Tyco Electronics

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SiBar™
Thyristor Surge Protectors

Raychem Circuit Protection Products

PRODUCT: TVB170SA-L

DOCUMENT: SCD 25896
PCN: A02685
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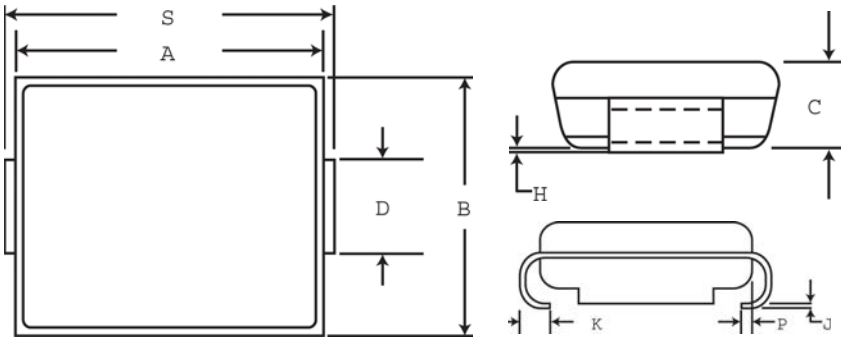
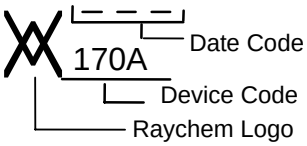
REV DATE: APRIL 28, 2007
PAGE NO.: 1 OF 2

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 — Directive 2002/95/EC Compliant

ELV Compliant — Directive 2000/53/EC Compliant

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DEVICE RATINGS @ 25º 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	50	A
Impulse Current	TIA-968 lightning Type A Metallic 10/560 µs	IPP_2	70	A
Double exponential	TIA-968 lightning Type A Longit. 10/160 µs	IPP_3	100	A
Waveform	Telcordia GR-1089 Intrabuilding 2/10 µs	IPP_4	150	A
(Notes 1 and 2)	IEC61000-4-5 (Voc 1.2/50us) 8/20 µs	IPP_5	150	A
	ITU-T K.20/K.21 (Voc 10/700us) 5/310 µs	IPP_6	90	A
	TIA-968 lightning Type B (Voc 9/720us) 5/320 µs	IPP_7	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_{OC}=750V, I_{SC}=150A peak		di/dt	110	A/µs

DEVICE THERMAL RATINGS

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

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

Characteristics		Symbol	Min	Typ	Max	Units
Breakover Voltage (dv/dt = 0.4kV/µsec, I_{SC}=900mA, V_{DC} = 500V (both polarities))	(+25ºC)	VBO	----	230	265	V
Breakover Voltage Temperature Coefficient		dVBO/dTJ	----	0.1	-----	%/ºC
Off-State Current	(VD1=50V)	ID1	----	-----	2.0	µA
	(VD2=VDM)	ID2=IDM	----	-----	5.0	µA
On-State Voltage (PW ≤ 300 µsec, Duty Cycle ≤ 2% (Note 2))	(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_D = 0.8 X Rated V_{BO}, T_J= +25ºC)		dv/dt	2000	----	----	V/µs
Capacitance	(f=1.0 Mhz, 50V_{DC} bias, 1Vrms)	C1	----	18	----	pF
	(f=1.0 Mhz, 2V_{DC} 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