

## SURFACE MOUNT PTC SN (1206) MODEL



E175689



Pending

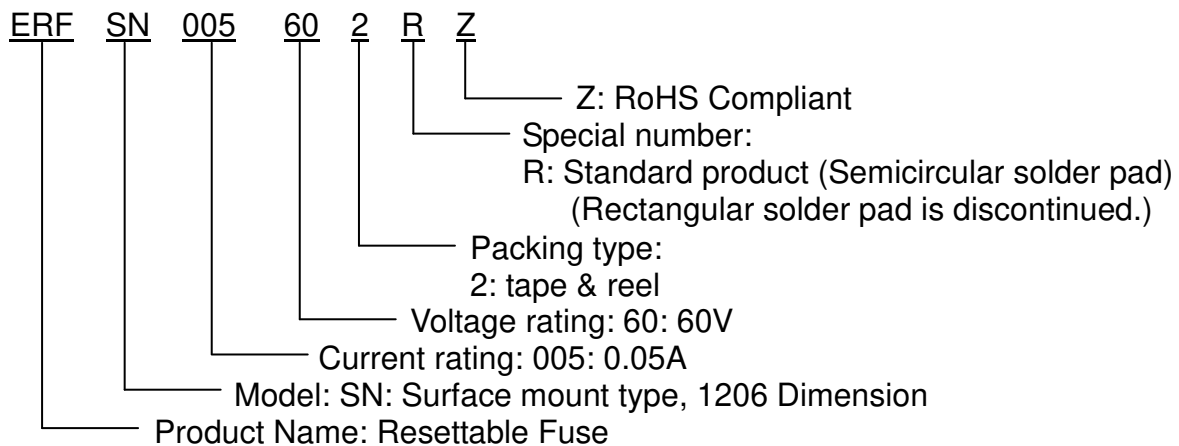
### ■ FEATURES

- 1206 Dimension, surface mount, solid state
- Faster time to trip than standard SMD devices
- Lower resistance than standard SMD devices
- Operation current: 50mA~2.0A
- Maximum voltage: 6V~60Vdc
- Temperature range: -40°C to 85°C
- Tape and reel available on most models

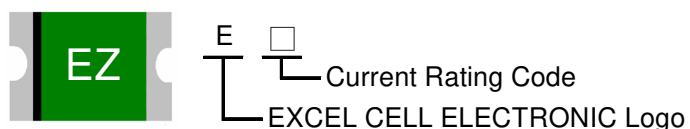
### ■ APPLICATIONS

- ◆ Almost anywhere there High-density boards is a low voltage power supply and a load to be protected including:
  - Computers & peripherals
  - General electronics
  - Automotive applications

### ■ PART NUMBERING SYSTEM



### ■ Marking system



Example

|                 |                 |                 |
|-----------------|-----------------|-----------------|
| EZ=ERFSN005-60  | EP= ERFSN025-24 | EO=ERFSN075-16  |
| EA=ERFSN010-60  | EC=ERFSN035-16  | EF=ERFSN100-06  |
| EJ= ERFSN012-48 | EM=ERFSN035-30  | EG=ERFSN110-08  |
| EK= ERFSN016-48 | ED=ERFSN050-08  | EQ=ERFSN110-16  |
| EB=ERFSN020-30  | EN=ERFSN050-24  | EH=ERFSN150-08  |
| EL= ERFSN025-16 | EE=ERFSN075-08  | EI =ERFSN200-06 |



**ECE** —  
The Name You Can Trust!

## ■ Electrical characteristics(23°C)

| Part Number | Hold Current       | Trip Current       | Rated Voltage                      | Maximum Current      | Typical Power      | Max. Time to trip |      | Resistance Tolerance |                   |
|-------------|--------------------|--------------------|------------------------------------|----------------------|--------------------|-------------------|------|----------------------|-------------------|
|             |                    |                    |                                    |                      |                    |                   |      | R <sub>MIN</sub>     | R <sub>1MAX</sub> |
|             | I <sub>H</sub> , A | I <sub>T</sub> , A | V <sub>MAX</sub> , V <sub>dc</sub> | I <sub>MAX</sub> , A | P <sub>d</sub> , W | Amp               | Sec  | Ω                    | Ω                 |
| SN005-60    | 0.05               | 0.15               | 60                                 | 100                  | 0.4                | 0.25              | 1.50 | 3.60                 | 50.00             |
| SN010-60    | 0.10               | 0.25               | 60                                 | 100                  | 0.4                | 0.50              | 1.00 | 1.60                 | 15.00             |
| SN012-48    | 0.12               | 0.39               | 48                                 | 100                  | 0.5                | 1.00              | 0.20 | 1.40                 | 6.50              |
| SN016-48    | 0.16               | 0.45               | 48                                 | 100                  | 0.5                | 1.00              | 0.30 | 1.10                 | 5.00              |
| SN020-30    | 0.20               | 0.40               | 30                                 | 100                  | 0.4                | 8.00              | 0.10 | 0.60                 | 2.50              |
| SN025-16    | 0.25               | 0.50               | 16                                 | 100                  | 0.6                | 8.00              | 0.08 | 0.55                 | 2.30              |
| SN025-24    | 0.25               | 0.50               | 24                                 | 100                  | 0.6                | 8.00              | 0.08 | 0.55                 | 2.30              |
| SN035-16    | 0.35               | 0.75               | 16                                 | 100                  | 0.4                | 8.00              | 0.10 | 0.30                 | 1.20              |
| SN035-30    | 0.35               | 0.75               | 30                                 | 100                  | 0.6                | 8.00              | 0.10 | 0.30                 | 1.20              |
| SN050-08    | 0.50               | 1.00               | 8                                  | 100                  | 0.4                | 8.00              | 0.10 | 0.15                 | 0.70              |
| SN050-24    | 0.50               | 1.00               | 24                                 | 100                  | 0.6                | 8.00              | 0.10 | 0.15                 | 0.75              |
| SN075-08    | 0.75               | 1.50               | 8                                  | 100                  | 0.6                | 8.00              | 0.20 | 0.09                 | 0.29              |
| SN075-16    | 0.75               | 1.50               | 16                                 | 100                  | 0.6                | 8.00              | 0.20 | 0.09                 | 0.29              |
| SN100-06    | 1.00               | 1.80               | 6                                  | 100                  | 0.6                | 8.00              | 0.30 | 0.055                | 0.21              |
| SN110-08    | 1.10               | 2.20               | 8                                  | 100                  | 0.8                | 8.00              | 0.30 | 0.040                | 0.18              |
| SN110-16    | 1.10               | 2.20               | 16                                 | 100                  | 0.8                | 8.00              | 0.30 | 0.040                | 0.18              |
| SN150-08    | 1.50               | 3.00               | 8                                  | 100                  | 0.8                | 8.00              | 1.00 | 0.040                | 0.12              |
| SN200-06    | 2.00               | 3.50               | 6                                  | 100                  | 0.8                | 8.00              | 1.50 | 0.018                | 0.08              |

I<sub>H</sub>=Hold current-maximum current at which the device will not trip at 23°C still air.

I<sub>T</sub>=Trip current-minimum current at which the device will always trip at 23°C still air.

V<sub>MAX</sub>=Maximum voltage device can withstand without damage at rated current.

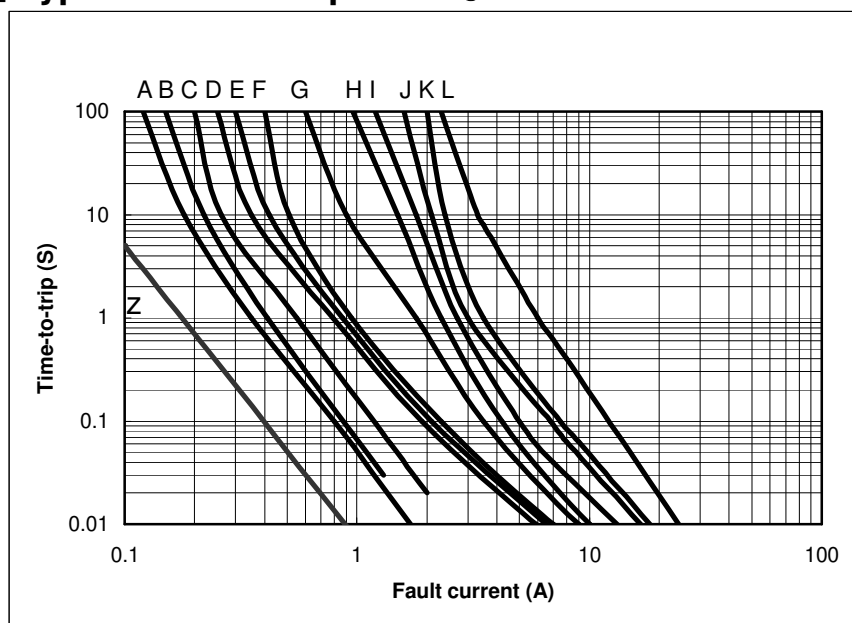
I<sub>MAX</sub>= Maximum fault current device can withstand without damage at rated voltage (V max).

P<sub>d</sub>=Typical power dissipated from device when in the tripped state in 23°C still air environment.

R<sub>MIN</sub>=Minimum device resistance at 23°C.

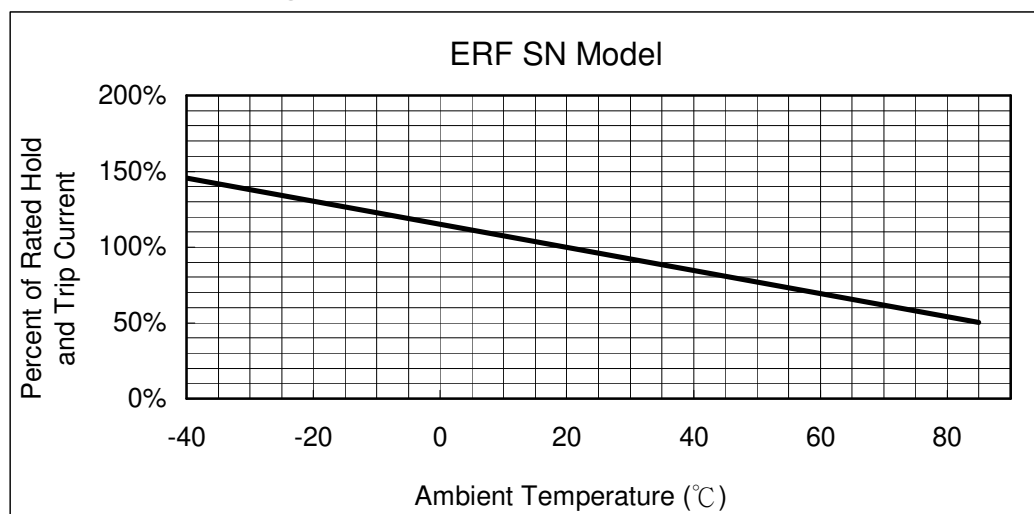
R<sub>1MAX</sub>=Maximum device resistance at 23°C 1 hour after tripping .

## ■ Typical time-to-trip-at 23°C



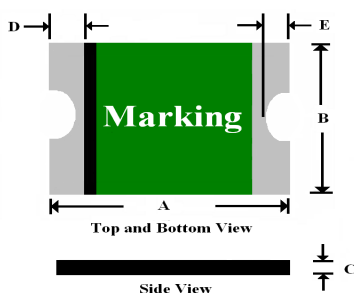
Z =SN005  
A =SN010  
B =SN012  
C =SN016  
D =SN020  
E =SN025  
F =SN035  
G =SN050  
H =SN075  
I =SN100  
J =SN110  
K =SN150  
L =SN200

## ■ Thermal Derating Curve



## ■ SN Product Dimensions (UNIT: mm)

| PART NUMBER | A    |      | B    |      | C    |      | D    |      | E    |      |
|-------------|------|------|------|------|------|------|------|------|------|------|
|             | Min  | Max  | Min  | Max  | Min  | Max  | Min  | Max  | Min  | Max  |
| SN005-60    | 3.00 | 3.50 | 1.50 | 1.80 | 0.45 | 0.85 | 0.10 | 0.75 | 0.10 | 0.45 |
| SN010-60    | 3.00 | 3.50 | 1.50 | 1.80 | 0.45 | 0.85 | 0.10 | 0.75 | 0.10 | 0.45 |
| SN012-48    | 3.00 | 3.50 | 1.50 | 1.80 | 0.45 | 0.85 | 0.10 | 0.75 | 0.10 | 0.45 |
| SN016-48    | 3.00 | 3.50 | 1.50 | 1.80 | 0.45 | 0.75 | 0.10 | 0.75 | 0.10 | 0.45 |
| SN020-30    | 3.00 | 3.50 | 1.50 | 1.80 | 0.45 | 0.75 | 0.10 | 0.75 | 0.10 | 0.45 |
| SN025-16    | 3.00 | 3.50 | 1.50 | 1.80 | 0.45 | 0.75 | 0.10 | 0.75 | 0.10 | 0.45 |
| SN025-24    | 3.00 | 3.50 | 1.50 | 1.80 | 0.45 | 0.75 | 0.10 | 0.75 | 0.10 | 0.45 |
| SN035-16    | 3.00 | 3.50 | 1.50 | 1.80 | 0.30 | 0.75 | 0.10 | 0.75 | 0.10 | 0.45 |
| SN035-30    | 3.00 | 3.50 | 1.50 | 1.80 | 0.90 | 1.30 | 0.25 | 0.75 | 0.10 | 0.45 |
| SN050-08    | 3.00 | 3.50 | 1.50 | 1.80 | 0.25 | 0.55 | 0.10 | 0.75 | 0.10 | 0.45 |
| SN050-24    | 3.00 | 3.50 | 1.50 | 1.80 | 0.80 | 1.20 | 0.25 | 0.75 | 0.10 | 0.45 |
| SN075-08    | 3.00 | 3.50 | 1.50 | 1.80 | 0.45 | 1.25 | 0.25 | 0.75 | 0.10 | 0.45 |
| SN075-16    | 3.00 | 3.50 | 1.50 | 1.80 | 0.45 | 1.25 | 0.25 | 0.75 | 0.10 | 0.45 |
| SN100-06    | 3.00 | 3.50 | 1.50 | 1.80 | 0.45 | 1.00 | 0.25 | 0.75 | 0.10 | 0.45 |
| SN110-08    | 3.00 | 3.50 | 1.50 | 1.80 | 0.45 | 1.00 | 0.25 | 0.75 | 0.10 | 0.45 |
| SN110-16    | 3.00 | 3.50 | 1.50 | 1.80 | 0.80 | 1.40 | 0.25 | 0.75 | 0.10 | 0.45 |
| SN150-08    | 3.00 | 3.50 | 1.50 | 1.80 | 0.80 | 1.40 | 0.25 | 0.75 | 0.10 | 0.45 |
| SN200-06    | 3.00 | 3.50 | 1.50 | 1.80 | 0.85 | 1.60 | 0.25 | 0.75 | 0.10 | 0.45 |

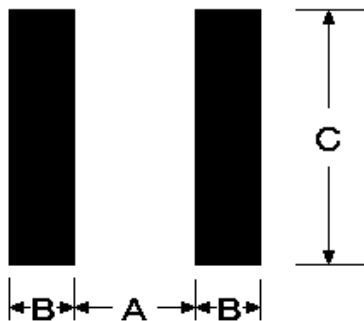


## ■ Standard Package for Reference

| P/N      | Reel/Tape | P/N      | Reel/Tape | P/N      | Reel/Tape | P/N      | Reel/Tape |
|----------|-----------|----------|-----------|----------|-----------|----------|-----------|
| SN005-60 | 3.0K      | SN025-16 | 3.0K      | SN050-24 | 3.0K      | SN110-16 | 2.0K      |
| SN010-60 | 3.0K      | SN025-24 | 3.0K      | SN075-08 | 3.0K      | SN150-08 | 2.0K      |
| SN012-48 | 3.0K      | SN035-16 | 4.0K      | SN075-16 | 3.0K      | SN200-06 | 2.0K      |
| SN016-48 | 3.0K      | SN035-30 | 3.0K      | SN100-06 | 3.0K      |          |           |
| SN020-30 | 3.0K      | SN050-08 | 4.0K      | SN110-08 | 3.0K      |          |           |

## ■ Pad Layouts and Soldering Reflow Recommendations

The dimension in the table below provide the recommended pad layout for each surface mount device



| Pad dimensions(millimeters) |              |              |              |
|-----------------------------|--------------|--------------|--------------|
| Device                      | A<br>Nominal | B<br>Nominal | C<br>Nominal |
| SL MODEL                    | 5.10         | 2.30         | 5.60         |
| SB MODEL                    | 3.60         | 1.80         | 4.60         |
| SD MODEL                    | 3.45         | 1.78         | 3.50         |
| SM MODEL                    | 2.00         | 1.00         | 2.80         |
| SN MODEL                    | 2.00         | 1.00         | 1.90         |
| SR MODEL                    | 1.20         | 1.00         | 1.50         |
| SS MODEL                    | 0.80         | 0.60         | 0.80         |

## ■ SOLDERING REFLOW (LEAD FREE)

- 1.Suggested reflow methods: IR, vapor phase oven, hot air oven.
- 2.Recommended maximum paste thickness is 0.25mm.
- 3.Devices are not designed to wave soldered to the bottom side of the board.

## ■ CAUTION

If reflow temperatures exceed the recommended standard, devices may not be able to meet the performance requirements.

