

## Excellent Integrated System Limited

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[TE Connectivity Raychem Circuit Protection  
TVB170SA](#)

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**Raychem Circuit Protection**  
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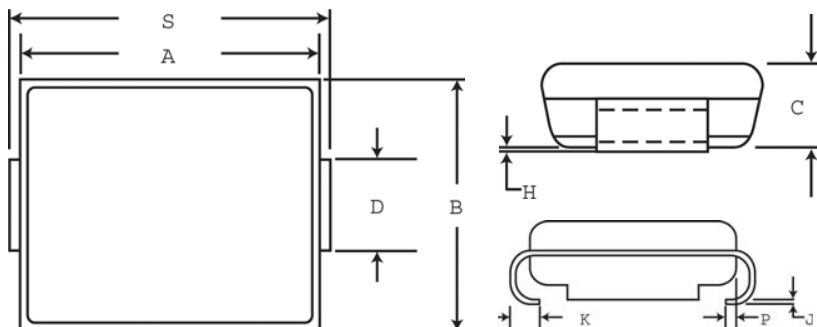
**SiBar™**  
**Thyristor Surge Protectors**

**PRODUCT: TVB170SA**

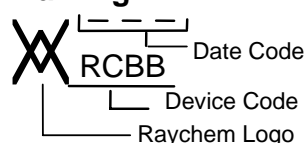
DOCUMENT: SCD 24303  
 PCN: 958923  
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**Specification Status: RELEASED**

**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: 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

**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 Impulse Current	IPP <sub>1</sub>	50	A
Double exponential Waveform	IPP <sub>2</sub>	70	A
(Notes 1 and 2)	IPP <sub>3</sub>	100	A
	IPP <sub>4</sub>	150	A
	IPP <sub>5</sub>	150	A
	IPP <sub>6</sub>	90	A
	IPP <sub>7</sub>	90	A
Critical Rate of Rise of On-State Current Powered Pulse Amplifier, C=30µF, V=600V	di/dt	500	A/µs
Maximum 2x10 µsec waveform, V <sub>OC</sub> =750V, I <sub>SC</sub> =150A peak	di/dt	110	A/µs

**DEVICE THERMAL RATINGS**

Parameter	Symbol	Value	Units
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<sub>J</sub> @ 25°C unless otherwise noted)**

Characteristics	Symbol	Min	Typ	Max	Units
Breakover Voltage (+25°C) (dv/dt = 0.4kV/µsec, I <sub>SC</sub> =900mA, V <sub>DC</sub> = 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
Breakover Current	IBO	----	-----	800	mA
Holding Current (Note 2)	IH	150	-----	----	mA
Peak Onstage Surge Current (Measured @ 60Hz, 1 cycle, 600V)	ITSM	22	----	----	A
Critical Rate of Rise of Off-State Voltage (Linear waveform, V <sub>D</sub> = 0.8 X Rated V <sub>BO</sub> , T <sub>J</sub> = +25°C)	dv/dt	2000	----	----	V/µs
Capacitance (f=1.0 Mhz, 50V <sub>DC</sub> bias, 1Vrms)	C1	----	18	----	pF
(f=1.0 Mhz, 2V <sub>DC</sub> bias, 1Vrms)	C2	----	35	----	pF

Note 1. Allow cooling before test second polarity

Note 2. Measured under pulse conditions to reduce heating

**VOLTAGE-CURRENT CHARACTERISTIC**

