

Tyco/Electronics
Raychem Corporation
 308 Constitution Drive
 Menlo Park, CA 94025
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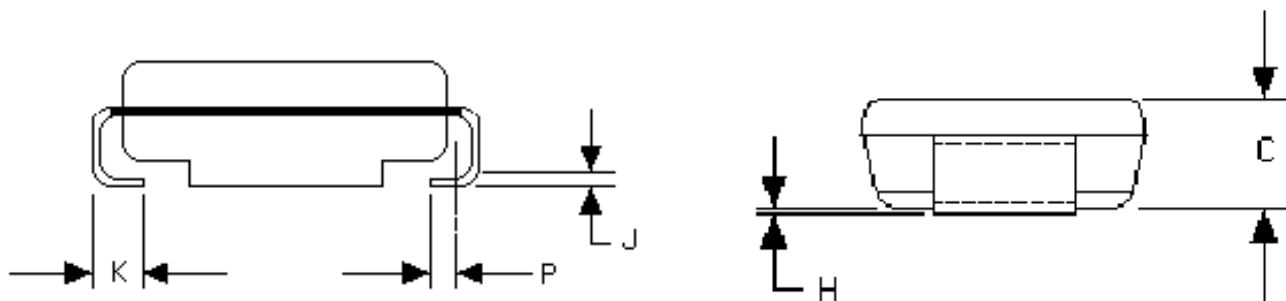
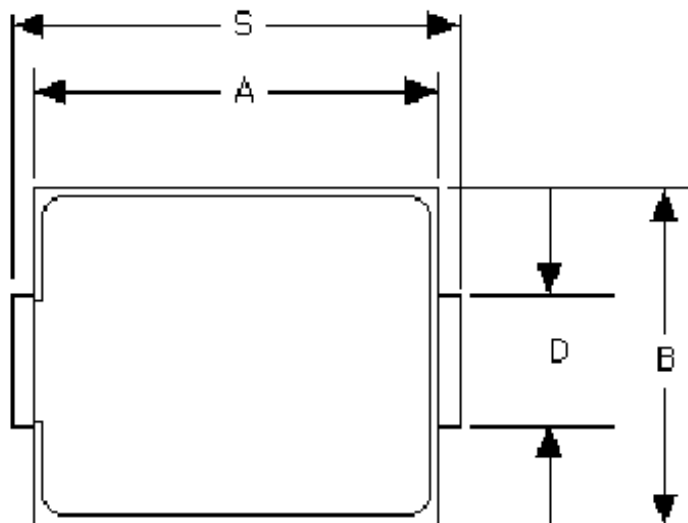
PolySwitch®
SiBar
Thyristor Surge Protectors

PRODUCT: TVB170SA

DOCUMENT: 24303
 PCN: 958923
 REV LETTER: B
 REV DATE: AUGUST 16, 2001
 PAGE NO.: 1 OF 2

Specification Status: RELEASED

PHYSICAL DESCRIPTION



	A		B		C		D*		H		J		K		P	S	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	REF	MIN	MAX
mm:	4.06	4.57	3.30	3.81	1.90	2.41	1.96	2.11	.051	.152	0.15	0.30	0.76	1.27	0.51	5.21	5.59
in:	.160	.180	.130	.150	.075	.095	.077	.083	.002	.006	.006	.012	.030	.050	.020	.205	.220

* D DIMENSION SHALL BE MEASURED WITHIN DIMENSION P

Other Physical Characteristics

Form Factor: SMB (Surface Mount DO-214 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

Tape and Reel packaging per EIA 481-1

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DEVICE RATINGS @ 25° C (Both Polarities)

Parameter	Symbol	Value	Units
Off-State Voltage, Maximum at $I_D = 5 \mu A$	VDM	170	V
Non-Repetitive Peak Impulse Current Double exponential waveform (Notes 1 and 2)	$10 \times 1000 \mu sec$ $10/560 \mu sec$ $10/160 \mu sec$	IPP ₁ IPP ₂ IPP ₃	50 70 100 A A A
Critical Rate of Rise of On-State Current Maximum $2 \times 10 \mu sec$ waveform, $V_{OC} = 2.5kV$, $I_{SC} = 500A$ peak	di/dt	150	A/ μs

DEVICE THERMAL RATINGS

Storage Temperature Range	TSTG	-65 to 150	°C
Operating Temperature Range Blocking or conducting state	TA	-40 to 125	°C
Overload Junction Temperature Maximum; Conducting state only	TJ	+175	°C

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

Characteristics	Symbol	Min	Typ	Max	Units
Breakover Voltage (+25°C) $dV/dt = 100V/\mu sec$, $I_{SC} = 1.0A$, $V_{DC} = 1000V$	VBO	----	230	265	V
Breakover Voltage (+25°C) $f = 60Hz$, $I_{SC} = 1.0A_{rms}$, $V_{OC} = 1000V_{rms}$, $R = 1.0 k\Omega$, $t = 0.5$ cycle (Note 2)	VBO	----	230	265	V
Breakover Voltage Temperature Coefficient	$dVBO/dT_J$	----	0.08	-----	%/°C
Off-State Current ($V_D = 50V$)	ID1	----	-----	2.0	μA
($V_D = VDM$)	ID2	----	-----	5.0	μA
On-State Voltage ($I_T = 1A$) $PW \leq 300 \mu sec$, Duty Cycle $\leq 2\%$ (Note 2)	VT	----	-----	5.0	V
Breakover Current	IBO	----	230	-----	mA
Holding Current (Note 2)	IH	175	350	----	mA
Critical Rate of Rise of Off-State Voltage (Linear waveform, $V_D = 0.8 \times \text{Rated } V_{BO}$, $T_J = +25^\circ C$)	dv/dt	2000	----	-----	V/ μs
Capacitance ($f = 1.0$ Mhz, $50V_{DC}$ bias, $1 V_{rms}$)	C1	----	20	-----	pF
($f = 1.0$ Mhz, $2V_{DC}$ bias, $15mV_{rms}$)	C2	----	50	-----	pF

Note 1. Allow cooling before test second polarity

Note 2. Measured under pulse conditions to reduce heating

VOLTAGE-CURRENT CHARACTERISTIC

