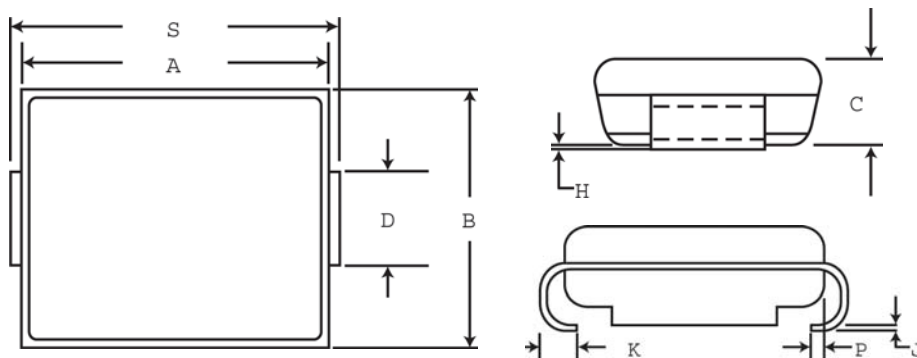
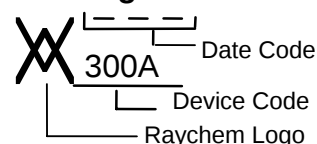


## Specification Status: Released

### PHYSICAL DESCRIPTION



### Marking:



mm:

| A       |         | B       |         | C       |         | D**     |         | H       |         | J       |         | K       |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| MIN     | MAX     | MIN     | MAX     | MIN     | MAX     | MIN     | MAX     | MIN     | MAX     | MIN     | MAX     | MIN     | MAX     |
| 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    |
| (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) |

in\*:

| 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:  
Precedence:  
CAUTION:

UL  
This specification takes precedence over documents referenced herein.  
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

**OBsolete**  
**NOT the LATEST**  
**REVISION**

# SiBar™ Thyristor Surge Protectors

Raychem Circuit Protection Products

PRODUCT: TVB300SA-L

DOCUMENT: SCD 25604  
PCN: F06500  
REV LETTER: C  
REV DATE: APRIL 28, 2007  
PAGE NO.: 2 OF 2

## DEVICE RATINGS @ 25° C (Both Polarities)

| Parameter                                                          | Symbol           | Value | Units      |
|--------------------------------------------------------------------|------------------|-------|------------|
| Repetitive Off-State Voltage, Maximum at $I_D = 5 \mu A$           | VDM              | 300   | V          |
| Non-Repetitive Peak Telcordia GR-1089 CORE 10x1000 $\mu s$         | IPP <sub>1</sub> | 50    | A          |
| Impulse Current TIA-968 lightning Type A Metallic 10/560 $\mu s$   | IPP <sub>2</sub> | 70    | A          |
| Double exponential TIA-968 lightning Type A Longit. 10/160 $\mu s$ | IPP <sub>3</sub> | 100   | A          |
| Waveform Telcordia GR-1089 Intrabuilding 2/10 $\mu s$              | IPP <sub>4</sub> | 150   | A          |
| (Notes 1 and 2) IEC61000-4-5 (Voc 1.2/50us) 8/20 $\mu s$           | IPP <sub>5</sub> | 150   | A          |
| ITU-T K.20/K.21 (Voc 10/700us) 5/310 $\mu s$                       | IPP <sub>6</sub> | 90    | A          |
| TIA-968 lightning Type B (Voc 9/720us) 5/320 $\mu s$               | IPP <sub>7</sub> | 90    | A          |
| Critical Rate of Rise of On-State Current                          | di/dt            | 500   | A/ $\mu s$ |
| Powered Pulse Amplifier, C=30 $\mu F$ , V=600V                     | di/dt            | 110   | A/ $\mu s$ |
| Maximum 2x10 $\mu s$ waveform, $V_{oc}$ =750V, $I_{sc}$ =150A peak |                  |       |            |

## DEVICE THERMAL RATINGS

|                                                                 |      |            |    |
|-----------------------------------------------------------------|------|------------|----|
| Storage Temperature Range                                       | TSTG | -55 to 150 | °C |
| Operating Temperature Range<br>Blocking or conducting state     | TA   | -40 to 125 | °C |
| Overload Junction Temperature<br>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)<br>(dv/dt = 0.4kV/ $\mu s$ , $I_{sc}$ =900mA, $V_{dc}$ =500V (both polarities))                 | VBO      | ---- | 350   | 400   | V          |
| Breakover Voltage Temperature Coefficient                                                                                 | dVBO/dTJ | ---- | 0.1   | ----- | %/°C       |
| Off-State Current (VD1=50V)                                                                                               | ID1      | ---- | ----- | 2.0   | $\mu A$    |
| (VD2=VDM)                                                                                                                 | ID2=IDM  | ---- | ----- | 5.0   | $\mu A$    |
| On-State Voltage (IT=1A)<br>(PW $\leq$ 300 $\mu s$ , Duty Cycle $\leq$ 2% (Note 2))                                       | VT       | ---- | ----- | 4.0   | V          |
| Breakover Current                                                                                                         | IBO      | ---- | ----- | 800   | mA         |
| Holding Current (Note 2)                                                                                                  | IH       | 150  | ----- | ----- | mA         |
| Peak Onstage Surge Current<br>(Measured @ 60Hz, 1 cycle, 600V)                                                            | ITSM     | 22   |       |       | A          |
| Critical Rate of Rise of Off-State Voltage<br>(Linear waveform, $V_D = 0.8 \times$ Rated $V_{BO}$ , $T_J = +25^\circ C$ ) | dv/dt    | 2000 | ----  | ----- | V/ $\mu s$ |
| Capacitance (f=1.0 Mhz, 50V <sub>DC</sub> bias, 1Vrms)                                                                    | C1       | ---- | 14    | ----- | pF         |
| (f=1.0 Mhz, 2V <sub>DC</sub> bias, 1Vrms)                                                                                 | C2       | ---- | 27    | ----- | pF         |

Note 1. Allow cooling before test second polarity

Note 2. Measured under pulse conditions to reduce heating

## VOLTAGE-CURRENT CHARACTERISTIC

