

POLYRESET

Polymer PTC Resettable Fuse SMD Type

SM series

(1) Features

1. Overcurrent and overtemperature protection device has a low resistance and high hold current.
2. Surface mount devices
3. Fully compatible with current industry standards.
4. Surface mount packaging for automated assembly.
5. Rugged, monolithic construction.

(2) Applications

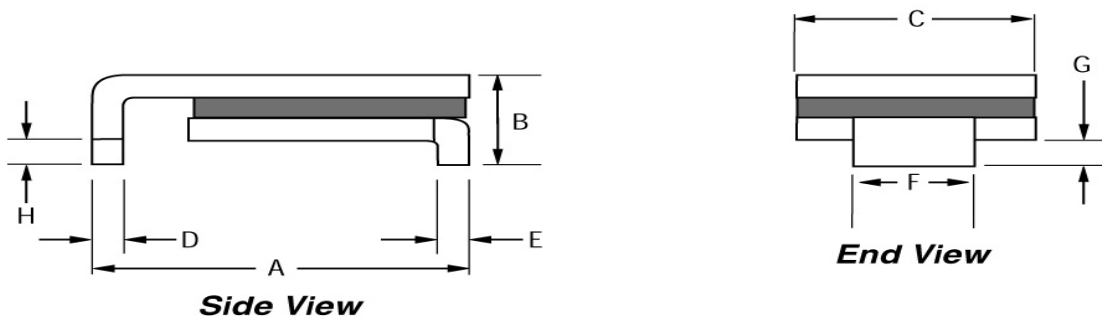
1. General electronics : Phones, fax machines, television, printers, video equipment.
2. Computers & peripherals.
3. Automotive applications.

(3) Ordering Information

PR - SM - 050 - B
(1) (2) (3) (4)

- (1) Polyreset Product Designator
- (2) Product series
 - MS series
 - US series
 - MS series
- (3) Hold current ($\times 0.01$ Amp)
- (4) Packaging
 - T : Tape and Reel
 - B : Bulk

(4) Shape and Dimension



Unit : millimeters(inches)

Part number	A(max.)	B(max.)	C(max.)	D(min.)	E(max.)	F(max.)	G(max.)	H(min.)	Fig
PR-SM-030-□	7.98 (0.314)	3.18 (0.125)	5.44 (0.214)	0.71 (0.028)	0.71 (0.028)	2.41 (0.095)	1.37 (0.054)	0.43 (0.017)	1
PR-SM-050-□	7.98 (0.314)	3.18 (0.125)	5.44 (0.214)	0.71 (0.028)	0.71 (0.028)	2.41 (0.095)	1.37 (0.054)	0.43 (0.017)	1
PR-SM-075-□	7.98 (0.314)	3.18 (0.125)	5.44 (0.214)	0.71 (0.028)	0.71 (0.028)	2.41 (0.095)	1.37 (0.054)	0.43 (0.017)	1
PR-SM-100-□	7.98 (0.314)	3.00 (0.118)	5.44 (0.214)	0.71 (0.028)	0.71 (0.028)	2.41 (0.095)	1.37 (0.054)	0.43 (0.017)	1
PR-SM-125-□	7.98 (0.314)	3.00 (0.118)	5.44 (0.214)	0.71 (0.028)	0.71 (0.028)	2.41 (0.095)	1.37 (0.054)	0.43 (0.017)	1
PR-SM-150-□	9.50 (0.374)	3.00 (0.118)	6.71 (0.264)	0.71 (0.028)	0.71 (0.028)	3.94 (0.155)	1.37 (0.054)	0.43 (0.017)	1
PR-SM-200-□	9.50 (0.374)	3.00 (0.118)	6.71 (0.264)	0.71 (0.028)	0.71 (0.028)	3.94 (0.155)	1.37 (0.054)	0.43 (0.017)	1
PR-SM-250-□	9.50 (0.374)	3.00 (0.118)	6.71 (0.264)	0.71 (0.028)	0.71 (0.028)	3.94 (0.155)	1.37 (0.054)	0.43 (0.017)	1
PR-SM-260-□	7.98 (0.314)	3.00 (0.118)	6.71 (0.264)	0.71 (0.028)	0.71 (0.028)	3.94 (0.155)	1.37 (0.054)	0.43 (0.017)	1

(5) Specifications

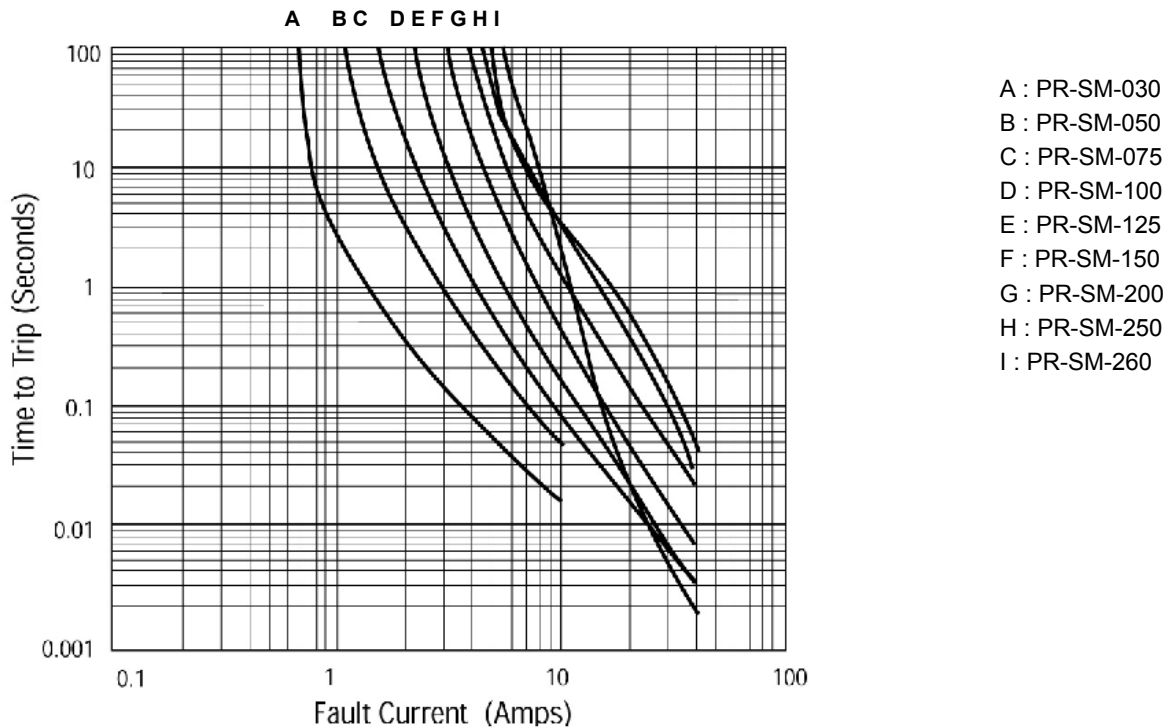
◆ Electrical Characteristics

Part number	V _{max} (V)	I _{max} (A)	I _H (A)	I _T (A)	Max.time to trip		P _d (W)	R _{min} (Ω)	R _{1 max} (Ω)
					(A)	(s)			
PR-SM-030-□	60	10	0.30	0.60	1.5	3.0	1.7	0.90	4.80
PR-SM-050-□	30	10	0.50	1.00	2.5	4.0	1.7	0.35	1.40
PR-SM-075-□	30	40	0.75	1.50	8.0	0.30	1.7	0.23	1.00
PR-SM-100-□	15	40	1.10	2.20	8.0	0.50	1.7	0.12	0.48
PR-SM-125-□	15	40	1.25	2.50	8.0	2.0	1.7	0.07	0.25
PR-SM-150-□	15	40	1.50	3.00	8.0	5.0	1.9	0.06	0.25
PR-SM-200-□	15	40	2.00	4.00	8.0	12.0	1.9	0.045	0.125
PR-SM-250-□	15	40	2.50	5.00	8.0	25.0	1.9	0.024	0.085
PR-SM-260-□	6	40	2.60	5.20	8.0	20.0	1.7	0.025	0.075

◆ Hold current vs. Temperature

Part number	Maximum ambient operating temperature (°C)								
	-40	-20	0	20	40	50	60	70	85
PR-SM-030-□	0.45	0.40	0.35	0.30	0.25	0.23	0.20	0.17	0.14
PR-SM-050-□	0.76	0.67	0.59	0.50	0.42	0.38	0.33	0.29	0.23
PR-SM-075-□	1.13	1.01	0.88	0.75	0.62	0.56	0.50	0.44	0.34
PR-SM-100-□	1.66	1.47	1.29	1.00	0.91	0.83	0.73	0.64	0.50
PR-SM-125-□	1.89	1.68	1.46	1.25	1.04	0.94	0.83	0.73	0.56
PR-SM-150-□	2.27	2.01	1.76	1.50	1.25	1.13	0.99	0.87	0.68
PR-SM-200-□	3.02	2.68	2.34	2.00	1.66	1.50	1.32	1.16	0.90
PR-SM-250-□	3.78	3.35	2.93	2.50	2.08	1.88	1.65	1.45	1.13
PR-SM-260-□	3.64	3.25	2.91	2.60	2.26	2.08	1.95	1.74	1.48

◆ Time to trip at 20°C



(6) Environmental Characteristics

ITEM	REQUIREMENT	TEST CONDITION
Operating/Storage Temperature		-40°C to +85°C
Maximum Device Surface Temperature in Tripped state		125°C
Passive Aging	±5% typical resistance change	+85°C, 1000 hours
Humidity Aging	±5% typical resistance change	+85°C, 85% R.H. 7days
Thermal Shock	±10% typical resistance change	+125°C to -55°C, 10 times
Vibration	No change	MIL-STD-883C, Condition A

(7) Test Procedures And Requirement

ITEM	REQUIREMENT	TEST CONDITION
Visual/Mech.	Per physical description	Verify dimensions and materials
Resistance	$R_{min} \leq R \leq R_{max}$	In still air @23°C
Time to Trip	$T \leq \text{max. time to trip(seconds)}$	At specified current, V_{max} , 23°C
Hold Current	No Trip	30min. at I_{hold}
Trip Cycle Test	No arching or burning	V_{max} , I_{max} , 100 cycles
Trip Endurance	No arching or burning	V_{max} , 48hours
Solderability	95% mim.coverage	MIL_STD-202F, Method208F

(8) Physical Charateristics

Termination materials	Tin plated brass
Termination pad solerability	Meets EIA specification RS-186-9E, ANSI/J-STD-002 category 3.

(9) Packing

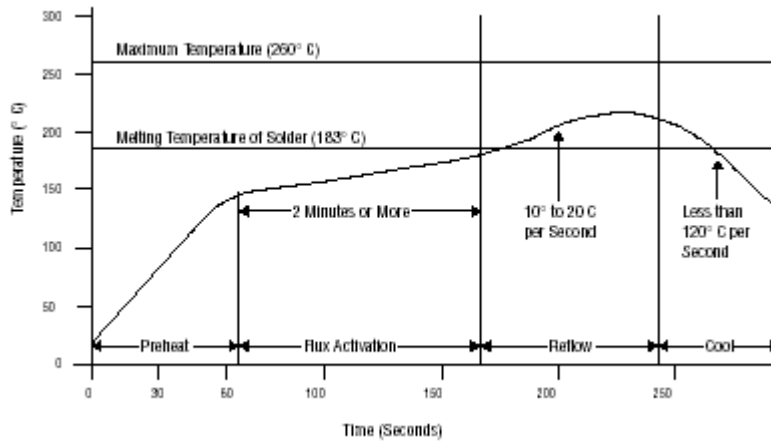
- (1) Bulk
1000 pcs. per a bag.
- (2) Tape and Reel
PR-SM-030, 050, 075, 100, 125, 260 : 2000pcs. per reel
PR-SM-150, 200, 250 : 1500pcs. per reel

(10) Terms and Description

1. Hold current (I_H)
maximum current at which the device will not trip at 20°C
2. Trip current (I_T)
minimum current at which the device will always trip at 20°C ($2 \times I_H$)
3. Typical power dissipation (P_d)
typical amount of power dissipation by the device when in tripped state in 20°C still air environment
4. R_{min} : Minimum device resistance at 20°C prior to tripping
5. R_{max} : Maximum device resistance at 20°C prior to tripping
6. R_{1max} : Maximum device resistance measured in the nontripped state 1 hour post reflow with reflow conditions of 230°C for 10sec.

(11) Soldering Profile

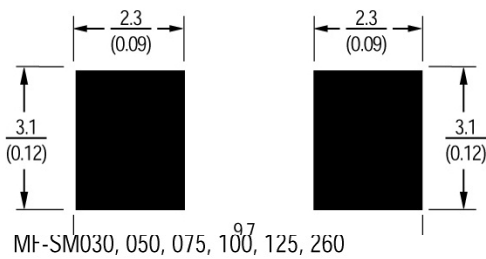
Reflow Soldering Profile



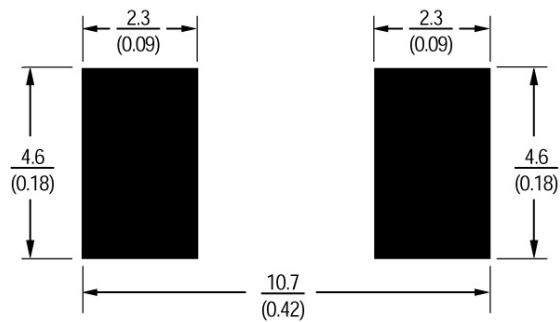
(12) Land Pattern Design

Recommended Pad Layout

unit : millimeters(inches)



PR-SM-030,050,075,100,125,260



PR-SM-150,200,250

(13)Tape and Reel Specification

unit : millimeters (inches)

Tape Dimension Identifiers	SM030, 050, 075, 100, 125 per EIA-481-2	SM150, 200, 250, 260 per EIA 481-2
W	$\frac{16 \pm 0.3}{(63 \pm .012)}$	$\frac{16 \pm 0.3}{(63 \pm .012)}$
P ₀	$\frac{4.0 \pm 0.10}{(.157 \pm .004)}$	$\frac{4.0 \pm 0.10}{(.157 \pm .004)}$
P ₁	$\frac{8.0 \pm 0.10}{(.315 \pm .004)}$	$\frac{12.0 \pm 0.10}{(.472 \pm .004)}$
P ₂	$\frac{8.0 \pm 0.10}{(.315 \pm .004)}$	$\frac{12.0 \pm 0.10}{(.472 \pm .004)}$
A ₀	$\frac{2.0 \pm 0.10}{(.079 \pm .004)}$	$\frac{2.0 \pm 0.10}{(.079 \pm .004)}$
B ₀	$\frac{5.7 \pm 0.10}{(.224 \pm .004)}$	$\frac{6.9 \pm 0.10}{(.272 \pm .004)}$
B ₁ max.	$\frac{8.1 \pm 0.15}{(.319 \pm .005)}$	$\frac{9.6 \pm 0.10}{(.378 \pm .004)}$
D ₀	$\frac{9.1}{(.358)}$	$\frac{11.0}{(.433)}$
F	$\frac{1.5 \pm 0.17/-0}{(.059 \pm .004/-0)}$	$\frac{1.5 \pm 0.17/-0}{(.059 \pm .004/-0)}$
E ₁	$\frac{7.5 \pm 0.10}{(.295 \pm .004)}$	$\frac{7.5 \pm 0.10}{(.295 \pm .004)}$
E ₂ min.	$\frac{1.75 \pm 0.10}{(.069 \pm .004)}$	$\frac{1.75 \pm 0.10}{(.069 \pm .004)}$
T max.	$\frac{14.25}{(.561)}$	$\frac{14.25}{(.561)}$
T ₁ max.	$\frac{0.4}{(.016)}$	$\frac{0.4}{(.016)}$
K ₀	$\frac{0.1}{(.004)}$	$\frac{0.1}{(.004)}$
Leader min.	$\frac{3.4 \pm 0.15}{(.134 \pm .005)}$	$\frac{3.5 \pm 0.15}{(.138 \pm .005)}$
Trailer min.	$\frac{390}{(15.35)}$	$\frac{390}{(15.35)}$
Reel Dimension Identifiers		
A max.	$\frac{160}{(6.30)}$	$\frac{160}{(6.30)}$
N min.	$\frac{360}{(14.17)}$	$\frac{360}{(14.17)}$
N min.	$\frac{50}{(1.97)}$	$\frac{50}{(1.97)}$
W ₁	$\frac{16.4 \pm 2.0/-0}{(.65 \pm .079/-0)}$	$\frac{16.4 \pm 2.0/-0}{(.65 \pm .079/-0)}$
W ₂ max.	$\frac{22.4}{(.882)}$	$\frac{22.4}{(.882)}$

DIMENSIONS = $\frac{\text{MM}}{\text{(INCHES)}}$

