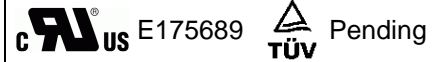




ECE —
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SURFACE MOUNT PTC SM (1210) MODEL



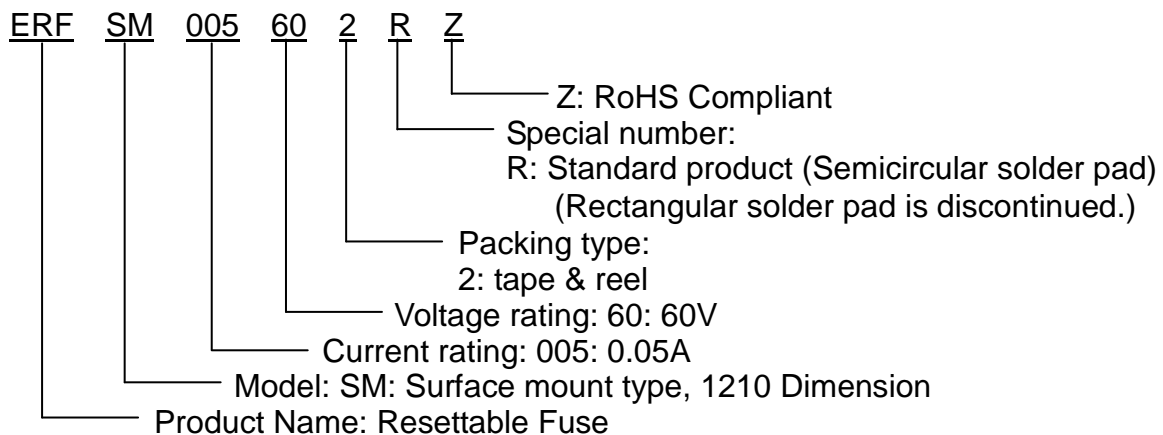
■ FEATURES

- 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

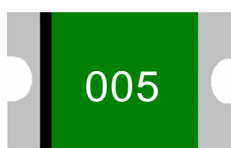
■ APPLICATIONS

- ◆ 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

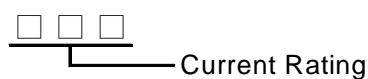
■ PART NUMBERING SYSTEM



■ Marking system



Example



Current Rating



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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 _{MIN}	R _{1MAX}
	I _H , A	I _T , A	V _{MAX} , V _{dc}	I _{MAX} , A	P _d , W	Amp	Sec	Ω	Ω
SM005-60	0.05	0.15	60	100	0.60	0.25	1.50	3.60	50.00
SM010-60	0.10	0.25	60	100	0.60	0.50	1.50	1.60	15.00
SM020-30	0.20	0.40	30	100	0.60	8.00	0.02	0.80	5.00
SM035-16	0.35	0.70	16	100	0.60	8.00	0.20	0.32	1.30
SM050-16	0.50	1.00	16	100	0.60	8.00	0.10	0.25	0.90
SM075-08	0.75	1.50	8	100	0.60	8.00	0.10	0.13	0.40
SM075-24	0.75	1.50	24	100	0.60	8.00	0.10	0.13	0.40
SM110-08	1.10	2.20	8	100	0.80	8.00	0.30	0.06	0.21
SM110-16	1.10	2.20	16	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	3.50	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	0.07

I_H=Hold current-maximum current at which the device will not trip at 23°C still air.

I_T=Trip current-minimum current at which the device will always trip at 23°C still air.

V_{MAX}=Maximum voltage device can withstand without damage at rated current.

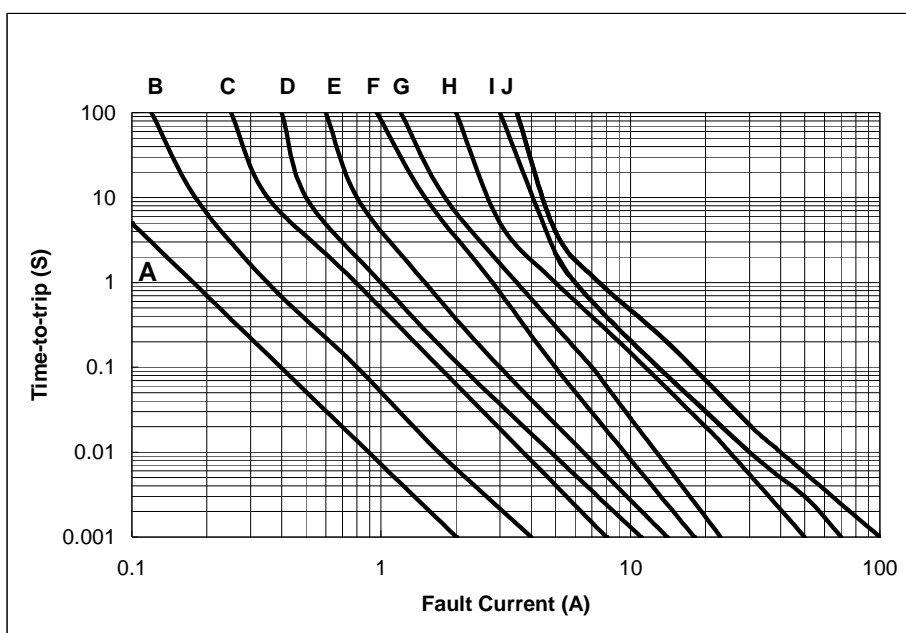
I_{MAX}= Maximum fault current device can withstand without damage at rated voltage (V max).

P_d=Typical power dissipated from device when in the tripped state in 23°C still air environment.

R_{MIN}=Minimum device resistance at 23°C.

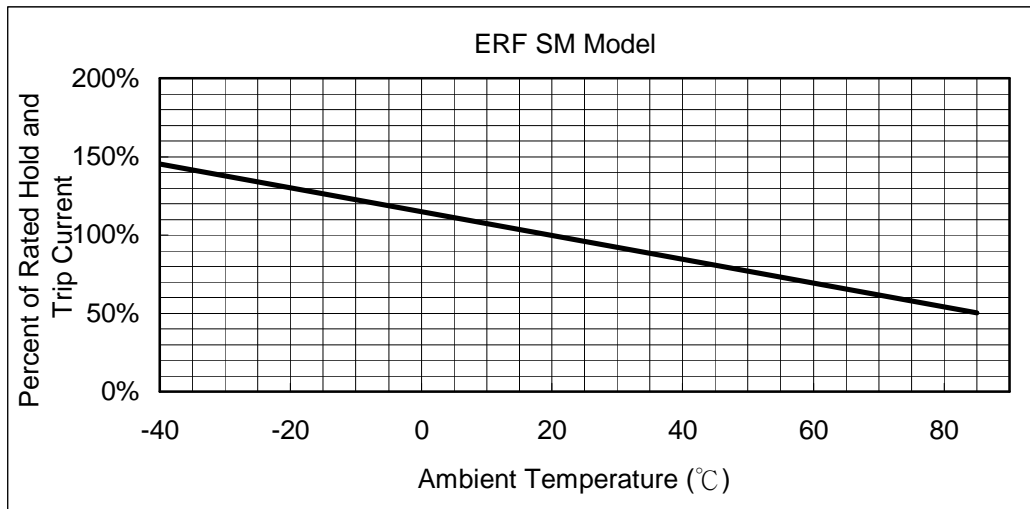
R_{1MAX}=Maximum device resistance at 23°C 1 hour after tripping .

■ Typical time-to-trip-at 23°C



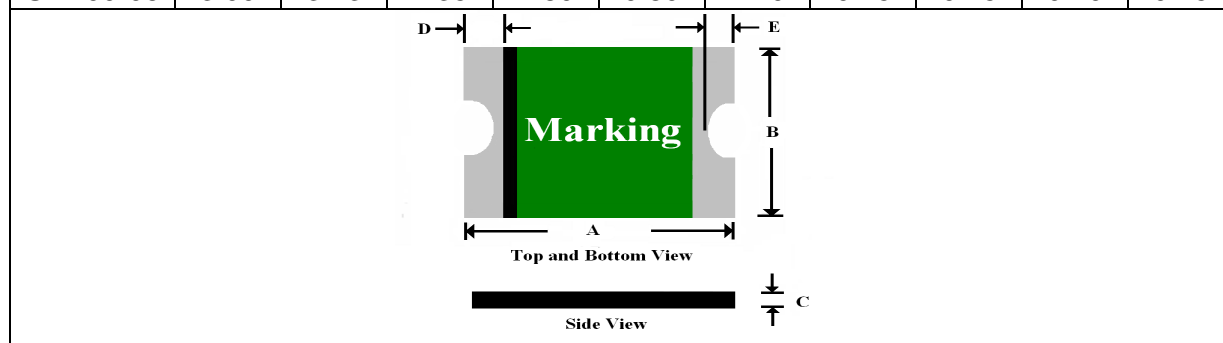
A = SM005
B = SM010
C = SM020
D = SM035
E = SM050
F = SM075
G = SM110
H = SM150
I = SM175
J = SM200

Thermal Derating Curve



SM Product Dimensions (UNIT: mm)

PART NUMBER	A		B		C		D		E	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
SM005-60	3.00	3.43	2.35	2.80	0.60	1.15	0.25	0.75	0.10	0.45
SM010-60	3.00	3.43	2.35	2.80	0.60	1.15	0.25	0.75	0.10	0.45
SM020-30	3.00	3.43	2.35	2.80	0.40	0.85	0.25	0.75	0.10	0.45
SM035-16	3.00	3.43	2.35	2.80	0.40	0.80	0.25	0.75	0.10	0.45
SM050-16	3.00	3.43	2.35	2.80	0.30	0.75	0.25	0.75	0.10	0.45
SM075-08	3.00	3.43	2.35	2.80	0.30	0.70	0.25	0.75	0.10	0.45
SM075-24	3.00	3.43	2.35	2.80	0.80	1.20	0.25	0.75	0.10	0.45
SM110-08	3.00	3.43	2.35	2.80	0.60	1.00	0.25	0.75	0.10	0.45
SM110-16	3.00	3.43	2.35	2.80	0.60	1.00	0.25	0.75	0.10	0.45
SM150-06	3.00	3.43	2.35	2.80	0.50	0.90	0.25	0.75	0.10	0.45
SM175-06	3.00	3.43	2.35	2.80	0.80	1.40	0.25	0.75	0.10	0.45
SM200-06	3.00	3.43	2.35	2.80	0.80	1.40	0.25	0.75	0.10	0.45

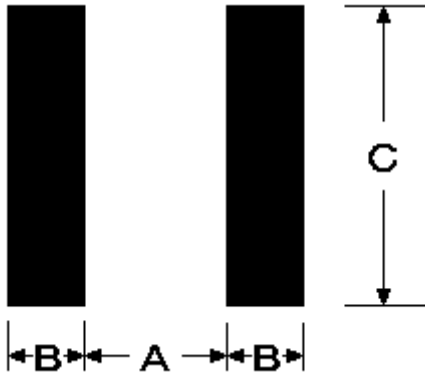


Standard Package for Reference

P/N	Reel/Tape	P/N	Reel/Tape	P/N	Reel/Tape	P/N	Reel/Tape
SM005-60	3.0K	SM050-16	4.0K	SM110-16	3.0K	SM175-06	3.0K
SM010-60	3.0K	SM075-08	4.0K	SM150-06	3.0K	SM200-06	3.0K
SM020-30	3.0K	SM075-24	3.0K	SM175-06	3.0K		
SM035-16	4.0K	SM110-08	3.0K	SM200-06	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
SB MODEL	3.40	1.50	4.60
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.

