

## Thyristor Surge Suppressors

**DO-214AA/SMB**

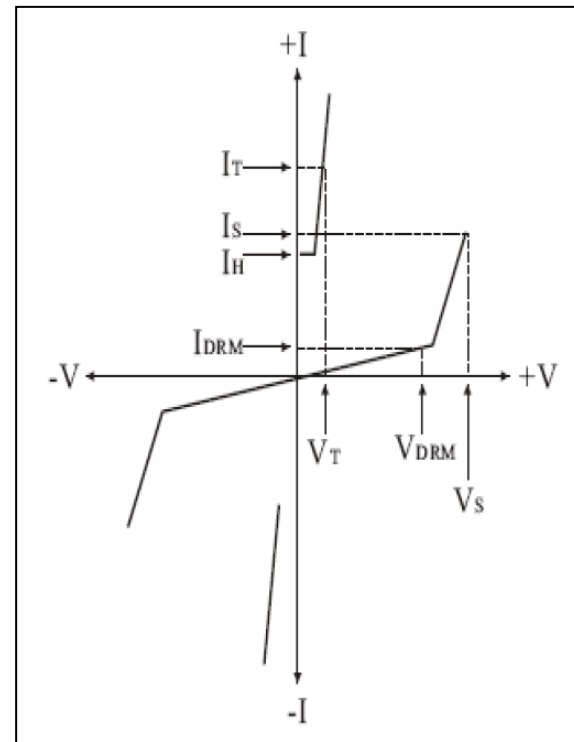


### Features

- Low switching voltage
- Low on-state voltage
- Does not degrade surge capability after multiple surge Events within limit
- Fails short circuit when surged in excess of ratings
- Low Capacitance

### ■Electrical Parameters

| Parameter | Definition  |
|-----------|---|
| CO        | Off-state Capacitance—typical capacitance measured in off state @ 2 V bias and 1 MHz            |
| di/dt     | Rate of Rise of Current—maximum rated value of the acceptable rate of rise in current over time |
| IS        | Switching Current —maximum current required to switch to on state                               |
| IDRM      | Leakage Current—maximum peak off-state current measured at VDRM                                 |
| IH        | Holding Current—minimum current required to maintain on state                                   |
| IPP       | Peak Pulse Current—maximum rated peak impulse current   |
| IT        | On-state Current—maximum rated continuous on-state current                                      |
| ITSM      | Peak One-cycle Surge Current—maximum rated one-cycle AC current                                 |
| VS        | Switching Voltage—maximum voltage prior to switching to on state during 100V/μs surge           |
| VDRM      | Peak Off-state Voltage—maximum voltage that can be applied while maintaining off state          |
| VF        | On-state Forward Voltage—maximum forward voltage measured at rated on-state current             |
| VT        | On-state Voltage—maximum voltage measured at rated on-state current                             |





## P0080SB THRU P5000SB

### ■ Limiting Values (Absolute Maximum Rating)

| Parameter                              | Symbol | Value      | Unit |
|--|--------|------------|------|
| Operating Junction Temperature         | TJ     | -40 to+150 | °C   |
| Storage Temperature Range              | TS     | -40 to+150 | °C   |
| Junction to Ambient on printed circuit | RθJA   | 90         | °C/W |

### ■ Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

| Part Number* | VDRM Volts | VS Volts | VT Volts | IDRM μAmps | IS mAmps | IT Amps | IH mAmps | CO pF |
|--------------|------------|----------|----------|------------|----------|---------|----------|-------|
| P0080SB      | 6          | 25       | 4        | 5          | 800      | 2.2     | 50       | 60    |
| P0300SB      | 25         | 40       | 4        | 5          | 800      | 2.2     | 50       | 65    |
| P0640SB      | 58         | 77       | 4        | 5          | 800      | 2.2     | 150      | 45    |
| P0720SB      | 65         | 88       | 4        | 5          | 800      | 2.2     | 150      | 45    |
| P0900SB      | 75         | 98       | 4        | 5          | 800      | 2.2     | 150      | 40    |
| P1100SB      | 90         | 130      | 4        | 5          | 800      | 2.2     | 150      | 40    |
| P1300SB      | 120        | 160      | 4        | 5          | 800      | 2.2     | 150      | 40    |
| P1500SB      | 140        | 180      | 4        | 5          | 800      | 2.2     | 150      | 35    |
| P1800SB      | 170        | 220      | 4        | 5          | 800      | 2.2     | 150      | 65    |
| P2000SB      | 180        | 220      | 4        | 5          | 800      | 2.2     | 150      | 60    |
| P2300SB      | 190        | 260      | 4        | 5          | 800      | 2.2     | 150      | 60    |
| P2600SB      | 220        | 300      | 4        | 5          | 800      | 2.2     | 150      | 45    |
| P3100SB      | 275        | 350      | 4        | 5          | 800      | 2.2     | 150      | 45    |
| P3500SB      | 320        | 400      | 4        | 5          | 800      | 2.2     | 150      | 40    |
| P4000SB      | 360        | 460      | 4        | 5          | 800      | 2.2     | 150      | 40    |
| P4500SB      | 400        | 540      | 4        | 5          | 800      | 2.2     | 150      | 40    |



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|         |     |     |   |   |     |     |     |    |
|---------|-----|-----|---|---|-----|-----|-----|----|
| P5000SB | 440 | 600 | 4 | 5 | 800 | 2.2 | 150 | 40 |
|---------|-----|-----|---|---|-----|-----|-----|----|

## Notes:

\*For surge ratings, see table below.

Notes:

- All measurements are made at an ambient temperature of 25°C. IPP applies to -40°C through +85°C temperature range.
- Off-state capacitance (CO) is measured at 1 MHz with a 2V bias and is typical value.

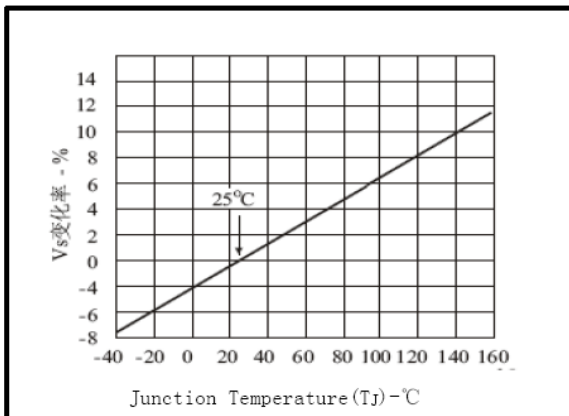
## ■Surge Ratings

| Series | IPP<br>2x10μs | IPP<br>8x20μs | IPP<br>10x160μs | IPP<br>10x560μs | IPP<br>10x1000μs | ITSM<br>60Hz | di/dt          |
|--------|---------------|---------------|-----------------|-----------------|------------------|--------------|----------------|
| B      | Amps<br>250   | Amps<br>250   | Amps<br>150     | Amps<br>100     | Amps<br>80       | Amps<br>20   | Amps/μs<br>500 |

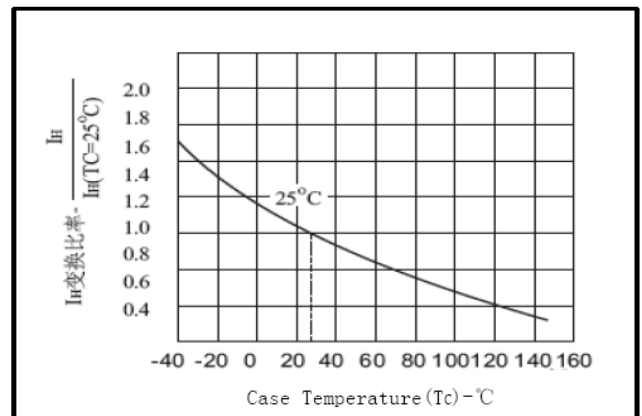
## ■Ordering Information (Example)

| PREFERED P/N         | PACKING CODE | UNIT WEIGHT(g)    | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|----------------------|--------------|-------------------|----------------------|-------------------------|----------------------------|---------------|
| P0080SB THRU P5000SB | F1           | Approximate 0.065 | 5000                 | 10000                   | 100000                     | 13" reel      |

## ■Characteristics(Typical)



Normalized VS Change versus Junction Temperature

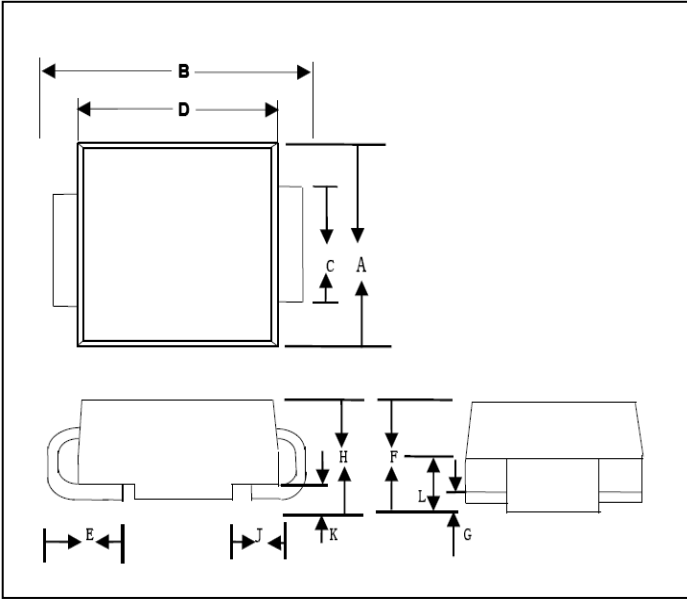


Normalized DC Holding Current versus Case Temperature



# P0080SB THRU P5000SB

## ■Dimensions



| Dim      | Millimeters |      | Inches |       |
|----------|-------------|------|--------|-------|
|          | Min         | Max  | Min    | Max   |
| <b>A</b> | 3.40        | 3.94 | 0.134  | 0.155 |
| <b>B</b> | 5.21        | 5.59 | 0.205  | 0.22  |
| <b>C</b> | 1.90        | 2.11 | 0.075  | 0.083 |
| <b>D</b> | 4.22        | 4.70 | 0.166  | 0.185 |
| <b>E</b> | 0.91        | 1.42 | 0.036  | 0.056 |
| <b>F</b> | 1.85        | 2.2  | 0.073  | 0.087 |
| <b>G</b> | 0.05        | 0.20 | 0.002  | 0.008 |
| <b>H</b> | 1.95        | 2.40 | 0.077  | 0.094 |
| <b>J</b> | 1.09        | 1.35 | 0.043  | 0.053 |
| <b>K</b> | 0.20        | 0.35 | 0.008  | 0.014 |
| <b>L</b> | 0.99        | 1.24 | 0.039  | 0.049 |



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