

Circuit Protection's SiBar thyristor surge protection devices are designed to 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 are designed to assist telecommunication and computer telephony equipment in meeting the applicable requirements and industry specifications.



Benefits:

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

Features:

- · RoHS compliant
- · Bidirectional crowbar transient voltage protection
- Broad voltage range 200V 300V
- · High off-state impedance
- · Low on-state voltage
- · High surge capability
- · Short-circuit failure mode
- · Surface-mount technology
- DO-214AA SMB package
- 10 x 1000 μs 75A and 80A surge rating
- · Helps equipment comply with TIA-968, Telcordia GR-1089, IEC61000-4-5, ITU K.20/21/45

Applications:

· Modems

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

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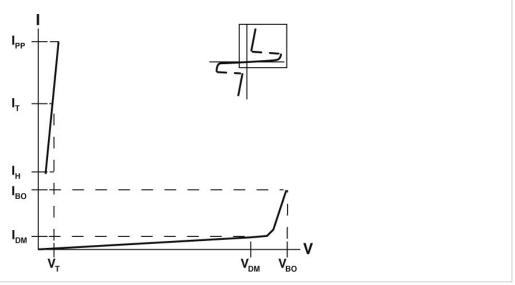
Table SB1 - E	Table SB1 - Electrical Characteristics								
Part Number	V _{DM} Max. (V)	V _{BO} Max. (V)	I _H Min. (mA)	V _⊤ Max. (V)	C1 (Typ) @50V _{DC} Bias (pF)	C2 (Typ) @2V _{DC} Bias (pF)	Off-State Current @VDM (µA)		
TVB200SB-L	200	320	150	4	30	49	5		
TVB270SB-L	275	350	150	4	25	50	5		
TVB300SB-L	300	400	150	4	21	42	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 μ A. V_{BO} measured at 100V/ μ s.

Table SB2	2 – Surge (Current Ra	ating							
	TIA-968			Telcordia GI	R-1089*	IEC61000-4-5	ITU K.20/21/45*			
	Type A	Type B						_		
Part Number	I _{pp} (A) 5 x 320 μs	I _{pp} (A) 10 x 560 μs	_{pp} (A) 10 x 160 μs	I _{pp} (A) 10 x 1000 μs	I _{pp} (A) 2 x 10 μs	Ι _{pp} (A) 8 x 20 μs	I _{PP} (A) 5 x 310 μs (VOC: 10 x 700μs)	I _{TSM} Min. (A)	di/dt (A/μs)	dV/dt (V/μs)
TVBxxxSB-L	100	100	150	80	250	250	100	30	500	2000

Notes: *Lightning current wave forms for applicable industry specification. $I_{\rm TSM}$, peak on-state surge current is measured at 60 Hz, one cycle. Middle critical rate-of-rise of on-state current (pulsed power amplifier Vmax = 600V; C = 30 μ F). dV/dt: critical rate-of-rise of off-stage voltage (linear wave form, V₀ = rated V₈₀, 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.

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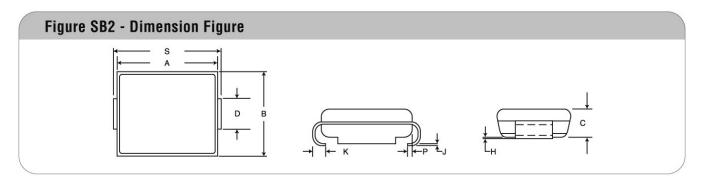


Table SB3 – Dimensions in Millimeters

	Α		В		С		D*	
Dimension	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
TVBxxxSB-L	4.06	4.57	3.30	3.94	1.90	2.41	1.95	2.20
TVBAAAOB E	(0.160)	(0.180)	(0.130)	(0.155)	(0.075)	(0.095)	(0.077)	(0.087)

	Н		J		К		Р	S	
Dimension	Min.	Max.	Min.	Max.	Min.	Max.	Ref.	Min.	Max.
TVBxxxSB-L	0.051	0.200	0.150	0.31	0.76	1.27	0.51	5.21	5.59
TVBXXXOB-L	(0.002)	(0.008)	(0.006)	(0.012)	(0.030)	(0.050)	(0.020)	(0.205)	(0.220)

Notes: *D dimension is measured within dimension P.

TVB series devices use industry standard SMB package type.

All devices are bidirectional and may be oriented in either direction for installation

Table SB4 – Physical Characteristics and En	vironmental Specifications			
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)	150			
Maximum Lead Temperature for Soldering Purpose; for 10s (°C)	260			

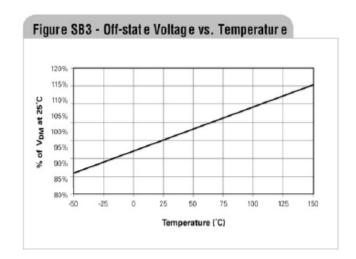
Test	Conditions	Duration
High temperature, reverse bias	+100°C, 50VDC bias	1000 hours
High humidity, high temperature, reverse bias	85% RH, +85°C, 50VDC bias	1000 hours
High temperature storage life	+150°C	1000 hours
Temperature cycling	-65°C to +150°C, 15 minute dwell	1000 cycles
Autoclave	100% RH,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

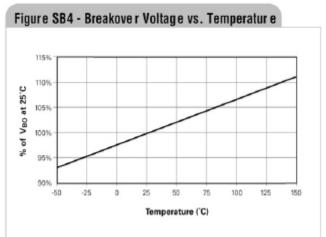
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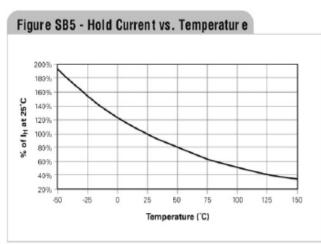
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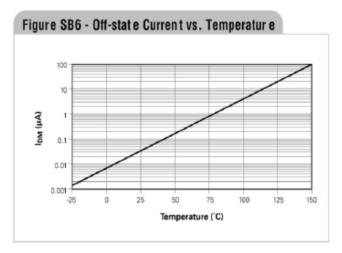


Figures SB3-SB6 - Typical Electrical Charateristics vs. Temperature for Sibar Thyristor Surge Protectors



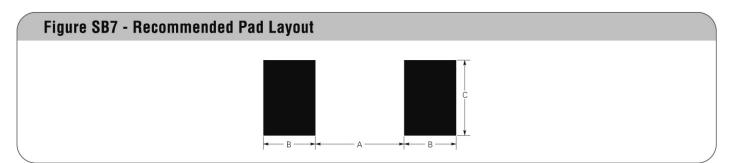






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				Recommended Pad Layout (millimeters/inchs)					
Part Description	Tape and Reel Quantity	Standard Package	Part Marking	Dimension A (Nom.)	Dimension B (Nom.)	Dimension C (Nom.)	Agency Recognition*		
TVB200SB-L	2,500	10,000	200B	2.261 (0.089)	2.159(0.085)	2.743(0.108)	UL		
TVB270SB-L	2,500	10,000	270B	2.261 (0.089)	2.159(0.085)	2.743(0.108)	UL		
TVB300SB-L	2,500	10,000	300B	2.261 (0.089)	2.159(0.085)	2.743(0.108)	UL		



308 Constitution Drive, MS R21/2A Menlo Park, CA USA 94025-1164 Tel (800) 227-7040 (650) 361-6900 Fax (650) 361-2508 www.circuitproection.com www.circuitprotection.com.hk (Chinese) www.circuitprotection.jp (Japanese)

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