

POLYRESET

Polymer PTC Resettable Fuse SMD Type

US (3225 size) series

(1) Features

1. Overcurrent and overtemperature protection device has a low resistance and high hold current.
2. 3.2mm x2.5mm size SMD.
3. Fast tripping resettable circuit protection.
4. Surface mount packaging for automated assembly.
5. Rugged, monolithic construction.

(2) Applications

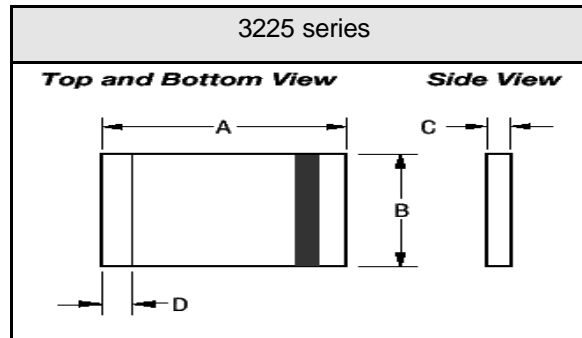
1. General electronics : Phones, fax machines, television, printers, video equipment.
2. PC motherboards.
3. PC modems..
4. USB.
5. Analog and digital line cards.

(3) Ordering Information

PR - US - 005 - B
(1) (2) (3) (4)

- (1) Polyreset Product Designator
- (2) Product series
ex) MS series/ US series
- (3) Hold current (x0.01 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.)	Fig
PR-US-005-	3.43 (0.135)	2.80 (0.110)	0.62 (0.025)	0.30 (0.012)	1
PR-US-010-	3.43 (0.135)	2.80 (0.110)	0.62 (0.025)	0.30 (0.012)	1
PR-US-035-	3.43 (0.135)	2.80 (0.110)	0.62 (0.025)	0.30 (0.012)	1
PR-US-050-	3.43 (0.135)	2.80 (0.110)	0.62 (0.025)	0.30 (0.012)	1
PR-US-075-	3.43 (0.135)	2.80 (0.110)	0.62 (0.025)	0.30 (0.012)	1
PR-US-110-	3.43 (0.135)	2.80 (0.110)	0.62 (0.025)	0.30 (0.012)	1

(5) Specifications

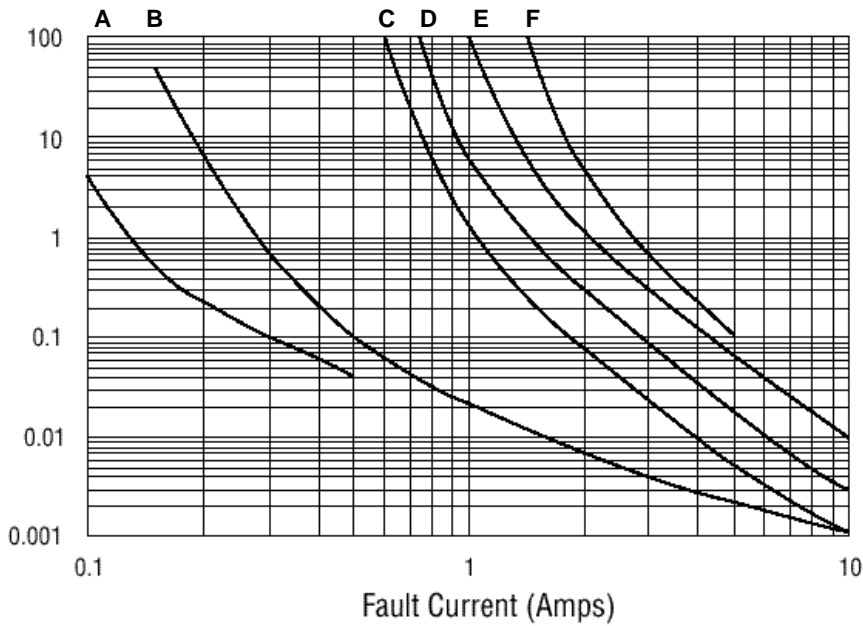
Electrical Characteristics

Part number	V _{max} (V)	I _{max} (A)	I _H (A)	I _T (A)	Max.time to trip		P _d (W)	R _{min} ()	R ₁ max ()
					(A)	(s)			
PR-US-005-	30.0	10	0.05	0.15	0.5	0.03	0.6	3.60	50.0
PR-US-010-	30.0	10	0.10	0.30	5.0	0.002	0.6	1.36	13.0
PR-US-035-	6.0	40	0.35	0.75	5.0	0.005	0.6	0.32	1.30
PR-US-050-	13.2	40	0.50	1.00	5.0	0.02	0.6	0.23	0.80
PR-US-075-	6.0	40	0.75	1.50	5.0	0.05	0.6	0.13	0.195
PR-US-110-	6.0	40	1.10	2.20	5.0	0.10	0.6	0.07	0.105

Hold current vs. Temperature

Part number	Maximum ambient operating temperature ()								
	-40	-20	0	20	40	50	60	70	85
PR-US-005-	0.08	0.07	0.06	0.05	0.04	0.04	0.03	0.03	0.02
PR-US-010-	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.03
PR-US-035-	0.47	0.45	0.40	0.35	0.33	0.28	0.24	0.21	0.18
PR-US-050-	0.76	0.67	0.58	0.50	0.43	0.40	0.36	0.32	0.28
PR-US-075-	1.00	0.97	0.86	0.75	0.64	0.59	0.54	0.48	0.40
PR-US-110-	1.55	1.37	1.20	1.10	0.83	0.72	0.61	0.54	0.39

Time to trip at 20 (3225 series)



- A : PR-US-005
- B : PR-US-010
- C : PR-US-035
- D : PR-US-050
- E : PR-US-075
- F : PR-US-110

(6) Environmental Characteristics

ITEM	REQUIREMENT	TEST CONDITION
Operating/Storage Temperature		-40 to +85
Maximum Device Surface Temperature in Tripped state		125
Passive Aging	±5% typical resistance change	+85 , 1000 hours
Humidity Aging	±10% typical resistance change	+85 , 85% R.H. 7days
Thermal Shock	±10% typical resistance change	+85 to -40 ,20 times
Solvent Resistance	No change	MIL-STD-202, Method 215
Vibration	No change	MIL-STD-883C, Condition A
Stocking Recommendations	6 months with prepackaged desiccant	

(7) Test Procedures And Requirement

ITEM	REQUIREMENT	TEST CONDITION
Visual/Mech.	Per physical description	Verify dimensions and materials
Resistance	Rmin R Rmax	In still air @23
Time to Trip	T max. time to trip(seconds)	At specified current, Vmax, 23
Hold Current	No Trip	30mim. at Ihold
Trip Cycle Test	No arching or burning	Vmax, Imax, 100 cycles
Trip Endurance	No arching or burning	Vmax, 48hours

(8) Physical Characteristics

Termination materials	solder-plated copper
Termination pad solderability	Meets EIA specification RS-186-9E, ANSI/J-STD-002 category 3.

(9) Packing

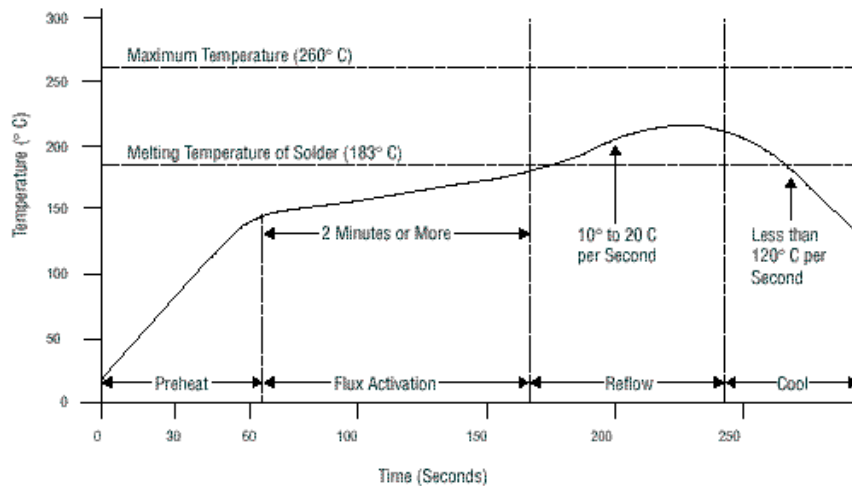
- (1) Bulk
1000 pcs. per a bag.
- (2) Tape and Reel
3000 per reel

(10) Terms and Description

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

(11) Soldering Profile

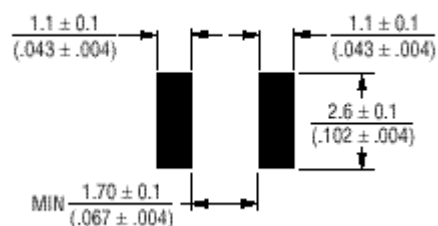
Reflow Soldering Profile



(11) Land Pattern Design

unit : mm

Recommended Pad Layout



(13)Tape and Reel Specification

unit : mm (inch)

Tape Dimension Identifiers	4532 Series per EIA-481-1	3225 Series per EIA 481-1
W	$\frac{12 \pm 0.3}{(.472 \pm .012)}$	$\frac{8 \pm 0.3}{(.040 \pm .012)}$
P ₀	$\frac{4.0 \pm 0.10}{(.157 \pm .004)}$	$\frac{4.0 \pm 0.10}{(.157 \pm .004)}$
P ₁	$\frac{8.0 \pm 0.10}{(.315 \pm .004)}$	$\frac{4.0 \pm 0.10}{(.157 \pm .004)}$
P ₂	$\frac{2.0 \pm 0.05}{(.079 \pm .039)}$	$\frac{2.0 \pm 0.05}{(.079 \pm .039)}$
A ₀	$\frac{3.5 \pm 0.23}{(.134 \pm .009)}$	$\frac{2.8 \pm 0.1}{(.110 \pm .004)}$
B ₀	$\frac{5.1 \pm 0.15}{(.201 \pm .006)}$	$\frac{3.5 \pm 0.1}{(.138 \pm .004)}$
B ₁ max.	$\frac{5.9}{(.232)}$	$\frac{4.35}{(.171)}$
D ₀	$\frac{1.5 + 0.1/-0}{(.059 + .004/-0)}$	$\frac{1.5 + 0.1/-0}{(.059 + .004/-0)}$
F	$\frac{5.5 \pm 0.05}{(.2165 \pm .002)}$	$\frac{3.5 \pm 0.05}{(.138 \pm .002)}$
E ₁	$\frac{1.75 \pm 0.10}{(.069 \pm .004)}$	$\frac{1.75 \pm 0.10}{(.069 \pm .004)}$
E ₂ min.	$\frac{10.25}{(.404)}$	$\frac{6.25}{(.246)}$
T max.	$\frac{0.6}{(.024)}$	$\frac{0.6}{(.024)}$
T ₁ max.	$\frac{0.1}{(.004)}$	$\frac{0.1}{(.004)}$
K ₀	$\frac{0.9 \pm 0.15}{(.035 \pm .006)}$	$\frac{1.1 \pm 0.05}{(.043 \pm .002)}$
Leader min.	$\frac{390}{(15.35)}$	$\frac{390}{(15.35)}$
Trailer min.	$\frac{160}{(6.30)}$	$\frac{160}{(6.30)}$
Reel Dimension Identifiers		
A max.	$\frac{185}{(7.283)}$	$\frac{185}{(7.283)}$
N min.	$\frac{50}{(1.97)}$	$\frac{50}{(1.97)}$
W ₁	$\frac{12.4 + 2.0/-0}{(.488 + .075/-0)}$	$\frac{8.4 + 1.5/-0}{(.331 + .059/-0)}$
W ₂ max.	$\frac{18.4}{(.724)}$	$\frac{14.4}{(.567)}$

