# SPD4200B

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

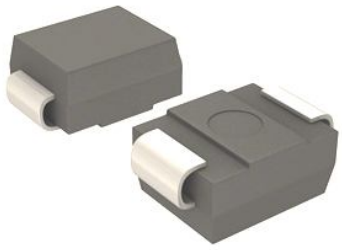
**http//:www.sh-willsemi.com**

## Descriptions

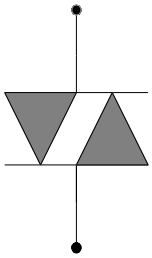
The SPD4200B is a bi-directional TSS (Thyristor Surge Suppressors). It is specifically designed to protect telecom equipments from damaging overvoltage transients.

The SPD4200B is used to enable equipments to meet various regulatory requirements including GR-1089-CORE, ITU-T K.20, K.21 and K.45, IEC 61000-4-5, IEC 60950, UL 60950, and TIA-968.

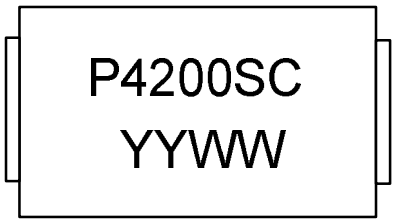
The SPD4200B is available in SMB package. Standard products are Pb-free and Halogen-free.



**SMB (DO-214AA)**



**Schematic Diagram**




P4200SC = Device code
YYWW = Date code

**Marking (Top View)**

## Features

- Peak off-state voltage: 400V Max
- Excellent capability of absorbing transient surge
- Quick response to surge voltage
- Eliminate voltage overshoot caused by fast-rising transients
- Low capacitance: $C_J$ = 55pF Max.
- Low peak off-state current: <5μA
- Solid-state silicon technology, no degradation

## Applications

- Broadband Equipment such as ADSL/VDSL
- Baseband Equipment such as ISDN
- CATV Equipment
- Customer Premises Equipment (CPE) such as telephones, fax machines, modems and VoIP
- Data lines and security systems

## Order information

| Device | Package | Shipping |
|---|---|---|
| SPD4200B-2/TR | SMB | 3000/Tape&Reel |

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

| Part Number | $V_{DRM}$ | $I_{DRM}$ | $V_S$ [1] | $I_S$ | $I_H$ | $V_T$ | $I_T$ | $C_O$ [2] |
|---|---|---|---|---|---|---|---|---|
| | V | μA | V | mA | mA | V | A | pF |
| | | Max. | Max. | | max | Max. | | Max. |
| SPD4200B | 400 | 5 | 500 | 800 | 150 | 4 | 2.2 | 55 |

*Notes:*

*1) Vs is measured at 100kV/s.*

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

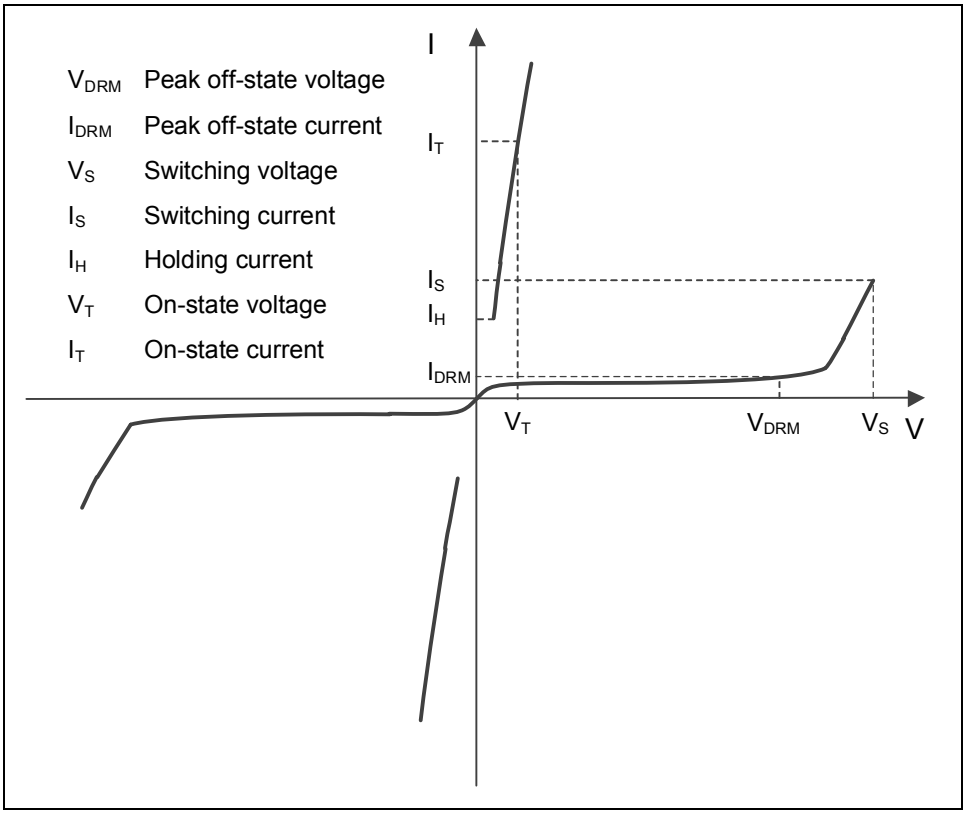
## Surge rating

| Part Number | 8/20μs [1] | 5/310μs [1] | 10/1000μs [1] |
|---|---|---|---|
| | 1.2/50μs [2] | 10/700μs [2] | 10/1000μs [2] |
| SPD4200B | 500 | 200 | 100 |

*Notes:*

*1) Current waveform.*

*2) Voltage waveform.*

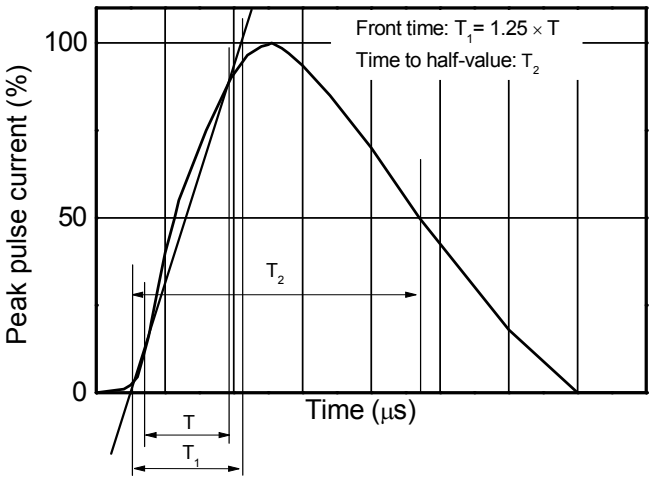



**Definitions of electrical characteristics**

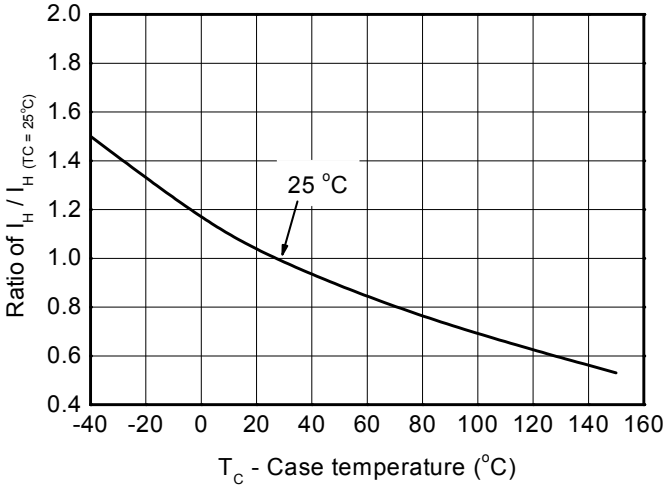
## Thermal considerations

| 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)



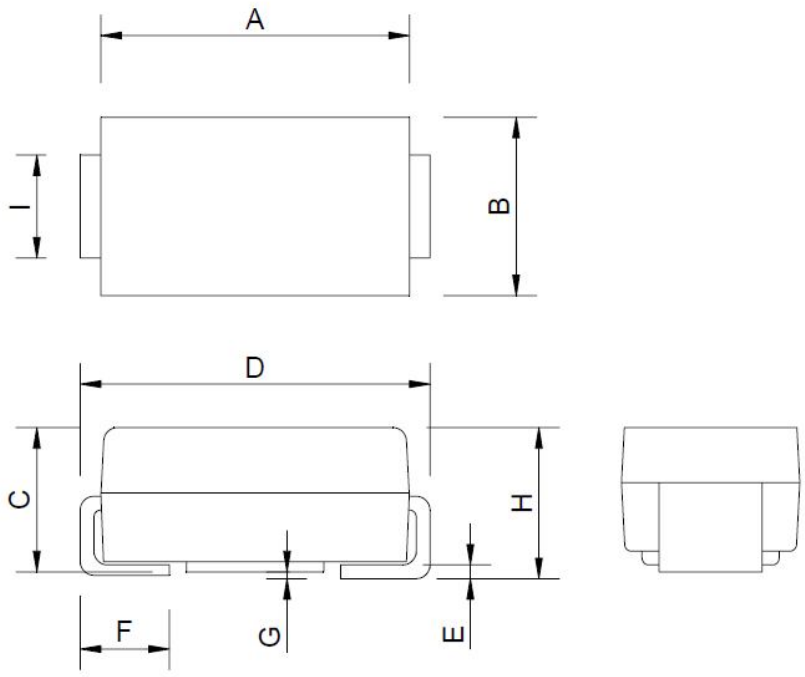

**Peak pulse current waveform**




**Normalized holding current vs. Case temperature**

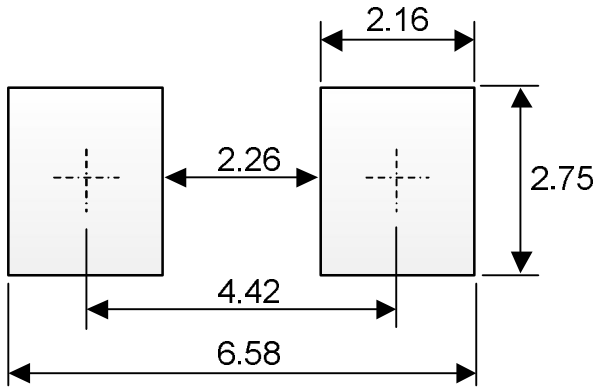
## Package outline dimensions

**SMB**




| Symbol | Dimensions in millimeter | | |
|---|---|---|---|
| | Min. | Typ. | Max. |
| A | 4.30 | -- | 4.70 |
| B | 3.30 | -- | 3.75 |
| C | 2.00 | -- | 2.35 |
| D | 4.95 | -- | 5.55 |
| E | 0.10 | -- | 0.30 |
| F | 0.80 | -- | 1.50 |
| G | 0.00 | -- | 0.30 |
| H | 2.10 | -- | 2.60 |
| I | 1.85 | -- | 2.15 |

## Recommend land pattern (Unit: mm)




*Note: This land pattern is for your reference only.*
*Actual pad layouts may vary depending on application.*