Tyco Electronics
Our commitment. Your advantage.

SiBar thyristor surge protection devices help protect sensitive telecommunication equipment from the hazards caused by lightning, power contact, and power induction. These devices have a high electrical surge capability to help protect against transient faults and a high off-state impedance, rendering them virtually transparent during normal system operation.

SiBar thyristor surge protectors assist designers to meet telecommunication and computer telephony equipment requirements and industry specifications.

- Helps provide protection for sensitive telecom electronic equipment
- Low leakage current
- Low power dissipation
- Fast, reliable operation
- No wear-out mechanisms
- Assists designers to meet worldwide telecom standards
- Helps reduce warranty and service costs
- Easy installation
- Helps improve power efficiency of equipment

- RoHS compliant
- Bidirectional crowbar transient voltage protection
- Voltage range: 170V – 270V
- High off-state impedance
- Low on-state voltage
- High surge capability
- Short-circuit failure mode
- Surface-mount technology
- DO-214AC SMA package
- 10 x 1000 µs 50A surge rating
- Helps equipment comply with TIA-968, Telcordia GR-1089, IEC61000-4-5, ITU K.20/21/45

- Modems
- Fax machines
- Phones, answering machines
- PBX systems
- Set top boxes
- POS systems
- Analog and digital linecards (xDSL, T1/E1...)
- Other customer premise and central office network equipment requiring protection

Document: SCD 27283
Status: Released
Rev: A Date: JANUARY 11, 2008

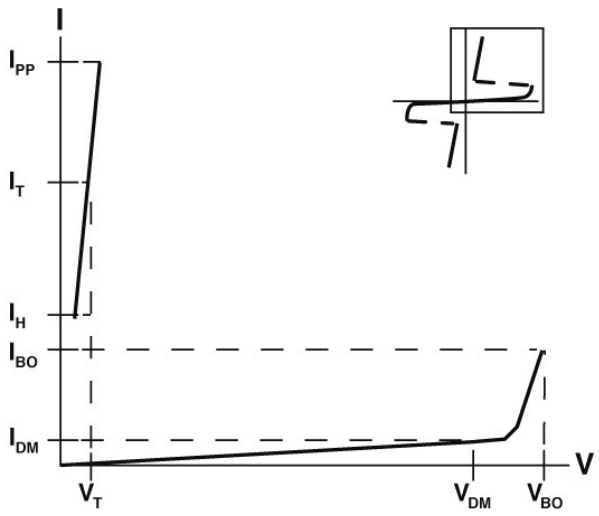
							µ
TVA170SA-L	170	265	150	4	20	39	5
TVA200SA-L	200	320	150	4	17	33	5
TVA270SA-L	270	365	150	4	16	31	5

Notes: All electrical characteristics are measured at 25°C.
V_{DM} measured per UL497B pulse requirements: at max. off-state leakage current (IDM) = 5 µA.
V_{BO} measured at 100V/µs.
C1 measured at 1 MHz with a 50 V_{DC} bias.
C2 measured at 1MHz with a 2V_{DC} bias.

	pp	pp	pp	pp	pp	pp	µ	µ	TSM	
TVAxxxSA-L	90	70	100	50	150	150	90	22	500	2000

Notes: *Lightning current wave forms for applicable industry specification.
I_{TSM}, peak on-state surge current is measured at 60 Hz, one cycle.
di/dt: critical rate-of-rise of on-state current (pulsed power amplifier Vmax = 600V; C = 30µF).
dV/dt: critical rate-of-rise of off-stage voltage (linear wave form, V_D = rated V_{BO}, Tj = 25°C

Figure SB1 - Voltage-Current Characteristics



The voltage current (V-I) is useful in depicting the electrical characteristics of the SiBar thyristor surge protectors in relation to each other.

Figure SB2 - Dimension Figure

[redacted]

TVAxxxSA-L	4.06	4.57	2.25	2.92	1.90	2.41	1.25	1.65
	(0.160)	(0.180)	(0.089)	(0.115)	(0.075)	(0.095)	(0.049)	(0.065)

TVAxxxSA-L	0.051	0.200	0.150	0.41	0.76	1.52	0.051	4.80	5.59
	(0.002)	(0.008)	(0.006)	(0.016)	(0.030)	(0.060)	(0.0020)	(0.189)	(0.220)

Notes: *D dimension is measured within dimension P.
TVA series devices use industry standard SMA package type.
All devices are bidirectional and may be oriented in either direction for installation

Lead material	Matte tin finish (-L devices)
Encapsulating material	Epoxy, meets UL94V-0 requirements
Solderability	per MIL-STD-750, Method 2026
Solder heat withstand	per MIL-STD-750, Method 2031
Solvent resistance	per MIL-STD-750, Method 1022
Mechanical shock	per MIL-STD-750, Method 2016
Vibration	per MIL-STD-750, Method 2056
Storage temperature (°C)	-55 to 150
Operating temperature (°C)	-40 to 125
Junction temperature (°C)	175
Maximum Lead Temperature for Soldering Purpose; for 10s (°C)	260

High temperature, reverse bias	+100°C, 50VDC bias	1000 hours
High humidity, high temperature, reverse bias	85% RH, +85°C, 50VDC bias	1000 hours
High temperature storage life	+150°C	1000 hours
Temperature cycling	-65°C to +150°C, 15 minute dwell	1000 cycles
Autoclave	100% RH, +121°C, 15 PSI	96 hours

Figures SB3-SB6 - Typical Electrical Charateristics vs. Temperature for Sibar Thyristor Surge Protectors

Figure SB3 - Off-state Voltage vs. Temperature

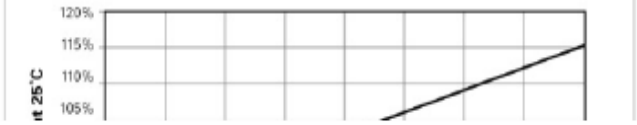


Figure SB4 - Breakover Voltage vs. Temperature

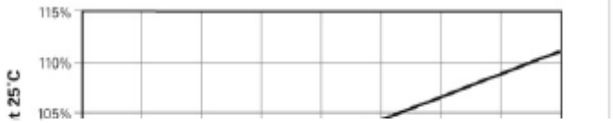
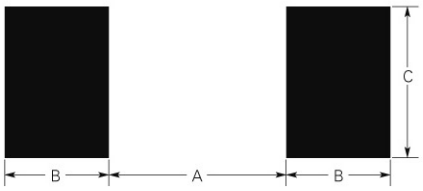


Figure SB7 - Recommended Pad Layout



TVA170SA-L	5,000	20,000	170S	2.0 (0.079)	2.0 (0.079)	2.0 (0.079)	UL
TVA220SA-L	5,000	20,000	200A	2.0 (0.079)	2.0 (0.079)	2.0 (0.079)	UL
TVA275SA-L	5,000	20,000	270A	2.0 (0.079)	2.0 (0.079)	2.0 (0.079)	UL

* UL 497B, File # E179610

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