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[TE Connectivity Raychem Circuit Protection
TVB170SC](#)

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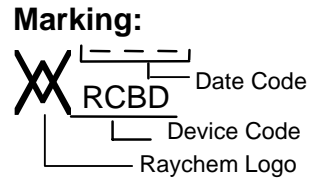
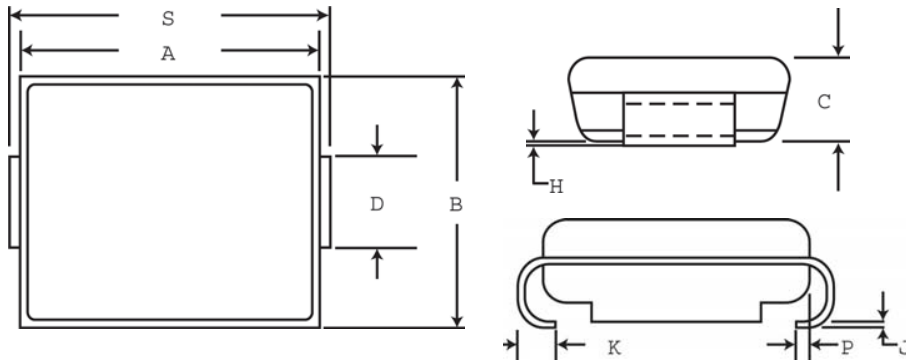
SiBar™
Thyristor Surge Protectors

PRODUCT: TVB170SC

DOCUMENT: SCD 24273
 PCN: 295555
 REV LETTER: C
 REV DATE: AUGUST 24, 2004
 PAGE NO.: 1 OF 2

Specification Status: RELEASED

PHYSICAL DESCRIPTION



	A		B		C		D**		H		J		K	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
mm:	4.06	4.57	3.30	3.81	1.90	2.41	1.96	2.11	0.051	0.152	0.15	0.30	0.76	1.27
in*:	(0.160)	(0.180)	(0.130)	(0.150)	(0.075)	(0.095)	(0.077)	(0.083)	(0.002)	(0.006)	(0.006)	(0.012)	(0.030)	(0.050)

	P	S	
	REF	MIN	MAX
mm:	0.51	5.21	5.59
in*:	(0.020)	(0.205)	(0.220)

*Rounded off approximation

** D DIMENSION SHALL BE MEASURED WITHIN DIMENSION P

Other Physical Characteristics

Form Factor: SMB (Surface Mount, JEDEC DO-214AA Package)
 Lead Material: Tin / lead finish
 Encapsulation Material: Epoxy, meets UL94 V-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

Tape and Reel packaging per EIA 481-1

Agency Recognition: UL
 Precedence: This specification takes precedence over documents referenced herein.
 CAUTION: Operation beyond the rated voltage or current may result in rupture, electrical arcing or flame.

Materials Information

ELV Compliant



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DEVICE RATINGS @ 25° C (Both Polarities)

Parameter	Symbol	Value	Units
Repetitive Off-State Voltage, Maximum at ID = 5 μA	VDM	170	V
Non-Repetitive Peak Impulse Current	IPP ₁	100	A
Double exponential Waveform (Notes 1 and 2)	IPP ₂	150	A
Telcordia GR-1089 CORE 10x1000 μs	IPP ₃	200	A
TIA-968 lightning Type A Metallic 10/560 μs	IPP ₄	500	A
Telcordia GR-1089 Intrabuilding 2/10 μs	IPP ₅	400	A
IEC61000-4-5 (Voc 1.2/50us) 8/20 μs	IPP ₆	150	A
ITU-T K.20/K.21 (Voc 10/700us) 5/310 μs	IPP ₇	150	A
TIA-968 lightning Type B (Voc 9/720us) 5/320 μs			
Critical Rate of Rise of On-State Current	di/dt	500	A/μs
Power Pulse Amplifier, C=30μF, Vmax = 600V	di/dt	330	A/μs
Maximum 2x10 μsec waveform, Voc=2.5kV, Isc=500A peak			

DEVICE THERMAL RATINGS

Storage Temperature Range	TSTG	-55 to 150	°C
Operating Temperature Range Blocking or conducting state	TA	-40 to 125	°C
Overload Junction Temperature Maximum; Conducting state only	TJ	+150	°C
Maximum Lead Temperature for Soldering Purpose; for 10 seconds	TL	+260	°C

ELECTRICAL CHARACTERISTICS Both polarities (T_J @ 25°C unless otherwise noted)

Characteristics	Symbol	Min	Typ	Max	Units
Breakover Voltage (+25°C) (dv/dt = 0.4kV/μsec, Isc=900A, VDC= 500V (both polarities))	VBO	----	230	265	V
Breakover Voltage Temperature Coefficient	dVBO/dTJ	----	0.1	-----	%/°C
Off-State Current (VD1=50V)	ID1	----	-----	2.0	μA
(VD2=VDM)	ID2=IDM	----	-----	5.0	μA
On-State Voltage (IT=1A)	VT	----	-----	4.0	V
(PW ≤ 300 μsec, Duty Cycle ≤ 2% (Note 2))					
Breakover Current	IBO	----	-----	800	mA
Holding Current (Note 2)	IH	150	-----	----	mA
Peak Onstage Surge Current (Measured @ 60Hz, 1 cycle, 600V)	ITSM	60	----	----	A
Critical Rate of Rise of Off-State Voltage (Linear waveform, VD = 0.8 X Rated VBO, Tj= +25°C)	dv/dt	5000	----	----	V/μs
Capacitance (f=1.0 Mhz, 50Vdc bias, 1Vrms)	C1	----	60	----	pF
(f=1.0 Mhz, 2Vdc bias, 1Vrms)	C2	----	125	----	pF

Note 1. Allow cooling before test second polarity

Note 2. Measured under pulse conditions to reduce heating

VOLTAGE-CURRENT CHARACTERISTIC

