

## SIDACtor Protection Thyristors

Package DO-214AA



## Description

Fast Delivery Time

Pxxx0SA,PXXX0SB,PXXX0SC Series SIDACtor Protection Thyristor protect telecommunications equipment such as ADSL Modems,Router, , Telephone, CCTV Camera,Digital Video Record,Video Capture Card,Twisted-pair video transmitter,CATV Splitter.....Etc.

Pxxx0SA,PXXX0SB,PXXX0SC Series SIDACtor Protection Thyristor are used to enable equipment to meet various regulatory requirements including GR 1089, ITU K.20/21,IEC 61000-4-5, YD/T 1082,YD/T 993,YD/T 950,TIA-968-A ,TIA-968-B



## Features

Compared to surge suppression using other technologies, Pxxx0SA,PXXX0SB,PXXX0SC Series devices offer absolute surge protection regardless of the surge current available and the rate of applied voltage (dv/dt). Pxxx0SA,PXXX0SB,PXXX0SC Series devices:

- 100% Lead-Free(RoHs Compliant )
- Cannot be damaged by voltage
- Eliminate hysteresis and heat dissipation typically found with clamping devices
- Eliminate voltage overshoot caused by fast-rising transients
- Are non-degenerative
- Have low capacitance, making them ideal for high-speed transmission equipment

## Electrical Characteristics

| Parameter   | Definition                                                                                               |
|-------------|----------------------------------------------------------------------------------------------------------|
| $V_{DRM}$   | <b>Peak Off-state Voltage</b> — maximum voltage that can be applied while maintaining off state          |
| $V_S$       | <b>Switching Voltage</b> — maximum voltage prior to switching to on state                                |
| $I_H$       | <b>Holding Current</b> — minimum current required to maintain on state                                   |
| $I_S$       | <b>Switching Current</b> — maximum current required to switch to on state                                |
| $I_T$       | <b>On-state Current</b> — maximum rated continuous on-state current                                      |
| $V_T$       | <b>On-state Voltage</b> — maximum voltage measured at rated on-state current                             |
| Capacitance | <b>Off-state Capacitance</b> — typical capacitance measured in off state                                 |
| $I_{DRM}$   | <b>Leakage Current</b> — maximum peak off-state current measured at $V_{DRM}$                            |
| $I_{PP}$    | <b>Peak Pulse Current</b> — maximum rated peak impulse current                                           |
| $I_{TSM}$   | <b>Peak One-cycle Surge Current</b> — maximum rated one-cycle AC current                                 |
| di/dt       | <b>Rate of Rise of Current</b> — maximum rated value of the acceptable rate of rise in current over time |

## Electrical Characteristics



| Part Number | Marking | V <sub>DRM</sub><br>@I <sub>DRM</sub> =5 μ A | V <sub>S</sub><br>@100V/μs | I <sub>H</sub>    | I <sub>S</sub>    | I <sub>T</sub>   | V <sub>T</sub><br>@I <sub>T</sub> =2.2Amps | Capacitance<br>@1MHz,2V bias |
|-------------|---------|----------------------------------------------|----------------------------|-------------------|-------------------|------------------|--------------------------------------------|------------------------------|
|             |         | V <sub>min</sub>                             | V <sub>max</sub>           | mA <sub>min</sub> | mA <sub>max</sub> | A <sub>max</sub> | V <sub>max</sub>                           | pF                           |
| P0080SA     | P008A   | 6                                            | 25                         | 50                | 800               | 2.2              | 4                                          | 45                           |
| P0300SA     | P03A    | 25                                           | 40                         | 50                | 800               | 2.2              | 4                                          | 45                           |
| P0640SA     | P06A    | 58                                           | 77                         | 150               | 800               | 2.2              | 4                                          | 35                           |
| P0720SA     | P07A    | 65                                           | 88                         | 150               | 800               | 2.2              | 4                                          | 50                           |
| P0900SA     | P09A    | 75                                           | 98                         | 150               | 800               | 2.2              | 4                                          | 40                           |
| P1100SA     | P11A    | 90                                           | 130                        | 150               | 800               | 2.2              | 4                                          | 35                           |
| P1300SA     | P13A    | 120                                          | 160                        | 150               | 800               | 2.2              | 4                                          | 35                           |
| P1500SA     | P15A    | 140                                          | 180                        | 150               | 800               | 2.2              | 4                                          | 40                           |
| P1800SA     | P18A    | 170                                          | 220                        | 150               | 800               | 2.2              | 4                                          | 40                           |
| P2100SA     | P21A    | 180                                          | 240                        | 150               | 800               | 2.2              | 4                                          | 40                           |
| P2300SA     | P23A    | 190                                          | 260                        | 150               | 800               | 2.2              | 4                                          | 45                           |
| P2600SA     | P26A    | 220                                          | 300                        | 150               | 800               | 2.2              | 4                                          | 35                           |
| P3100SA     | P31A    | 275                                          | 350                        | 150               | 800               | 2.2              | 4                                          | 35                           |
| P3500SA     | P35A    | 320                                          | 400                        | 150               | 800               | 2.2              | 4                                          | 30                           |
| P0080SB     | P008B   | 6                                            | 25                         | 50                | 800               | 2.2              | 4                                          | 60                           |
| P0300SB     | P03B    | 25                                           | 40                         | 50                | 800               | 2.2              | 4                                          | 65                           |
| P0640SB     | P06B    | 58                                           | 77                         | 150               | 800               | 2.2              | 4                                          | 45                           |
| P0720SB     | P07B    | 65                                           | 88                         | 150               | 800               | 2.2              | 4                                          | 45                           |
| P0900SB     | P09B    | 75                                           | 98                         | 150               | 800               | 2.2              | 4                                          | 40                           |
| P1100SB     | P11B    | 90                                           | 130                        | 150               | 800               | 2.2              | 4                                          | 40                           |
| P1300SB     | P13B    | 120                                          | 160                        | 150               | 800               | 2.2              | 4                                          | 40                           |
| P1500SB     | P15B    | 140                                          | 180                        | 150               | 800               | 2.2              | 4                                          | 35                           |
| P1800SB     | P18B    | 170                                          | 220                        | 150               | 800               | 2.2              | 4                                          | 65                           |
| P2100SB     | P21B    | 180                                          | 240                        | 150               | 800               | 2.2              | 4                                          | 60                           |

## Electrical Characteristics

continued



| Part Number | Marking | V <sub>DRM</sub><br>@I <sub>DRM</sub> =5 μ A | V <sub>S</sub><br>@100V/μs | I <sub>H</sub>    | I <sub>S</sub>    | I <sub>T</sub>   | V <sub>T</sub><br>@I <sub>T</sub> =2.2Amps | Capacitance<br>@1MHz,2V bias |
|-------------|---------|----------------------------------------------|----------------------------|-------------------|-------------------|------------------|--------------------------------------------|------------------------------|
|             |         | V <sub>min</sub>                             | V <sub>max</sub>           | mA <sub>min</sub> | mA <sub>max</sub> | A <sub>max</sub> | V <sub>max</sub>                           | pF                           |
| P2300SB     | P23B    | 190                                          | 260                        | 150               | 800               | 2.2              | 4                                          | 50                           |
| P2600SB     | P26B    | 220                                          | 300                        | 150               | 800               | 2.2              | 4                                          | 45                           |
| P3100SB     | P31B    | 275                                          | 350                        | 150               | 800               | 2.2              | 4                                          | 45                           |
| P3500SB     | P35B    | 320                                          | 400                        | 150               | 800               | 2.2              | 4                                          | 40                           |
| P0080SC     | P008C   | 6                                            | 25                         | 50                | 800               | 2.2              | 4                                          | 75                           |
| P0300SC     | P03C    | 25                                           | 40                         | 50                | 800               | 2.2              | 4                                          | 75                           |
| P0640SC     | P06C    | 58                                           | 77                         | 150               | 800               | 2.2              | 4                                          | 55                           |
| P0720SC     | P07C    | 65                                           | 88                         | 150               | 800               | 2.2              | 4                                          | 60                           |
| P0900SC     | P09C    | 75                                           | 98                         | 150               | 800               | 2.2              | 4                                          | 65                           |
| P1100SC     | P11C    | 90                                           | 130                        | 150               | 800               | 2.2              | 4                                          | 55                           |
| P1300SC     | P13C    | 120                                          | 160                        | 150               | 800               | 2.2              | 4                                          | 60                           |
| P1500SC     | P15C    | 140                                          | 180                        | 150               | 800               | 2.2              | 4                                          | 50                           |
| P1800SC     | P18C    | 170                                          | 220                        | 150               | 800               | 2.2              | 4                                          | 55                           |
| P2100SC     | P21C    | 180                                          | 240                        | 150               | 800               | 2.2              | 4                                          | 85                           |
| P2300SC     | P23C    | 190                                          | 260                        | 150               | 800               | 2.2              | 4                                          | 65                           |
| P2600SC     | P26C    | 220                                          | 300                        | 150               | 800               | 2.2              | 4                                          | 65                           |
| P3100SC     | P31C    | 275                                          | 350                        | 150               | 800               | 2.2              | 4                                          | 55                           |
| P3500SC     | P35C    | 320                                          | 400                        | 150               | 800               | 2.2              | 4                                          | 50                           |
| P4500SC     | P45C    | 400                                          | 540                        | 150               | 800               | 2.2              | 4                                          | 45                           |

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 typical value.

\*For surge ratings,see next page.

Surge Ratings

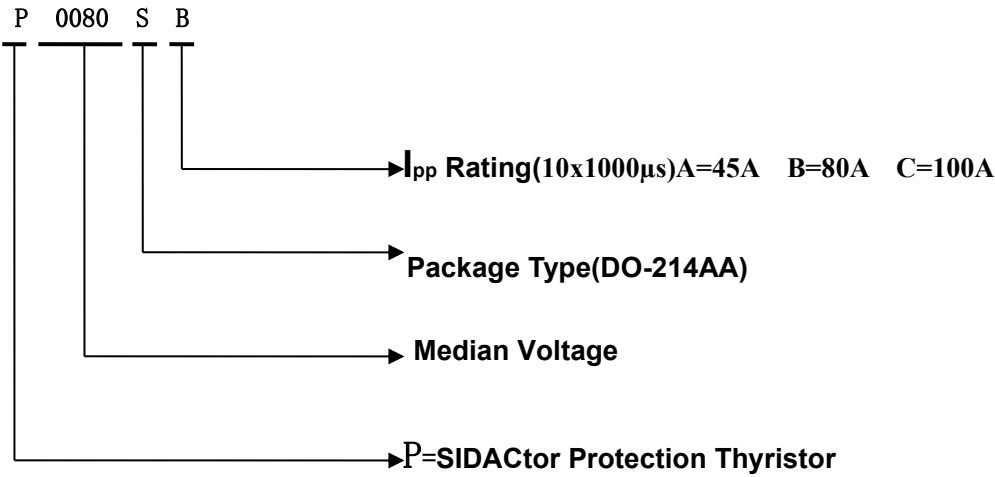
SGS  
RoHS

|        | I <sub>pp</sub><br>2x10μs | I <sub>pp</sub><br>8x20μs | I <sub>pp</sub><br>10x160μs | I <sub>pp</sub><br>10x560μs | I <sub>pp</sub><br>10x1000μs | I <sub>pp</sub><br>5x320μs | I <sub>pp</sub><br>5x310μs | I <sub>pp</sub><br>10x360μs | I <sub>TSM</sub><br>50/60Hz | di/dt   |
|--------|---------------------------|---------------------------|-----------------------------|-----------------------------|------------------------------|----------------------------|----------------------------|-----------------------------|-----------------------------|---------|
| Series | Amps                      | Amps                      | Amps                        | Amps                        | Amps                         | Amps                       | Amps                       | Amps                        | Amps                        | Amps/μs |
| A      | 150                       | 150                       | 90                          | 50                          | 45                           | 75                         | 75                         | 75                          | 20                          | 500     |
| B      | 250                       | 250                       | 150                         | 100                         | 80                           | 100                        | 100                        | 125                         | 25                          | 500     |
| C      | 500                       | 400                       | 200                         | 150                         | 100                          | 200                        | 200                        | 175                         | 30                          | 500     |

Thermal Considerations

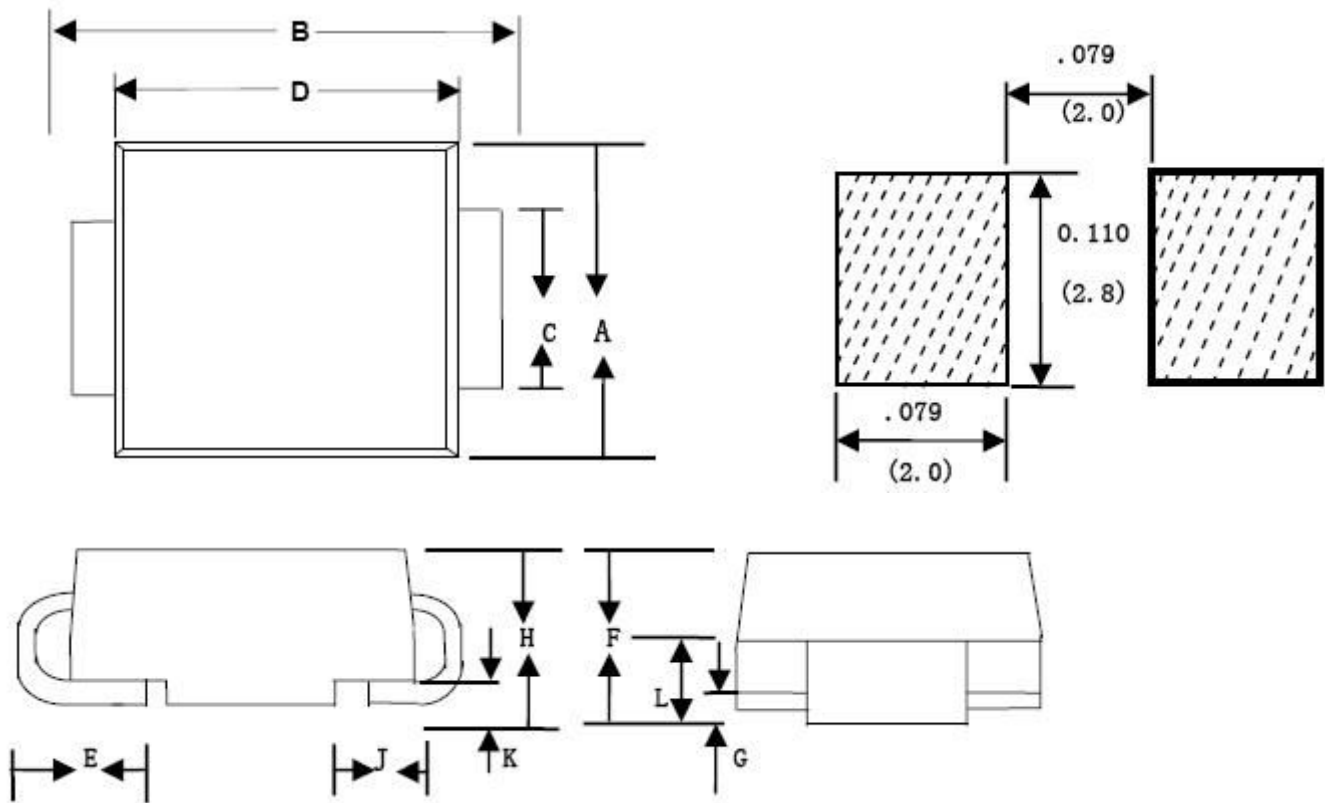
| Package                                                                            | DO-214AA/SMB | Symbol           | Parameter                             | Value       | Unit  |
|------------------------------------------------------------------------------------|--------------|------------------|---------------------------------------|-------------|-------|
|  |              | T <sub>J</sub>   | Operating Junction Temperature Range  | -40 to +150 | °C    |
|                                                                                    |              | T <sub>S</sub>   | Storage Temperature Range             | -65 to +150 | °C    |
|                                                                                    |              | R <sub>θJA</sub> | Junction to Ambient on prited circuit | 90          | °C /W |

Description of Part Number



Dimensions - DO-214AA

SGS  
RoHS



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

Packing Options

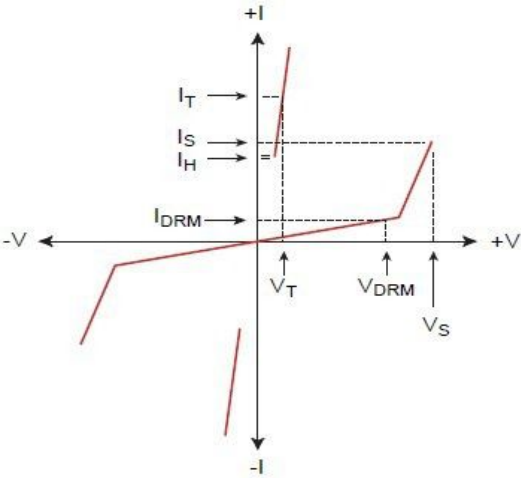
SGS

RoHS

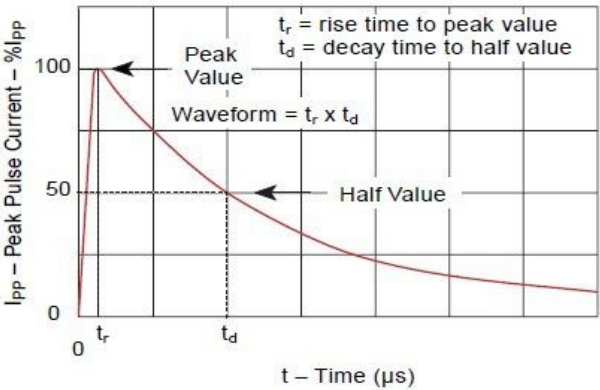
| Package Type | Description        | Packing Quantity | Industry Standard |
|--------------|--------------------|------------------|-------------------|
| SA,SB,SC     | DO-214AA Reel Pack | 2500 PCS         | EIA-481-D         |

Characteristics Curve

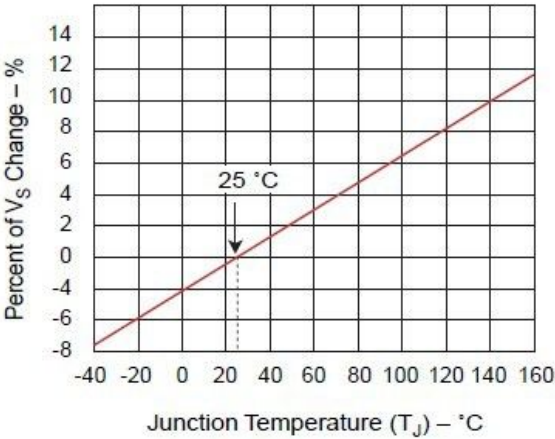
V-I Characteristics



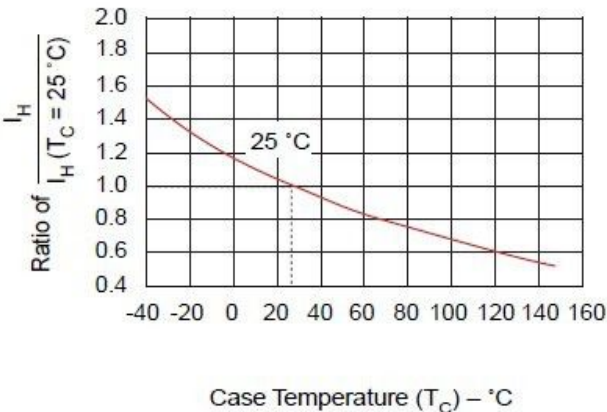
Tr x Td Pulse Waveform



Normalized Vs Change Versus Junction Temperature



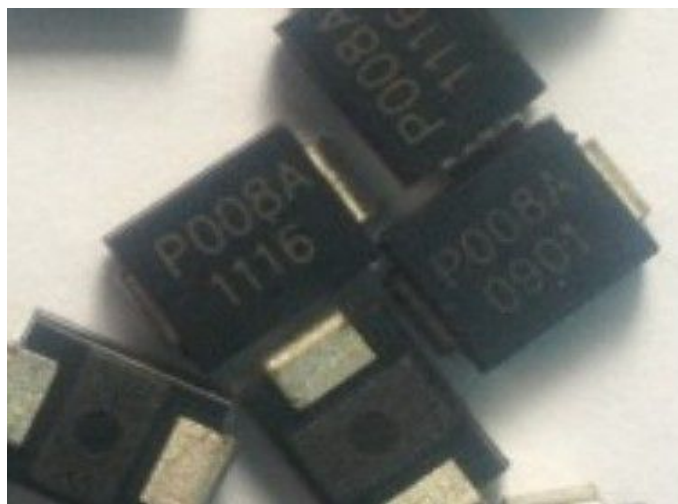
Normalized DC Holding Current Versus Case Temperature



## Sample pictures

P0080SA (Marking: P008A)

**Fast Delivery Time**



P0080SB(Marking: P008B)

**Fast Delivery Time**



P3500SA (Marking: P35A)

**Fast Delivery Time**



P3500SB(Marking: P35B)

**Fast Delivery Time**

