



Fig. 9 — SRP Series

These products help provide reliable, non-cycling protection for rechargeable batteries. Weldable nickel leads and a narrow, low-profile design make these devices extremely easy to install on the edges of battery packs.

Fig. 10 — SMD

Recommended Pad Layout

This product series is specifically designed for surface mount applications. The products range in hold currents from 0.3 amps to 3.0 amps and voltages from 6 volts to 60 volts. These devices are ideally suited for high density board applications in computer and computer peripheral products, telecommunications and general electronics applications. They are designed to be reflowed onto a PCB using standard surface mount processes. Packaged per EIA-481 standard.

Fig. 11 — miniSMD

Recommended Pad Layout

The miniSMD resettable devices extremely small size makes them excellent choices for keyboard and mouse ports, SCSI devices, battery packs, PC cards and sockets, cellular modems and phones, and portable electronic equipment. SMT packaging for automated assembly compared to SMD the miniSMD offers: 40% reduction in size, 300% faster time to trip, 50% reduction in DC resistance, 66% reduction in profile, 80% reduction in mass and drop in replacement for the NANO 2 device in many applications.

Fig. 12 — microSMD

This product series is designed for surface-mount applications. Its smaller component size enables installation on crowded printed circuit boards and in small end-user devices such as digital cameras, personal digital assistants (PDAs) and palm-top computers. The new low hold current devices are ideal for protecting industrial sensors and data acquisition systems.

Fig. 13 — nanoSMD

The nanoSMD series reduces the component size to a 1206 footprint, nearly half the size of the microSMD series and one-quarter the size of the popular miniSMD series. The industries fastest time to trip. Smaller size saves board space and cost. Compatible with high volume electronics assembly.

Fig.	Max Volt.	Rated Current (20°C) (amps)		Max Current (Amp)	R ₁ Max Initial (Ohms)	Recognized By	Dimensions Inches (mm)			Digi-Key Part No.	Price Each			Raychem Part No.
		Hold	Trip				A	B	C		1	10	100	
SRP														
9	15	1.20	2.70	100	0.16	UL, TUV, CSA	0.87 (22.1)	0.20 (5.2)	0.04 (1.0)	SRP120-ND	.62	.57	.52	SRP120
9	15	1.75	3.80	100	0.09	UL, TUV, CSA	0.91 (23.1)	0.20 (5.2)	0.04 (1.0)	SRP175-ND	.62	.57	.52	SRP175
9	30	2.00	4.40	100	0.06	UL, TUV, CSA	0.92 (23.4)	0.43 (11.0)	0.04 (1.1)	SRP200-ND	.62	.57	.52	SRP200
9	30	3.50	6.30	100	0.03	UL, TUV, CSA	1.25 (31.8)	0.53 (13.5)	0.04 (1.1)	SRP350-ND	.66	.61	.55	SRP350
9	30	4.20	7.60	100	0.024	UL, TUV, CSA	1.28 (32.4)	0.54 (13.6)	0.04 (1.1)	SRP420-ND	.66	.61	.55	SRP420

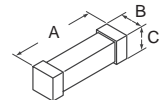
Fig.	Max Volt.	Rated Current (20°C) (amps)		Max Current (Amp)	R ₁ Max Initial (Ohms)	Recognized By	Dimensions Inches (mm)						Digi-Key Part No.	Cut Tape Price Each			Tape & Reel†		Raychem Part No.
		Hold	Trip				A (max.)	B (max.)	C (max.)	D	E	F		1	10	100	Size	Pricing	
SMD																			
10	60	0.30	0.60	10	4.8	UL, TUV, CSA	.314 (7.98)	.125 (3.18)	.214 (5.44)	.12 (3.1)	.200 (5.1)	.09 (2.3)	SMD030CT-ND	.86	.74	.68	2,000	412.00/M	SMD030-2
10	60	0.50	1.00	10	1.4	UL, TUV, CSA	.314 (7.98)	.125 (3.18)	.214 (5.44)	.12 (3.1)	.200 (5.1)	.09 (2.3)	SMD050CT-ND	.86	.74	.68	2,000	412.00/M	SMD050-2
10	30	0.75	1.50	40	1.0	UL, TUV, CSA	.314 (7.98)	.125 (3.18)	.214 (5.44)	.12 (3.1)	.200 (5.1)	.09 (2.3)	SMD075CT-ND	.86	.74	.68	2,000	412.00/M	SMD075-2
10	30	1.10	2.20	40	.48	UL, TUV, CSA	.314 (7.98)	.118 (3.00)	.214 (5.44)	.12 (3.1)	.200 (5.1)	.09 (2.3)	SMD100CT-ND	.82	.70	.65	2,000	391.00/M	SMD100-2
10	15	1.25	2.50	40	.25	UL, TUV, CSA	.314 (7.98)	.118 (3.00)	.214 (5.44)	.12 (3.1)	.200 (5.1)	.09 (2.3)	SMD125CT-ND	.82	.70	.65	2,000	391.00/M	SMD125-2
10	15	1.50	3.00	40	.25	UL, TUV, CSA	.370 (9.40)	.118 (3.00)	.264 (6.71)	.18 (4.6)	.240 (6.1)	.09 (2.3)	SMD150CT-ND	.86	.74	.68	1,500	412.00/M	SMD150-2
10	15	2.00	4.00	40	0.125	UL, TUV, CSA	.370 (9.40)	.118 (3.00)	.264 (6.71)	.18 (4.6)	.240 (6.1)	.09 (2.3)	SMD200CT-ND	.86	.74	.68	1,500	412.00/M	SMD200-2
10	15	2.50	5.00	40	.085	UL, TUV, CSA	.370 (9.40)	.118 (3.00)	.264 (6.71)	.18 (4.6)	.240 (6.1)	.09 (2.3)	SMD250CT-ND	.86	.74	.68	1,500	412.00/M	SMD250-2
10	6	2.60	5.20	40	.075	UL, TUV, CSA	.314 (7.98)	.118 (3.00)	.214 (5.44)	.12 (3.1)	.200 (5.1)	.09 (2.3)	SMD260CT-ND	.86	.74	.68	2,000	391.00/M	SMD260-2
10	6	3.00	6.00	40	.048	UL, TUV, CSA	.314 (7.98)	.118 (3.00)	.214 (5.44)	.12 (3.1)	.200 (5.1)	.09 (2.3)	SMD300CT-ND	.82	.70	.65	2,000	391.00/M	SMD300-2

Fig.	Max Volt.	Rated Current (20°C) (amps)		Max Current (Amp)	R ₁ Max Initial (Ohms)	Recognized By	Dimensions - Inches (mm)			Digi-Key Part No.	Cut Tape Price Each			Tape & Reel†		Raychem Part No.
		Hold	Trip				A (max.)	B (max.)	C (max.)		1	10	100	Size	Pricing	
miniSMD																
11	60	0.14	0.34	10	6.0	UL, TUV, CSA	.186 (4.73)	.134 (3.41)	.035 (.89)	MINISMDC014CT-ND	.63	.55	.50	2,000	304.00/M	MINISMDC014-2
11	24	0.50	1.00	40	1.0	UL, TUV, CSA	.186 (4.73)	.134 (3.41)	.025 (.62)	MINISMDC050CT-ND	.63	.55	.50	2,000	304.00/M	MINISMDC050-2
11	13.2	0.75	1.50	40	.45	UL, TUV, CSA	.186 (4.73)	.134 (3.41)	.025 (.62)	MINISMDC075CT-ND	.63	.55	.50	2,000	304.00/M	MINISMDC075-2
11	6	1.1	2.2	40	.21	UL, TUV, CSA	.186 (4.73)	.134 (3.41)	.025 (.62)	MINISMDC110CT-ND	.63	.55	.50	2,000	304.00/M	MINISMDC110-2
11	6	1.5	3.0	40	.11	UL, TUV, CSA	.186 (4.73)	.134 (3.41)	.019 (.48)	MINISMDC150CT-ND	.63	.55	.50	2,000	304.00/M	MINISMDC150-2
11	6	2.0	4.0	40	.07	UL, TUV, CSA	.186 (4.73)	.134 (3.41)	.048 (1.22)	MINISMDC200CT-ND	.79	.68	.63	2,000	380.00/M	MINISMDC200-2
microSMD																
12	30	0.05	0.15	10	50	UL, TUV, CSA	.135 (3.43)	.110 (2.80)	.034 (.85)	MICROSMD005CT-ND	.63	.55	.50	4,000	350.45/M	MICROSMD005-2
12	30	0.10	0.25	10	15	UL, TUV, CSA	.135 (3.43)	.110 (2.80)	.034 (.85)	MICROSMD010CT-ND	.72	.64	.55	4,000	441.00/M	MICROSMD010-2
12	6	0.35	0.75	40	1.3	UL, TUV, CSA	.135 (3.43)	.110 (2.80)	.025 (.62)	MICROSMD035CT-ND	.72	.64	.55	4,000	441.00/M	MICROSMD035-2
12	13.2	0.50	1.0	40	.90	UL, TUV, CSA	.135 (3.43)	.110 (2.80)	.025 (.62)	MICROSMD050CT-ND	.63	.55	.50	4,000	305.00/M	MICROSMD050-2
12	6	0.75	1.5	40	.40	UL, TUV, CSA	.135 (3.43)	.110 (2.80)	.025 (.62)	MICROSMD075CT-ND	.63	.55	.50	4,000	305.00/M	MICROSMD075-2
12	6	1.10	2.2	40	.21	UL, TUV, CSA	.135 (3.43)	.110 (2.80)	.019 (.48)	MICROSMD110CT-ND	.63	.55	.50	4,000	305.00/M	MICROSMD110-2
12	6	1.50	3.0	40	.11	UL, TUV, CSA	.135 (3.43)	.110 (2.80)	.048 (1.22)	MICROSMD150CT-ND	.70	.60	.55	4,000	335.00/M	MICROSMD150-2
nanoSMD																
13A	6	0.50	1.00	40	0.7	UL, TUV, CSA	.134 (3.40)	.071 (1.80)	.047 (1.20)	NANOSMDM050CT-ND	.66	.57	.52	3,000	318.00/M	NANOSMDM050-2
13A	6	.75	1.50	40	0.29	UL, TUV, CSA	.134 (3.40)	.071 (1.80)	.047 (1.20)	NANOSMDM075CT-ND	.66	.57	.52	3,000	318.00/M	NANOSMDM075-2
13A	6	1.00	1.80	40	0.21	UL, TUV, CSA	.134 (3.40)	.071 (1.80)	.047 (1.20)	NANOSMDM100CT-ND	.66	.57	.52	3,000	318.00/M	NANOSMDM100-2
13B	6	1.50	3.00	40	0.11	UL, TUV, CSA	.134 (3.40)	.075 (1.90)	.055 (1.40)	NANOSMDM150CT-ND	.66	.57	.52	3,000	318.00/M	NANOSMDM150-2

† For Tape and Reel Part Number, change CT-ND to TR-ND.

Overcurrent Fuses — FT600 Series

Benefits: • When combined with a SiBar™ overvoltage protection device, assists equipment in meeting regulatory standards with no additional series components • Improved temperature rise performance over other similar SMT fuse devices under sneak current testing • High density placement in multi-port system designs
Target Applications: • xDSL and ADSL linecards and modems • T1/E1 systems • Twisted pair telecom ports requiring Telcordia GR-1089, UL60950 and FCC Part 68 compliance
Features: • The lightning robust surface-mount fuse offers overcurrent protection from power faults • Designed to assist equipment in complying with telecom specifications including UL60950, FCC Part 68, and Telcordia GR-1089
Specifications: • Termination Material: Silver-plated brass • Body Material: Ceramic

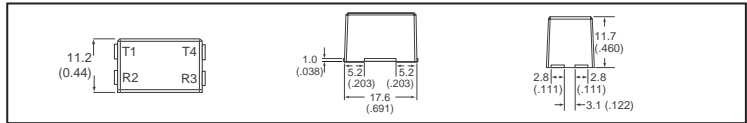


Ampere Rating (A)	Voltage Rating (V)	Typical Resistance Ω	Dimensions Inches (mm)			Digi-Key Part No.	Cut Tape Price Each			Tape & Reel†		Raychem Part No.
			A	B	C		1	10	100	Size	Pricing	
1.25	250	0.1	0.413 (10.5)	0.133 (3.4)	0.133 (3.4)	FT600-1250CT-ND	.88	.75	.69	2,500	420.00/M	FT600-1250-2
2.00	250	0.05	0.413 (10.5)	0.133 (3.4)	0.133 (3.4)	FT600-2000CT-ND	.88	.75	.69	2,500	420.00/M	FT600-2000-2

† For Tape and Reel Part Number, change CT-ND to TR-ND.

PolySwitch® TSM600-250

The TSM600-250 is an overcurrent protection device designed for DSL and other telecommu-
nications network equipment applications.
The TSM600-250 incorporates two matched, low-resistance PPTC components into a single
device yielding balanced protection on tip-and-ring lines with minimal attenuation of data
transmission.



Operating Voltage (Vdc)	IHOLD (mA)		Resistance (Ohm)**			Time to Trip @3A (Seconds)		Digi-Key Part No.	Price Each			Digi-Key Part No.	Tape & Reel Pricing 200	Raychem Part No.
	@ 20°C	@ 60°C	Rmin	Rtyp	R1max*	Typ.	Max.		1	10	100			
250	250	140	1.0	3.5	7.0	0.8	6	TSM600-250-2CT-ND	2.52	2.31	2.10	TSM600-250-2TR-ND	378.00	TSM600-250-2
250	250	140	1.0	3.0	5.0	1.0	6	TSM600-250-RA-2CT-ND	2.66	2.44	2.22	TSM600-250-RA-2TR-ND	398.70	TSM600-250-RA-2

*Maximum device resistance, measured 1-hour post reflow or post trip **Resistance per PPTC device

PolySwitch® Resettable Devices — TR Series

These product families help provide protection against power cross and power induction surge as defined in ITU, Telcordia, and UL.

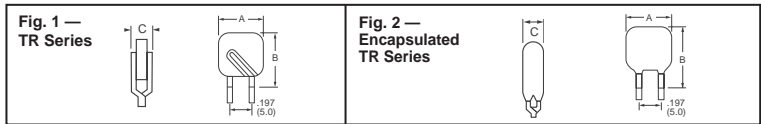


Fig.	Max Volt.	Oper. Vdc	Rated Current (20°C)		Max Current (Amp)	RMax Initial (Ohms)	Recognized By	Dimensions Inches (mm)			Digi-Key Part No.	Price Each			Raychem Part No.
			Hold	Trip				A	B	C		1	10	100	
1	250	60	0.080	0.16	3	20.0	UL, TUV, CSA	0.189 (4.80)	0.366 (9.30)	0.150 (3.80)	TR080U-ND*	.66	.61	.55	TR250-080U
	250	60	0.120	0.24	3	10.0	UL, TUV, CSA	0.236 (6.00)	0.394 (10.00)	0.150 (3.80)	TR120U-ND*	.66	.61	.55	TR250-120U
	250	60	0.145	0.29	3	6.5	UL, TUV, CSA	0.236 (6.00)	0.394 (10.00)	0.150 (3.80)	TR145U-ND*	.66	.61	.55	TR250-145U
	250	60	0.180	0.50	10	2.0	UL, TUV, CSA	0.410 (10.40)	0.496 (12.60)	0.150 (3.80)	TR180U-ND*	.83	.76	.69	TR250-180U
2	250	60	0.120	0.24	3	8.0	UL, TUV, CSA	0.256 (6.50)	0.433 (11.00)	0.180 (4.60)	TR120-ND*	.73	.68	.61	TR250-120
	250	60	0.145	0.29	3	6.0	UL, TUV, CSA	0.256 (6.50)	0.433 (11.00)	0.180 (4.60)	TR145-ND*	.73	.68	.61	TR250-145
	600	60	0.150	0.30	3	12.0	UL, CSA	0.531 (13.50)	0.496 (12.60)	0.236 (6.00)	TR150-ND*	1.15	1.06	.96	TR600-150
	600	60	0.150	0.30	3	10.0	UL, CSA	0.531 (13.50)	0.496 (12.60)	0.236 (6.00)	TR150RA-ND*	1.24	1.14	1.04	TR600-150-RA-B-0.5

* Warning: TR devices are not intended for continuous utility line voltage such as 120/220V or 240Vdc. Operating Voltage: 60Vdc

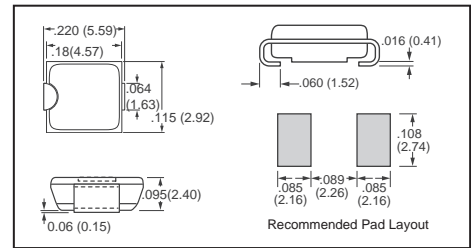
SiBar Thyristor Surge Protectors

SiBar thyristor surge protectors are designed specifically for telecommunications and computer telephony applications, including: • Modems • Fax machines • PBX Systems • Phones • POS Systems • Analog and digital linecards • Other customer premise and network equipment requiring protection.

Features: • Bidirectional transient voltage protection • High off-state impedance • Low on-state voltage • High surge capability • Short-circuit failure mode • Surface-mount technology • UL 497B recognized, file #E179610

SiBar thyristor surge protectors are bidirectional silicon devices that foldback in the presence of transient overvoltage faults. When the breakover voltage of a SiBar device is exceeded, the device switches from high to low impedance to protect sensitive downstream equipment from harmful voltage surges. The device remains latched in a low-impedance state until the current decreases below the hold current, at which point the device returns to its high-impedance state.

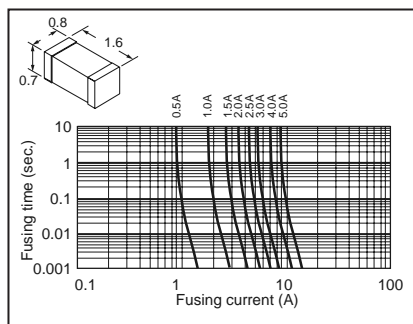
SiBar devices may be used in conjunction with PolySwitch resettable devices in telecommunications applications, including network equipment and customer premise equipment. Proper selection of both devices can provide reliable, self-resetting overvoltage and overcurrent protection, allowing designers to meet worldwide telecommunications standards and to lower equipment-service and warranty cost.



VDM max. (V)	VBO max. (V)	IH min. (mA)	VT max. (V)	C1 typ. (pF)	HTSM min. (A)	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape & Reel Pricing		Raychem Part No.
							1	10	100		Size	Pricing	
215	325	200	5.0	20	22	TVB280CT-ND	1.07	.92	.85	—	—	—	TVB280-050
165	265	200	5.0	20	22	TVB330CT-ND	1.07	.92	.85	—	—	—	TVB330-050
270	370	175	5.0	50	60	TVB270SCCT-ND	1.50	1.29	1.18	TVB270SCTR-ND	2,500	719.00/M	TVB270SC
200	320	175	5.0	50	60	TVB200SCCT-ND	1.50	1.29	1.18	TVB200SCTR-ND	2,500	719.00/M	TVB200SC
170	265	175	5.0	50	60	TVB170SCCT-ND	1.50	1.29	1.18	TVB170SCTR-ND	2,500	719.00/M	TVB170SC
270	370	175	5.0	20	22	TVB270SACT-ND	.74	.63	.58	TVB270SATR-ND	2,500	353.00/M	TVB270SA
200	320	175	5.0	20	22	TVB200SACT-ND	.99	.85	.78	TVB200SATR-ND	2,500	473.00/M	TVB200SA
170	265	175	5.0	20	22	TVB170SACT-ND	.99	.85	.78	TVB170SATR-ND	2,500	473.00/M	TVB170SA
270	365	175	3.0	22	22	TVA270SACT-ND	.69	.64	.58	TVA270SATR-ND	5,000	360.00/M	TVA270SA

Panasonic® Micro Chip Fuse Surface Mount "0603" (1608) Size

Features: • Small size 0603 (1608) • Sharp fusing characteristics (Very fast acting) • Pb free Applications: Specifications: • Operating Temperature Range: -40°C to +125°C • Fusing Current / Fusing Time (at 25°C): 100% rated current / 4 hours, Min., 200% rated current / 1 sec., Max., 300% rated current / 0.2 sec., • C-UL(CSA)C22.2 No. 248-14; File No. E194052; UL 248-14; File No. E194052



Rated Current (A)	Rated Voltage (VDC)	Marking Code	Internal R. (mohm) Max. @ 25°C	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape & Reel Pricing 5,000		Panasonic Part No.
					1	10	100		Size	Pricing	
ERB-FE Series											
0.5	32	F	330	P11353CT-ND	.42	.39	.30	P11353TR-ND	161.79/M	161.79/M	ERB-FE0R50U
1.0	32	H	120	P11354CT-ND	.42	.39	.30	P11354TR-ND	161.79/M	161.79/M	ERB-FE1R00U
1.5	32	K	70	P11355CT-ND	.42	.39	.30	P11355TR-ND	161.79/M	161.79/M	ERB-FE1R50U
2.0	32	N	50	P11356CT-ND	.42	.39	.30	P11356TR-ND	161.79/M	161.79/M	ERB-FE2R00U
2.5	32	O	38	P11357CT-ND	.42	.39	.30	P11357TR-ND	161.79/M	161.79/M	ERB-FE2R50U
3.0	32	P	31	P11358CT-ND	.42	.39	.30	P11358TR-ND	161.79/M	161.79/M	ERB-FE3R00U
4.0	24	S	22	P11359CT-ND	.42	.39	.30	P11359TR-ND	161.79/M	161.79/M	ERB-FE4R00U
5.0	24	T	17	P11360CT-ND	.42	.39	.30	P11360TR-ND	161.79/M	161.79/M	ERB-FE5R00U

More Product Available Online: www.digikey.com

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