



## SOCAY P0720SB 4KV Thyristor Surge Protection Devices 150A 65V SMD Thyristor

Our Product Introduction

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### Basic Information

- Place of Origin: Shenzhen, Guangdong, China
- Brand Name: SOCAY
- Certification: REACH,RoHS,ISO
- Model Number: P0720SB
- Minimum Order Quantity: 2500PCS
- Price: Negotiable
- Packaging Details: tape reel,bulk
- Delivery Time: 5-8 work days

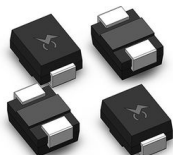


### Product Specification

- Item: Thyristor Surge Suppressors (TSS)
- Package Size: DO-214AA/SMB
- VDRM (Min.): 65V
- IDRM: 5 $\mu$ A
- Vs @100V/ $\mu$ S (Max.): 88V
- Is (Max.): 800mA
- Vt @It=2.2A (Max.): 4V
- It (Max.): 2.2A
- Ih (Min.): 150mA
- C0 @1MHz,2V Bias (Typ.): 75pF
- Highlight: **P0720SB Thyristor Surge Protection Devices, Thyristor Surge Protection Devices 150A, 65V SMD Thyristor**



### More Images



## Product Description

**SOCAY P0720SB 4KV Thyristor Surge Suppressors Protection Devices 150A 65V SMD Thyristor**

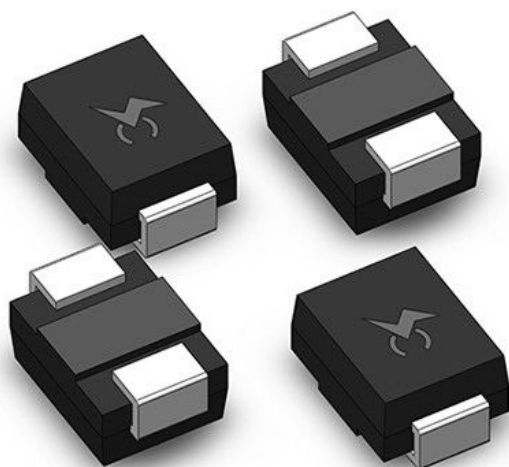
**DATASHEET: [PXXX0SB\\_v2103.1.pdf](#)**

| Part Number | Marking | $V_{DRM}$<br>@ $I_{DRM}=5\mu A$ | $V_S$<br>@ $100V/\mu s$ | $V_T$<br>@ $I_T=2.2A$ | $I_S$  | $I_T$ | $I_H$  | $C_0$<br>@1MHz, 2V bias |
|-------------|---------|---------------------------------|-------------------------|-----------------------|--------|-------|--------|-------------------------|
|             |         | V min                           | V max                   | V max                 | mA max | A max | mA min | pF typ                  |
| P0080SB     | P008B   | 6                               | 25                      | 4                     | 800    | 2.2   | 50     | 80                      |
| P0300SB     | P03B    | 25                              | 40                      | 4                     | 800    | 2.2   | 50     | 80                      |
| P0640SB     | P06B    | 58                              | 77                      | 4                     | 800    | 2.2   | 150    | 80                      |
| P0720SB     | P07B    | 65                              | 88                      | 4                     | 800    | 2.2   | 150    | 75                      |
| P0900SB     | P09B    | 75                              | 98                      | 4                     | 800    | 2.2   | 150    | 70                      |
| P1100SB     | P11B    | 90                              | 130                     | 4                     | 800    | 2.2   | 150    | 70                      |
| P1300SB     | P13B    | 120                             | 160                     | 4                     | 800    | 2.2   | 150    | 65                      |
| P1500SB     | P15B    | 140                             | 180                     | 4                     | 800    | 2.2   | 150    | 65                      |
| P1800SB     | P18B    | 170                             | 220                     | 4                     | 800    | 2.2   | 150    | 65                      |
| P2300SB     | P23B    | 190                             | 260                     | 4                     | 800    | 2.2   | 150    | 60                      |
| P2600SB     | P26B    | 220                             | 300                     | 4                     | 800    | 2.2   | 150    | 60                      |
| P3100SB     | P31B    | 275                             | 350                     | 4                     | 800    | 2.2   | 150    | 50                      |
| P3500SB     | P35B    | 320                             | 400                     | 4                     | 800    | 2.2   | 150    | 50                      |
| P4200SB     | P42B    | 400                             | 520                     | 4                     | 800    | 2.2   | 150    | 40                      |

**Notes:**

$V_S$  is measured at 100KV/s.

Off-state capacitance is measured in  $V_{DC}=2V$ ,  $V_{RMS}=1V$ ,  $f=1MHz$ .



**Description:**

PXXX0SB Series are designed to protect broadband equipment such as modems, line card, CPE and DSL from damaging over-voltage transients. The series provides a surface mount solution that enables equipment to comply with global regulatory standards.

#### Advantages of semiconductor discharge tubes:

1. Before breakdown, it is equivalent to an open circuit, the insulation resistance is very large, and the leakage current is very small;
2. It has two-way symmetry characteristics;
3. The response speed is very ns level;
4. The breakdown voltage has good consistency.

Disadvantages of semiconductor discharge tubes:

1. Compared with ceramic discharge tubes, the flow rate is smaller, only a few hundred A;
2. The breakdown voltage has only certain specific values;
3. The capacitance is large, ranging from tens to hundreds of pF.

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| Parameter | Definition                                                                                      |
|-----------|-------------------------------------------------------------------------------------------------|
| $I_S$     | <b>Switching Current</b> - maximum current required to switch to on state                       |
| $I_{DRM}$ | <b>Leakage Current</b> - maximum peak off-state current measured at $V_{DRM}$                   |
| $I_H$     | <b>Holding Current</b> - minimum current required to maintain on state                          |
| $I_T$     | <b>On-state Current</b> - maximum rated continuous on-state current                             |
| $V_S$     | <b>Switching Voltage</b> - maximum voltage prior to switching to on state                       |
| $V_{DRM}$ | <b>Peak Off-state Voltage</b> - maximum voltage that can be applied while maintaining off state |
| $V_T$     | <b>On-state Voltage</b> - maximum voltage measured at rated on-state current                    |
| $C_0$     | <b>Off-state Capacitance</b> - typical capacitance measured in off state                        |

| Series                                                               | 2/10 $\mu S^1$ | 8/20 $\mu S^1$                                                                                                                                                                                                                                              | 10/160 $\mu S^1$ | 10/560 $\mu S^1$ | 10/1000 $\mu S^1$ | 5/310 $\mu S^1$  | $I_{TSM}$<br>50/60<br>Hz | di/dt                |
|----------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|-------------------|------------------|--------------------------|----------------------|
|                                                                      | 2/10 $\mu S^2$ | 1.2/50 $\mu S^2$                                                                                                                                                                                                                                            | 10/160 $\mu S^2$ | 10/560 $\mu S^2$ | 10/1000 $\mu S^2$ | 10/700 $\mu S^2$ |                          |                      |
|                                                                      | A min          | A min                                                                                                                                                                                                                                                       | A min            | A min            | A min             | A min            | A min                    | Amps/ $\mu s$<br>max |
| B                                                                    | 250            | 250                                                                                                                                                                                                                                                         | 150              | 100              | 80                | 100              | 30                       | 500                  |
| Notes:<br>Current waveform in $\mu s$<br>Voltage waveform in $\mu s$ |                | - Peak pulse current rating ( $I_P$ ) is repetitive and guaranteed for the life of the product.<br>- $I_P$ ratings applicable over temperature range of -40°C to +85°C<br>- The device must initially be in thermal equilibrium with -40°C < $T_J$ < +150°C |                  |                  |                   |                  |                          |                      |

|                                   |                                                                                                                                                                                  |  |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>High Temp Voltage Blocking</b> | 80% Rated VDRM (VAC Peak )<br>+125°C or +150°C, Lead<br>Material Copper Alloy High<br>Temp Voltage Blocking 504 or<br>1008 hrs. MIL-STD-750 (Method<br>1040) JEDEC, JESD22-A-101 |  |
| <b>Temp Cycling</b>               | -65°C to +150°C, 15 min. dwell,<br>10 up to 100 cycles. MIL-STD-<br>750 (Method 1051) EIA/JEDEC,<br>JESD22-A104                                                                  |  |

|                                         |                                                                                                                       |  |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--|
|                                         |                                                                                                                       |  |
| <b>Biased Temp &amp; Humidity</b>       | 52 VDC (+85°C) 85%RH, 504 up to 1008 hrs. EIA/ JEDEC, JESD22-A-101                                                    |  |
| <b>High Temp Storage</b>                | +150°C 1008 hrs. MIL-STD-750 (Method 1031) JEDEC, JESD22-A-101                                                        |  |
| <b>Low Temp Storage</b>                 | -65°C, 1008 hrs.                                                                                                      |  |
| <b>Thermal Shock</b>                    | 0°C to +100°C, 5 min. dwell, 10 sec. transfer, Thermal Shock 10 cycles. MIL-STD-750 (Method 1056) JEDEC, JESD22-A-106 |  |
| <b>Autoclave (Pressure Cooker Test)</b> | +121°C, 100%RH, 2atm, 24 up to 168 hrs. EIA/Cooker Test) JEDEC, JESD22-A-102                                          |  |
| <b>Resistance to Solder Heat</b>        | +260°C, 30 secs. MIL-STD-750 (Method 2031)                                                                            |  |
| <b>Moisture Sensitivity Level</b>       | 85%RH, +85°C, 168 hrs., 3 reflow cycles Level (+260°C Peak). JEDEC-J-STD-020, Level 1                                 |  |

|                        |                                                               |  |
|------------------------|---------------------------------------------------------------|--|
| <b>Lead Material</b>   | Copper Alloy                                                  |  |
| <b>Terminal Finish</b> | 100% Matte-Tin Plated                                         |  |
| <b>Body Material</b>   | UL recognized epoxy meeting flammability classification 94V-0 |  |

| Part Number | Component Package | Quantity | Packaging Option           | Packaging Specification |
|-------------|-------------------|----------|----------------------------|-------------------------|
| Pxxx0SB     | DO-214AA          | 2500     | Tape & Reel - 12mm/13"tape | EIA -481 - D            |

| Thermal Considerations                                                                          |                  |                                         |               |      |
|-------------------------------------------------------------------------------------------------|------------------|-----------------------------------------|---------------|------|
| Package                                                                                         | Symbol           | Parameter                               | Value         | Unit |
| DO-214AA<br> | T <sub>J</sub>   | Operating Junction Temperature Range    | - 40 to + 150 | °C   |
|                                                                                                 | T <sub>S</sub>   | Storage Temperature Range               | - 40 to +150  | °C   |
|                                                                                                 | R <sub>θJA</sub> | Thermal Resistance: Junction to Ambient | 90            | °C/W |

Figure 1 - V-I Characteristics

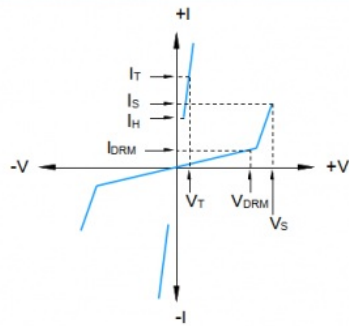
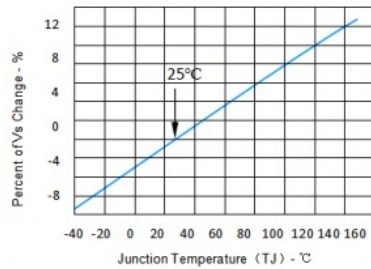
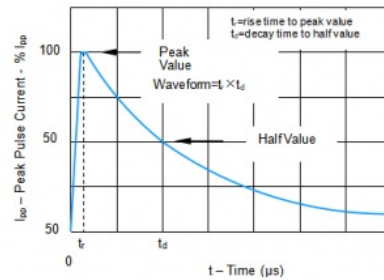
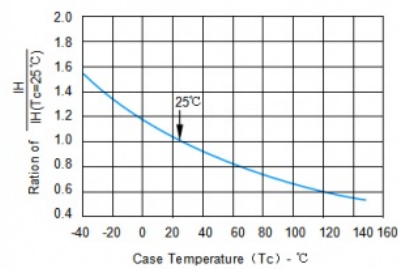
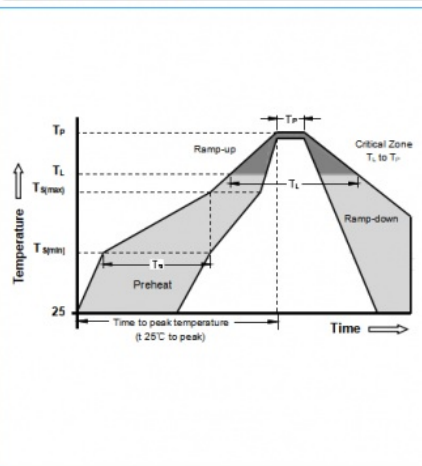
Figure 3 - Normalized  $V_S$  Change Versus Junction TemperatureFigure 2 -  $t_r \times t_d$  Pulse Waveform

Figure 4 - Normalized DC Holding Current Versus Case Temperature



## Soldering Parameters



| Reflow Condition                                     |                                   | Lead-free assembly |
|------------------------------------------------------|-----------------------------------|--------------------|
| Pre Heat                                             | -Temperature Min ( $T_{qmin}$ )   | +150°C             |
|                                                      | -Temperature Max ( $T_{qmax}$ )   | +200°C             |
|                                                      | -Time (min to max) ( $T_q$ )      | 60 - 180 Seconds   |
| Average ramp up rate (Liquidus Temp $T_L$ ) to peak  |                                   | 3°C/Second Max     |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                 |                                   | 3°C/Second Max     |
| Reflow                                               | -Temperature ( $T_L$ ) (Liquidus) | +217°C             |
|                                                      | -Time (min to max) ( $T_L$ )      | 60 - 150 Seconds   |
| Peak Temperature ( $T_P$ )                           |                                   | 260 +0/-5°C        |
| Time within 5°C of actual peak Temperature ( $t_p$ ) |                                   | 30 Seconds Max     |
| Ramp-down Rate                                       |                                   | 6°C/Second Max     |
| Time 25°C to peak Temperature ( $T_P$ )              |                                   | 8 minutes Max      |
| Do not exceed                                        |                                   | +260°C             |

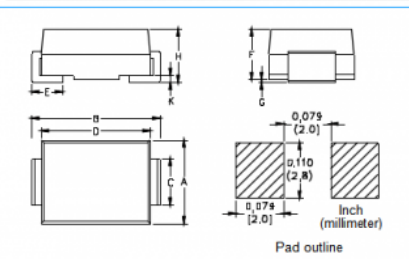
## Part Numbering

|                                    |                                                                                                         |
|------------------------------------|---------------------------------------------------------------------------------------------------------|
| Type                               | PXXX 0 S B                                                                                              |
| Median Voltage                     |                                                                                                         |
| Construction Variable, 0: One chip |                                                                                                         |
| EESD Protection                    |                                                                                                         |
| Ipp Rating                         | A @10/700 μs 2KV (50A)<br>B @10/700 μs 4KV (100A)<br>C @10/700 μs 6KV (150A)<br>D @10/700 μs 8KV (200A) |
| Package Type                       | S: DO-214AA(SMB)<br>T: DO-214AC(SMA)<br>E: TO-92<br>L: DO-15, DO-27, DO-41<br>Y: SMB-H                  |

## Part Marking

|      |                                                                  |
|------|------------------------------------------------------------------|
| PXXB | Part Marking Code<br>(Refer to Electrical Characteristics Table) |
|------|------------------------------------------------------------------|

## Dimensions DO-214AA



| Dimensions | Inches |       | Millimeters |      |
|------------|--------|-------|-------------|------|
|            | Min    | Max   | Min         | Max  |
| A          | 0.130  | 0.156 | 3.30        | 3.95 |
| B          | 0.201  | 0.220 | 5.10        | 5.60 |
| C          | 0.077  | 0.087 | 1.95        | 2.20 |
| D          | 0.159  | 0.181 | 4.05        | 4.60 |
| E          | 0.030  | 0.063 | 0.76        | 1.60 |
| F          | 0.076  | 0.096 | 1.90        | 2.45 |
| G          | 0.002  | 0.008 | 0.05        | 0.20 |
| H          | 0.077  | 0.104 | 1.95        | 2.65 |
| K          | 0.006  | 0.016 | 0.15        | 0.41 |

## Product features

- Excellent capability of absorbing transient surge
- Quick response to surge voltage
- Eliminates over voltage caused by fast rising transients
- Solid-state silicon technology, non degenerate

Application  
Audio/Video line  
Network and telecom  
Data lines and security systems  
Serial ports

**About SOCAY**

we are manufacturer and supplier of NTC ,DIODES ect passive components more than 20 years from China .if you have any request please contact us freely .



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