# SPD9811B

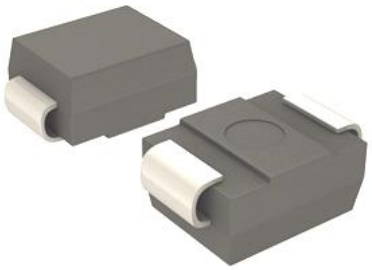
**1-Line, Bi-directional, Thyristor Surge Suppressors**

**http//:www.sh-willsemi.com**

## Descriptions

The SPD9811B is a bi-directional TSS (Thyristor Surge Suppressors) which can provide ESD protection for IC. It is specifically designed to protect telecom equipments from damaging overvoltage transients.

The SPD9811B is used to enable equipments to meet various regulatory requirements including, ITU-T K.20, K.21 and IEC 61000-4-5

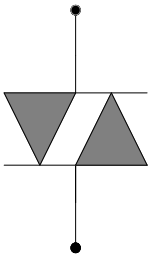


**SMB (DO-214AA)**

The SPD9811B is available in SMB package. Standard products are Pb-free and Halogen-free.

## Features

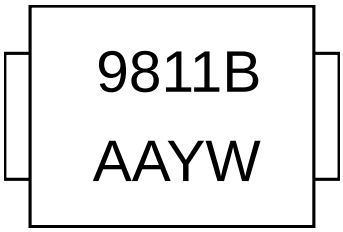
- Peak off-state voltage: ±320V Max
- Excellent capability of absorbing transient surge
- Quick response to surge voltage
- Eliminate voltage overshoot caused by fast-rising transients
- Low leakage current:
- Solid-state silicon technology, non degenerative



**Schematic Diagram**

## Applications

- Audio/Video line
- Network and telecom
- Data lines and security systems
- Serial ports
- BNC interface
- DVR




AA = Device code
Y = Year code
W = Week code

**Marking (Top View)**

## Order information

| Device | Package | Shipping |
|---|---|---|
| SPD9811B-2/TR | SMB | 3000/Tape&Reel |

## Electrical characteristics ($T_A$=25 °C, unless otherwise noted)

| Part Number | $V_{DRM}$ | $I_{DRM}$ | $V_S$ 1) | $V_{BR}$ 2) | $I_S$ | $I_H$ | $V_T$ | $I_T$ | $C_O$ 3) |
|---|---|---|---|---|---|---|---|---|---|
| | V | μA | V | V | mA | mA | V | A | pF |
| | | Max. | Max. | Min. | | Max. | Max. | | Typ. |
| SPD9811B | 320 | 1 | 400 | 330 | 800 | 150 | 4 | 2.2 | 50 |

*Notes:*

*1) $V_S$ is measured at 100kV/s.*

*2) $V_{BR}$ is measured at $I_{BR}$=1mA.*

*3) Off-state capacitance is measured at f = 1MHz, $V_{DC}$ = 2V.*

## Surge Ratings

| Part Number | 5/320μs 1) |
|---|---|
| | 10/700μs 2) |
| SPD9811B | 6000V |

*Notes:*

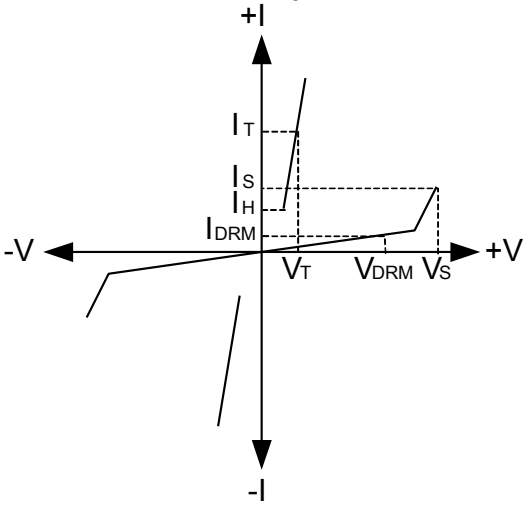
*1) Current waveform.*

*2) Voltage waveform.*

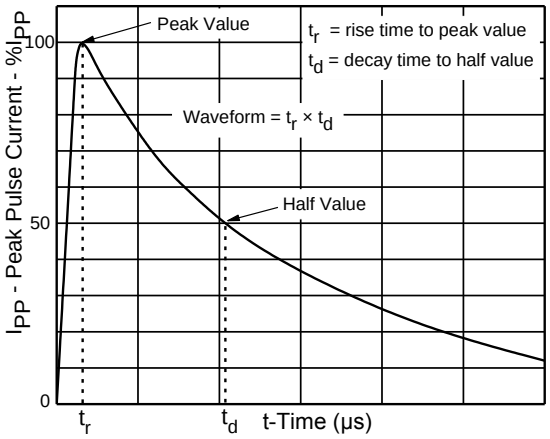
## Thermal considerations

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Operation junction temperature | $T_J$ | -40~150 | °C |
| Storage temperature | $T_{STG}$ | -55~150 | °C |
| Lead temperature | $T_L$ | 260 | °C |
| Junction to ambient thermal resistance | $R_{\theta JA}$ | 90 | °C/W |

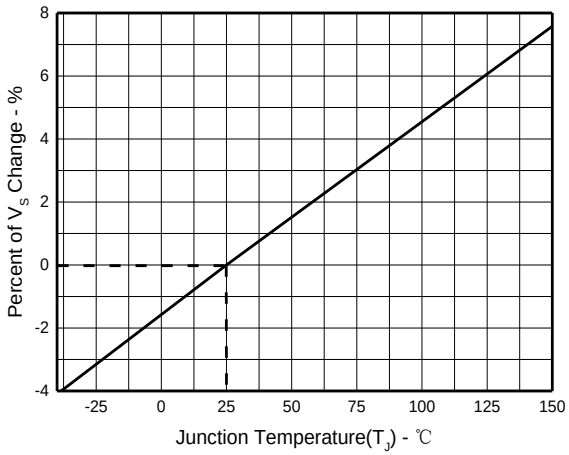
## Typical characteristics ($T_A$=25°C, unless otherwise noted)



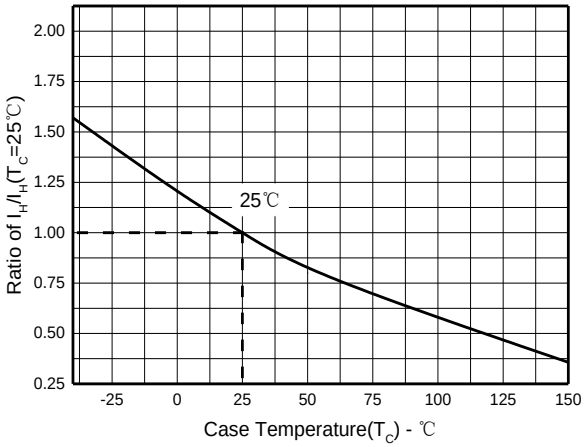

**Definitions of electrical characteristics**




**Peak pulse current waveform**



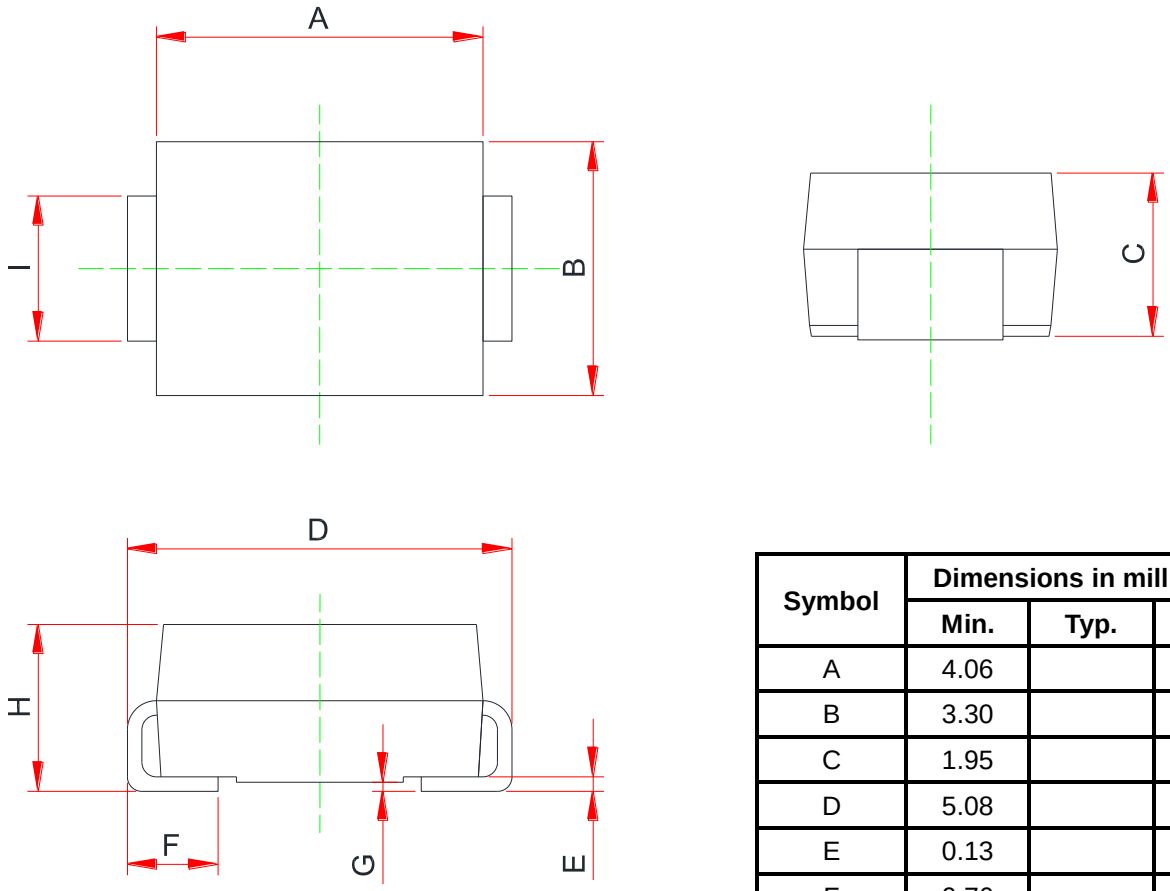

**Normalized $V_S$ Change vs. Junction Temperature**




**Normalized Holding Current vs. Case Temperature**

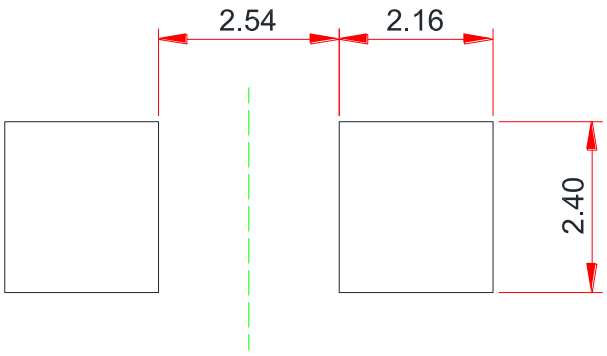
## Package outline dimensions

### SMB




| Symbol | Dimensions in millimeter | | |
|---|---|---|---|
| | Min. | Typ. | Max. |
| A | 4.06 | | 4.57 |
| B | 3.30 | | 3.94 |
| C | 1.95 | | 2.62 |
| D | 5.08 | | 5.59 |
| E | 0.13 | | 0.31 |
| F | 0.76 | | 1.52 |
| G | 0.20 Max. | | |
| H | 2.10 | 2.30 | 2.50 |
| I | 1.78 | 2.00 | 2.20 |

## Recommend land pattern (Unit: mm)




Notes:

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.