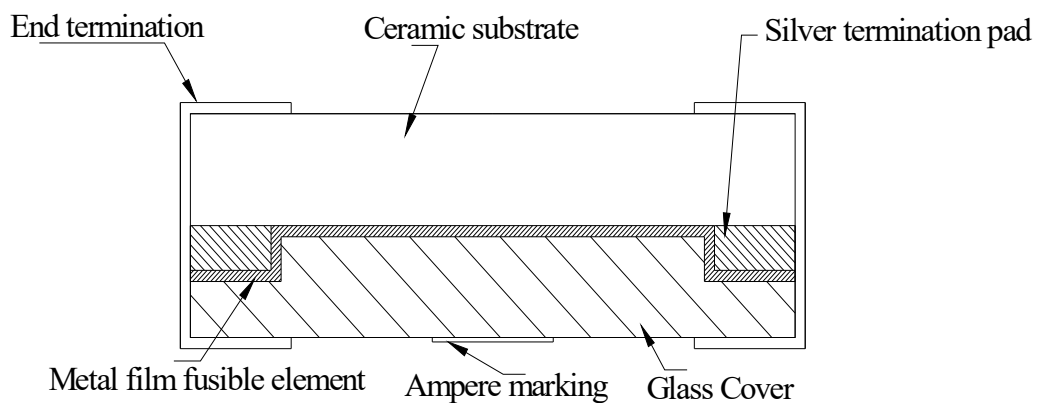


- 1 .Product Series ..... 122(1206 size)
- 2 .Current Rating ..... 15A (see table 4.2 below)
- 3 .Supplementary Code ..... Complement code

### 4.2. Current / Voltage Rating Table

AMP CODE	CURRENT RATING	VOLTAGE RATING
1450	4.5A	32/63 / 72V DC
1500	5.0A	32/63 / 72V DC
1600	6.0A	32/63 / 72V DC
1700	7.0A	32/63 / 72V DC
1800	8.0A	32 / 48V DC
2100	10.0A	32 / 48V DC
2120	12.0A	32 / 48V DC
2150	15.0A	32 / 48V DC
2200	20.0A	32 / 48V DC
2250	25.0A	32 / 36V DC
2300	30.0A	32 / 36V DC

## 5. MECHANICAL SPECIFICATIONS



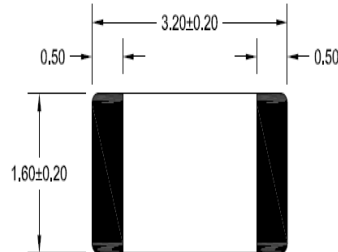


**Dimensions (units: mm)**

Dimension

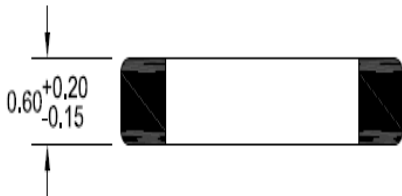
Drawing not to scale (Unit: mm)

Top view

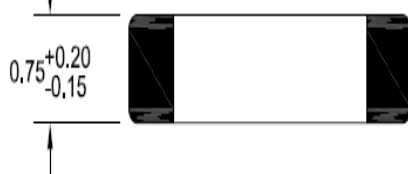


Side view:

4.5A-30A



40A



**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%

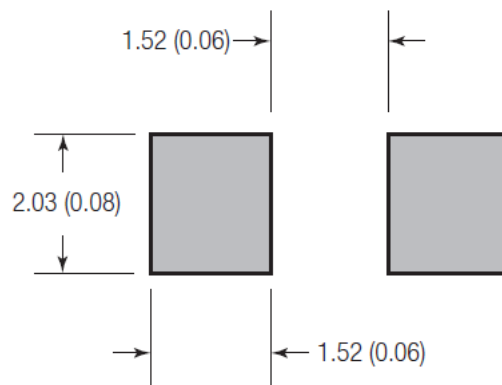
**Vibration Resistance:**

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

10-60Hz at 0.75mm amplitude

60-2000Hz at 10g acceleration

**Recommended land pattern**



Unit: mm(inch)



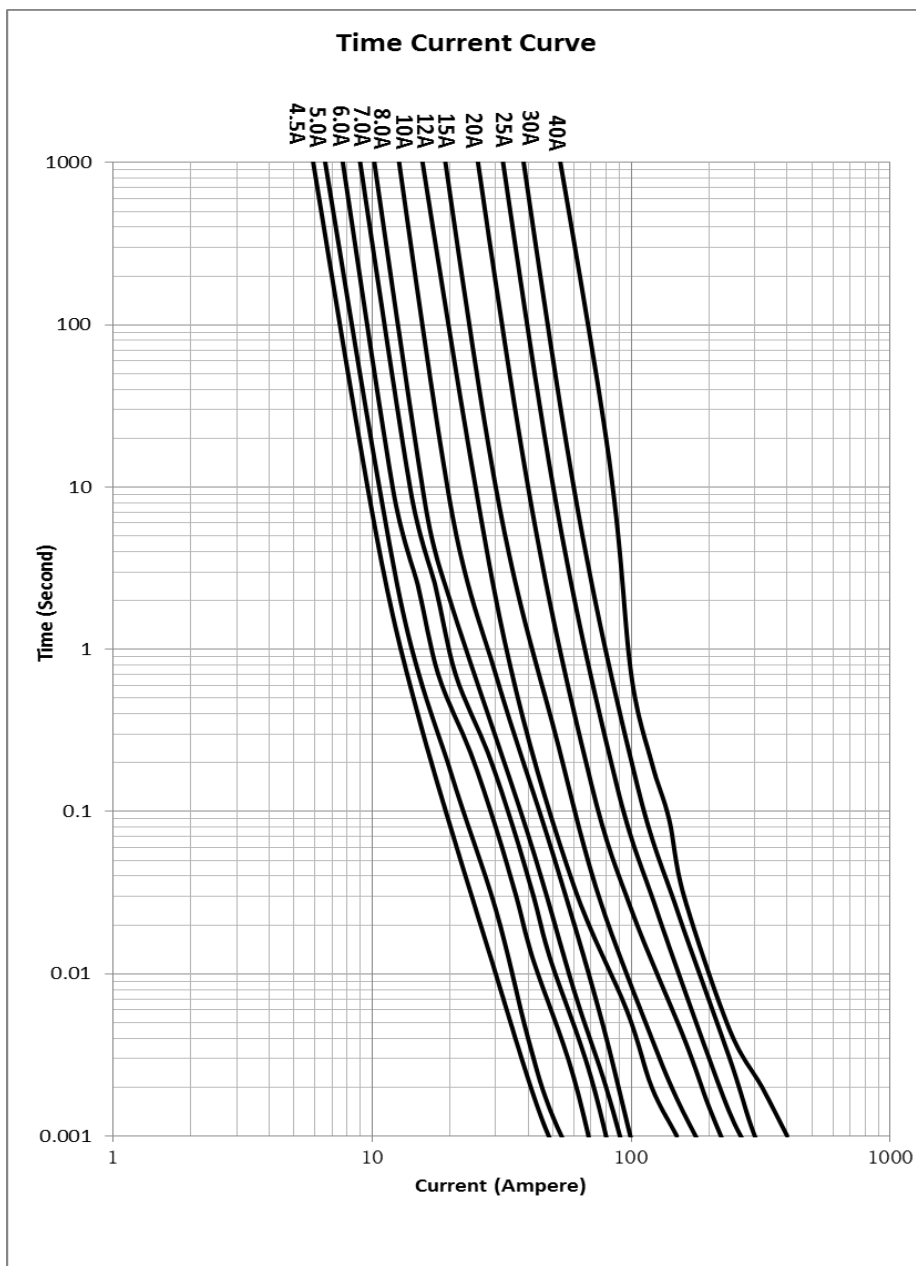
## 6. ELECTRICAL SPECIFICATIONS

### Time vs Current Characteristics Table

(measured with constant current power supply)

Time vs Current Characteristics:UL248-1					
Rated Current	100%	250%	300%	350%	1000%
4.5A~5A	>4h	<5s	0.1s~3s	-	0.2ms~20ms
6A~40A	>4h	-	-	<5s	0.2ms~10ms

### Average Time Current (I-T) Curves





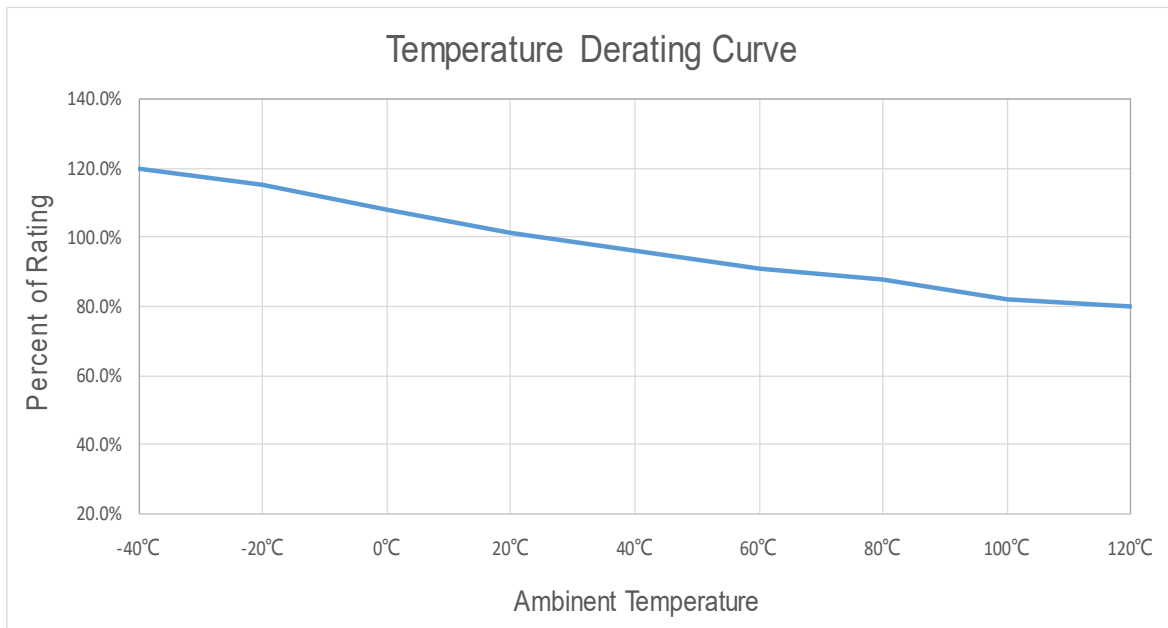
## Electrical characteristics

### Electrical Characteristics

Electrical Characteristics at 25°C									
Amp Code	Rated Current	Rated Voltage DC		Typical Voltage Drop Max(mV)	Breaking Capacity	Typical Melting I <sup>2</sup> T (A <sup>2</sup> s)	Typical cold Resistance(mΩ)	Alpha Mark	Approvals
									cURus
1450	4.50A	72V 63V	32V	164	50A	2.65	27	X	•
1500	5.00A			145	50A	4	22	T	•
1600	6.00A	72V 63V	32V	140	50A	12	14.5	F	•
1700	7.00A			130	50A	14	10.5	7	•
1800	8.00A	48V	32V	123	150A@48V DC 150A@32V DC	16	7.0	V	•
2100	10.00A			110		22	5.0	U	•
2120	12.00A			80		40	3.7	W	•
2150	15.00A			85		45	3.0	Y	•
2200	20.00A			80		50	2.0	Q	•
2250	25.00A			36V		32V	90	200A@32V DC 200A@36V DC	58
2300	30.00A	90	95		1.32		Z		•
2400	40.00A	95	160		0.85		XL		•

- Note:** (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°C

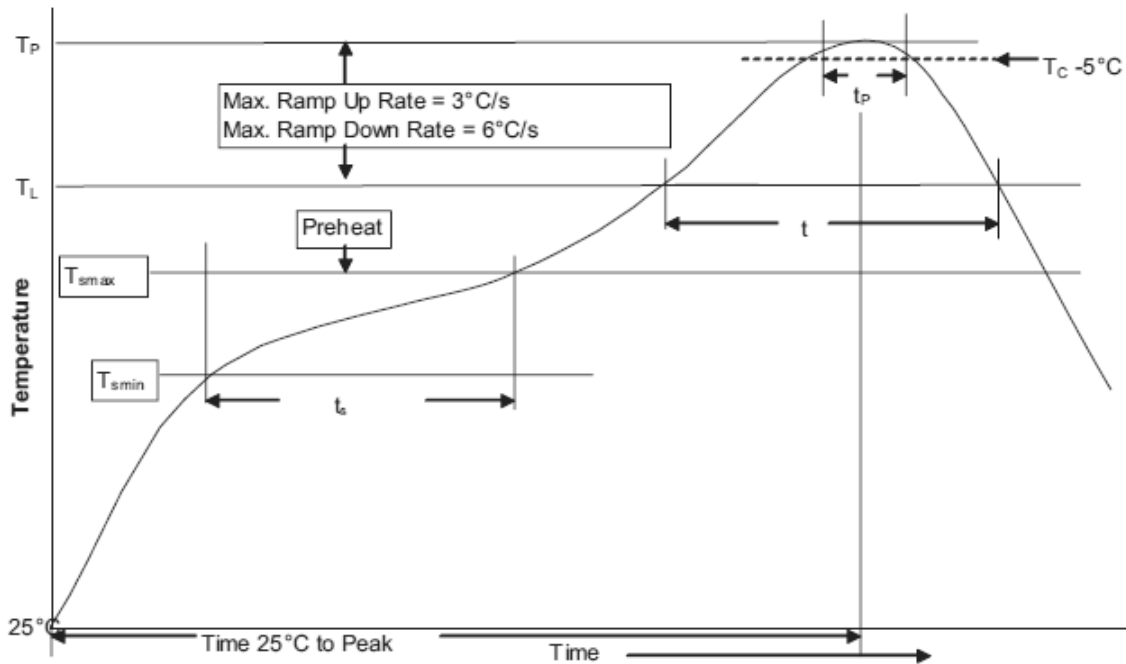
## Temperature Derating Curve



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



**7.SOLDERING PARAMETERS**



1. Infrared Reflow:

Temperature: 260°C

Time: 5sec Max.

Recommend reflow profile

2. Wave Soldering

Reservoir  
Temperature: 260°C

Time in Reservoir: 10sec  
Max.

Profile Feature		Pb-Free Assembly
Average Ramp-UP Rate(Tsmax to Tp)		3°C/s Max.
Preheat	Temperature Min(Ts min)	150°C
	Temperature Max(Ts max)	200°C
	Time(Tsmin to Ts max)	60sec~120sec
Peak Temperature(TP)		260°C
Time within 5°C of actual Peak Temperature(TP)		5sec
Melting tin time(TL)		20sec~40sec
Ramp-Down Rate		6°C/s Max.
Time 25°C to Peak Temperature(TP)		8 minutes Max.

**8.ORDERING INFORMATION**

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

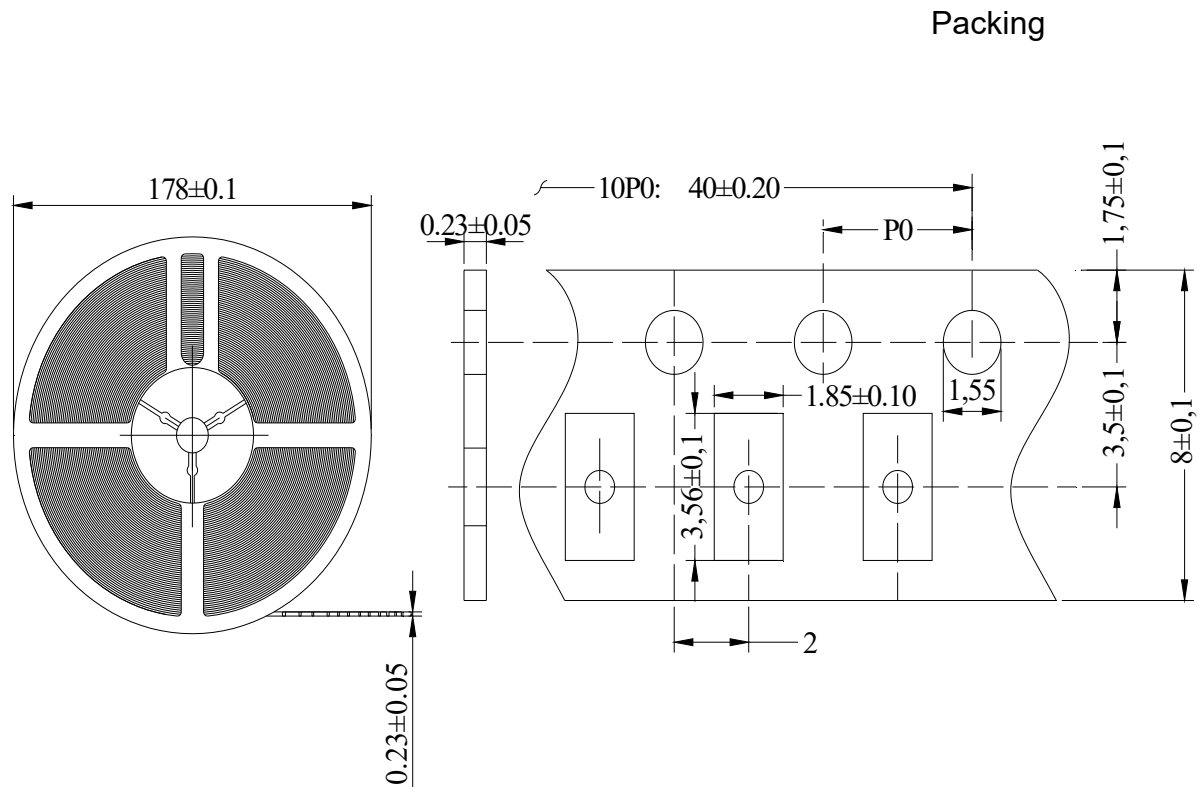
Series	Amp Code	Supplementary Code	Qty
122			





## 9. PACKING INFORMATION

### Taping details



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