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[TE Connectivity Raychem Circuit Protection
TVB170SC-L](#)

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SiBar™

Thyristor Surge Protectors

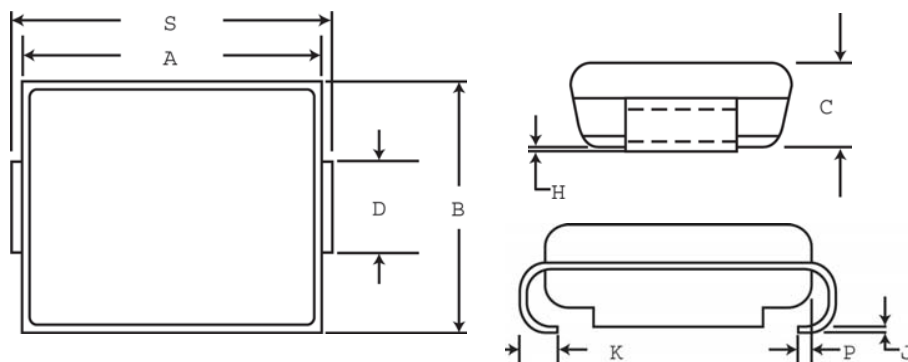
Raychem Circuit Protection Products

PRODUCT: TVB170SC-L

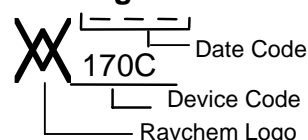
DOCUMENT: SCD 25897
PCN: F01905
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Specification Status: RELEASED

PHYSICAL DESCRIPTION



Marking:



	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: Matte Tin 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

RoHS Compliant ELV Compliant

Directive 2002/95/EC
Compliant

Directive 2000/53/EC
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 Telcordia GR-1089 CORE 10x1000 µs	IPP ₁	100	A
Impulse Current TIA-968 lightning Type A Metallic 10/560 µs	IPP ₂	150	A
Double exponential TIA-968 lightning Type A Longit. 10/160 µs	IPP ₃	200	A
Waveform Telcordia GR-1089 Intrabuilding 2/10 µs	IPP ₄	500	A
(Notes 1 and 2) IEC61000-4-5 (Voc 1.2/50us) 8/20 µs	IPP ₅	400	A
ITU-T K.20/K.21 (Voc 10/700us) 5/310 µs	IPP ₆	150	A
TIA-968 lightning Type B (Voc 9/720us) 5/320 µs	IPP ₇	150	A
Critical Rate of Rise of On-State Current Power Pulse Amplifier, C=30µF, Vmax = 600V	di/dt	500	A/µs
Maximum 2x10 µsec waveform, Voc=2.5kV, Isc=500A peak	di/dt	330	A/µs

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=900mA, V _{DC} = 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, V _D = 0.8 X Rated V _{BO} , T _J = +25°C)	dv/dt	5000	----	----	V/µs
Capacitance (f=1.0 Mhz, 50Vdc bias, 1 Vrms)	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

