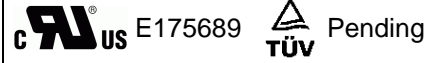




**ECE** —  
The Name You Can Trust!

## SURFACE MOUNT PTC SM (1210) MODEL



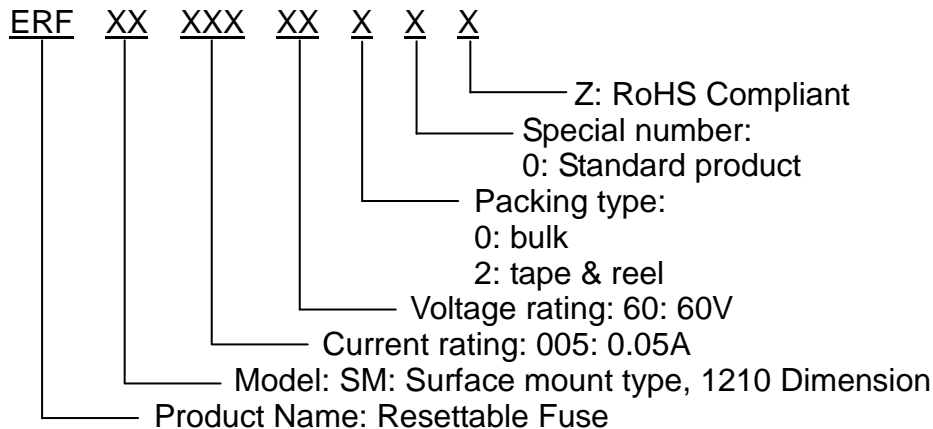
### ■ FEATURES

- 1210 Dimension, surface mount, solid state
- Faster time to trip than standard SMD devices
- Lower resistance than standard SMD devices
- Operation current: 50mA~2.00A
- Maximum voltage: 6V~60Vdc
- Temperature range: -40°C to 85°C
- Tape and reel available on most models

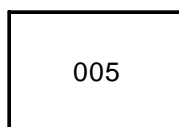
### ■ APPLICATIONS

- ◆ 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

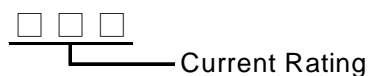
### ■ PART NUMBERING SYSTEM



### ■ Marking system



Example





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## ■ Electrical characteristics(23°C)

Part Number	Hold Current	Trip Current	Rated Voltage	Max Current	Typical Power	Max time to trip		Resistance Tolerance	
						Current	Time	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
SM005-60	0.05	0.15	60	10	0.60	0.25	1.50	3.60	50.00
SM010-60	0.10	0.25	60	10	0.60	0.50	1.50	1.60	15.00
SM020-30	0.20	0.40	30	10	0.60	8.00	0.02	0.80	5.00
SM035-16	0.35	0.70	16	40	0.60	8.00	0.20	0.32	1.30
SM050-16	0.50	1.00	16	40	0.60	8.00	0.10	0.25	0.90
SM075-08	0.75	1.50	8	40	0.60	8.00	0.10	0.13	0.40
SM075-24	0.75	1.50	24	40	0.60	8.00	0.10	0.13	0.40
SM110-06	1.10	2.20	6	100	0.80	8.00	0.30	0.06	0.21
SM150-06	1.50	3.00	6	100	0.80	8.00	0.50	0.04	0.11
SM175-06	1.75	4.00	6	100	0.80	8.00	0.60	0.02	0.08
SM200-06	2.00	4.00	6	100	0.80	8.00	1.00	0.015	0.007

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.

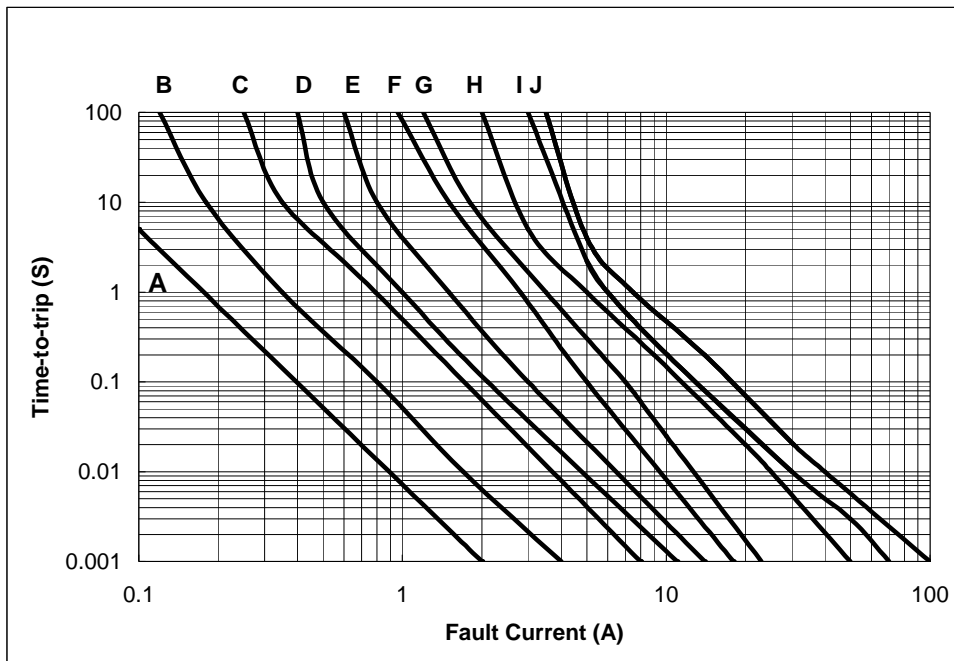
I<sub>MAX</sub>= Maximum fault current device can withstand without damage at rated voltage (V max).

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.

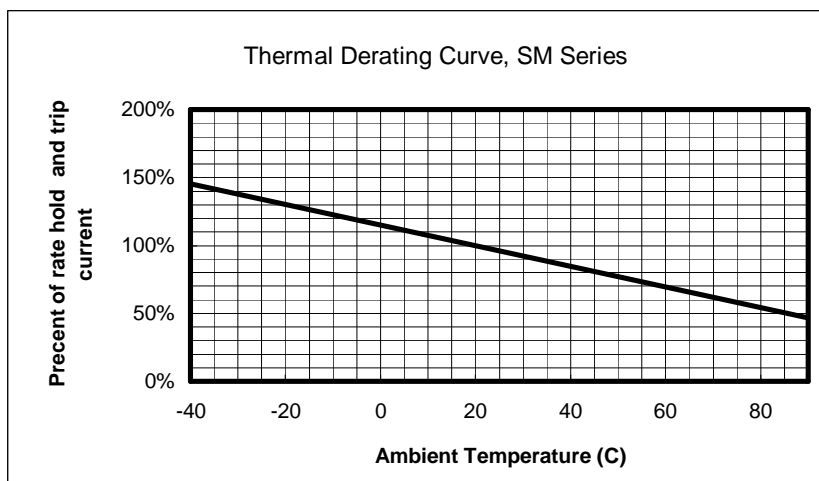
R<sub>1MAX</sub>=Maximum device resistance at 23°C 1 hour after tripping .

## ■ Typical time-to-trip-at 23°C



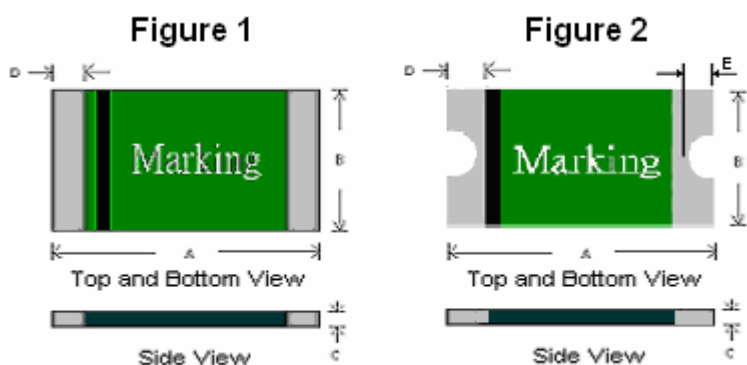
A=SM005  
B=SM010  
C=SM020  
D=SM035  
E=SM050  
F=SM075  
G=SM110  
H=SM150  
I=SM175  
J=SM200

## Thermal Derating Curve



## SM Product Dimensions (UNIT: mm)

PART NUMBER	Figure	A		B		C		D		E	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
SM005-60	1	3.00	3.43	2.35	2.80	0.60	1.15	0.25	0.75	-----	-----
SM010-60	1	3.00	3.43	2.35	2.80	0.60	1.15	0.25	0.75	-----	-----
SM020-30	1	3.00	3.43	2.35	2.80	0.40	0.85	0.25	0.75	-----	-----
SM035-16	1	3.00	3.43	2.35	2.80	0.40	0.80	0.25	0.75	-----	-----
SM050-16	1	3.00	3.43	2.35	2.80	0.30	0.75	0.25	0.75	-----	-----
SM075-08	1	3.00	3.43	2.35	2.80	0.30	0.70	0.25	0.75	-----	-----
SM075-24	2	3.00	3.43	2.35	2.80	0.90	1.30	0.25	0.75	0.10	0.45
SM110-06	2	3.00	3.43	2.35	2.80	0.60	1.00	0.25	0.75	0.10	0.45
SM150-06	2	3.00	3.43	2.35	2.80	0.50	0.90	0.25	0.75	0.10	0.45
SM175-06	2	3.00	3.43	2.35	2.80	0.80	1.40	0.25	0.75	0.10	0.45
SM200-06	2	3.00	3.43	2.35	2.80	0.80	1.40	0.25	0.75	0.10	0.45

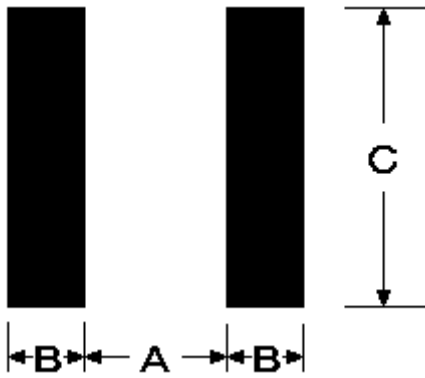


## Standard Package for Reference

P/N	Reel/Tape	P/N	Reel/Tape	P/N	Reel/Tape	P/N	Reel/Tape
SM005-60	3.0K	SM035-16	4.0K	SM075-24	3.0K	SM175-06	3.0K
SM010-60	3.0K	SM050-16	4.0K	SM110-06	3.0K	SM200-06	3.0K
SM020-30	3.0K	SM075-08	4.0K	SM150-06	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 Nominal	B Nominal	C Nominal
SL MODEL	5.10	2.30	5.60
SD/RSD MODEL	3.45	1.78	3.50
SM/RSM MODEL	2.00	1.00	2.80
SN/RSN MODEL	2.00	1.00	1.90
SR/RSR MODEL	1.20	1.00	1.50
SS/RSS 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.

