



### DEDRIPTION:

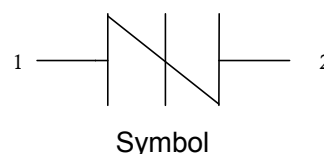
PxxxxD series thyristors are a type of semi-conduct component. They are designed to protect baseband equipment from damaging overvoltage transients. such as modems, telephones, line cards, answering machines, FAX machines, T1/E1, xDSL and more.



SMB

### FEATURES:

- ✧ Excellent capability of absorbing transient surge
- ✧ Quick response to surge voltage (ns Level)
- ✧ Eliminates overvoltage caused by fast rising transients
- ✧ Moisture sensitivity level: Level 1
- ✧ Non degenerative

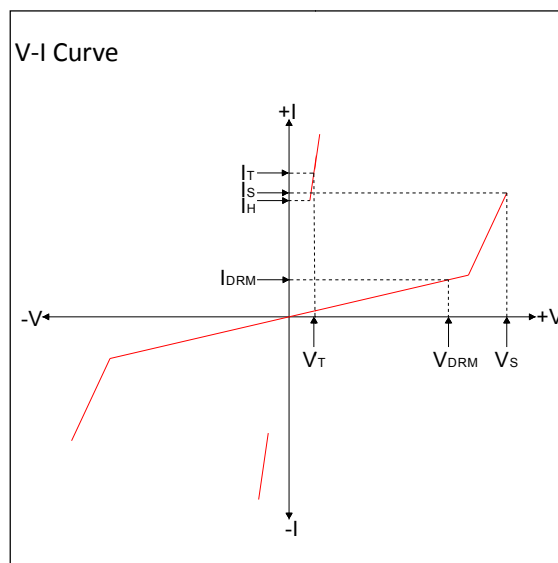


### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C, RH=45%-75%, unless otherwise noted)

| Parameter                            | Symbol           | Value       | Unit |
|--------------------------------------|------------------|-------------|------|
| Storage temperature range            | T <sub>stg</sub> | -60 to +150 | °C   |
| Operating junction temperature range | T <sub>j</sub>   | -40 to +125 | °C   |
| Repetitive peak pulse current        | I <sub>PP</sub>  | 200         | A    |

### ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C)

| Symbol           | Parameter              |
|------------------|------------------------|
| V <sub>DRM</sub> | Peak off-state voltage |
| I <sub>DRM</sub> | Off-state current      |
| V <sub>S</sub>   | Switching voltage      |
| I <sub>S</sub>   | Switching current      |
| V <sub>T</sub>   | On-state voltage       |
| I <sub>T</sub>   | On-state current       |
| I <sub>H</sub>   | Holding current        |
| C <sub>O</sub>   | Off-state capacitance  |



**ELECTRICAL CHARACTERISTICS** ( $T_A=25^{\circ}\text{C}$ , continued)

| Part Number | $I_{\text{DRM}}@V_{\text{DRM}}$ |     | $V_S^{\text{①}}@I_S$ |     | $V_T@I_T$ |     | $I_H$ | $C_o^{\text{②}}$ | Marking |
|-------------|---------------------------------|-----|----------------------|-----|-----------|-----|-------|------------------|---------|
|             | $\mu\text{A}$                   | V   | V                    | mA  | V         | A   | mA    | pF               |         |
|             | max                             |     | max                  | max | max       | max | min   | max              |         |
| P0080SD     | 5                               | 6   | 25                   | 800 | 4         | 2.2 | 50    | 150              | P-8D    |
| P0640SD     | 5                               | 58  | 77                   | 800 | 4         | 2.2 | 50    | 150              | P06D    |
| P0720SD     | 5                               | 65  | 87                   | 800 | 4         | 2.2 | 50    | 150              | P07D    |
| P0900SD     | 5                               | 75  | 98                   | 800 | 4         | 2.2 | 50    | 140              | P09D    |
| P1100SD     | 5                               | 90  | 130                  | 800 | 4         | 2.2 | 50    | 110              | P11D    |
| P1300SD     | 5                               | 120 | 160                  | 800 | 4         | 2.2 | 50    | 100              | P13D    |
| P1500SD     | 5                               | 140 | 180                  | 800 | 4         | 2.2 | 50    | 90               | P15D    |
| P1800SD     | 5                               | 170 | 220                  | 800 | 4         | 2.2 | 50    | 90               | P18D    |
| P2300SD     | 5                               | 190 | 260                  | 800 | 4         | 2.2 | 50    | 80               | P23D    |
| P2600SD     | 5                               | 220 | 300                  | 800 | 4         | 2.2 | 50    | 70               | P26D    |
| P3100SD     | 5                               | 275 | 350                  | 800 | 4         | 2.2 | 50    | 60               | P31D    |
| P3500SD     | 5                               | 320 | 400                  | 800 | 4         | 2.2 | 50    | 60               | P35D    |
| P3800SD     | 5                               | 340 | 450                  | 800 | 4         | 2.2 | 50    | 60               | P38D    |

①  $V_S$  is measured at 100KV/s

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

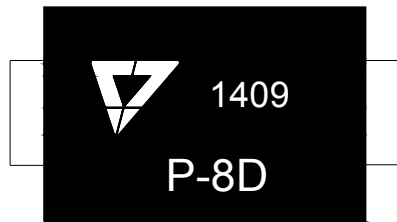
**SURGE RATINGS**

| Series | $I_{\text{PP}}$ (A) min |        |          |           |
|--------|-------------------------|--------|----------|-----------|
|        | 2×10us                  | 8×20us | 10×360us | 10×1000us |
| D      | 1000                    | 800    | ---      | 200       |

**ORDERING INFORMATION**

|                            |                |                                     |              |                             |
|----------------------------|----------------|-------------------------------------|--------------|-----------------------------|
| <b>P</b>                   | <b>008</b>     | <b>0</b>                            | <b>S</b>     | <b>D</b>                    |
| Series code<br>P: SIDACtor | Median voltage | 0: Bi-direction<br>1: Uni-direction | Package type | Surge ratings:8KV(10/700μs) |

MARKING



P-8D : Device Marking Code  
1409: In ninth week, 2014

SOLDERING PARAMETERS

|   |                                   |                              |
|---|-----------------------------------|------------------------------|
| Reflow Condition  |                                   | Pb-Free assembly (see FIG.2) |
| Pre Heat  | -Temperature Min ( $T_{s(min)}$ ) | +150°C                       |
|   | -Temperature Max( $T_{s(max)}$ )  | +200°C                       |
|   | -Time (Min to Max) (ts)           | 60-180 secs.                 |
| Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak) |                                   | 3°C/sec. Max                 |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                    |                                   | 3°C/sec. Max                 |
| Reflow  | -Temperature( $T_L$ ) (Liquid us) | +217°C                       |
|   | -Temperature( $t_L$ )             | 60-150 secs.                 |
| Peak Temp ( $T_p$ )                                     |                                   | +260(+0/-5)°C                |
| Time within 5°C of actual Peak Temp ( $t_p$ )           |                                   | 30 secs. Max                 |
| Ramp-down Rate  |                                   | 6°C/sec. Max                 |
| Time 25°C to Peak Temp ( $T_P$ )                        |                                   | 8 min. Max                   |
| Do not exceed   |                                   | +260°C                       |

FIG.1: tr × td pulse waveform

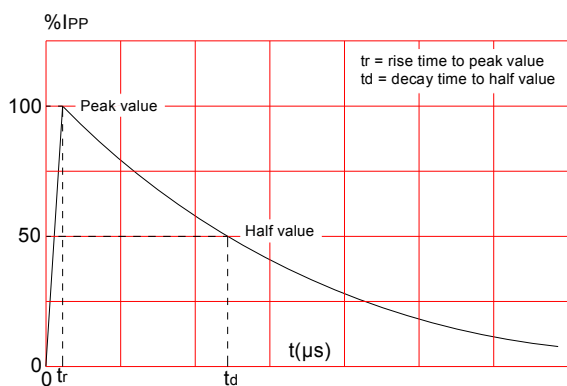
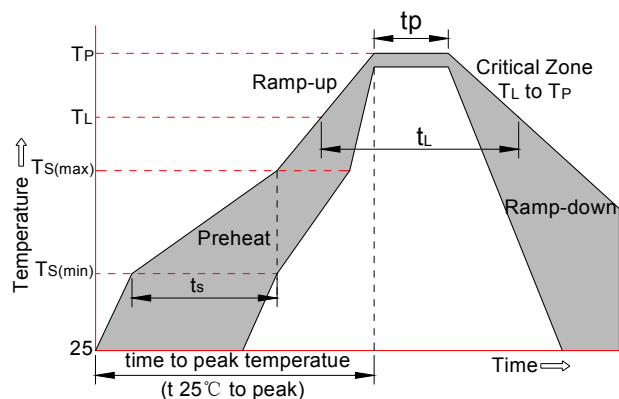
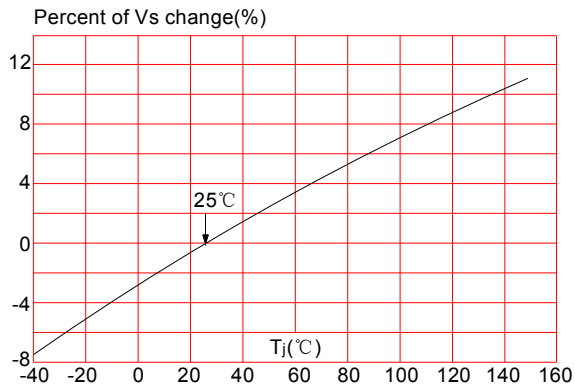


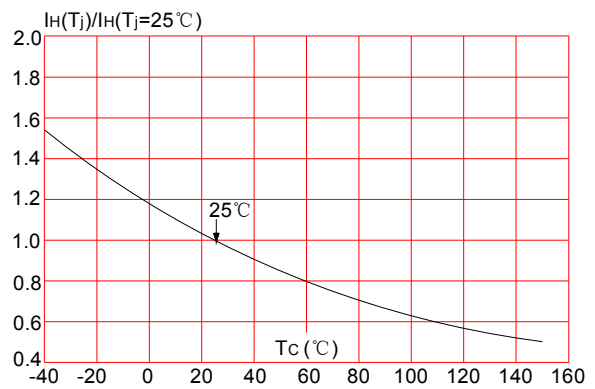
FIG.2: Reflow condition



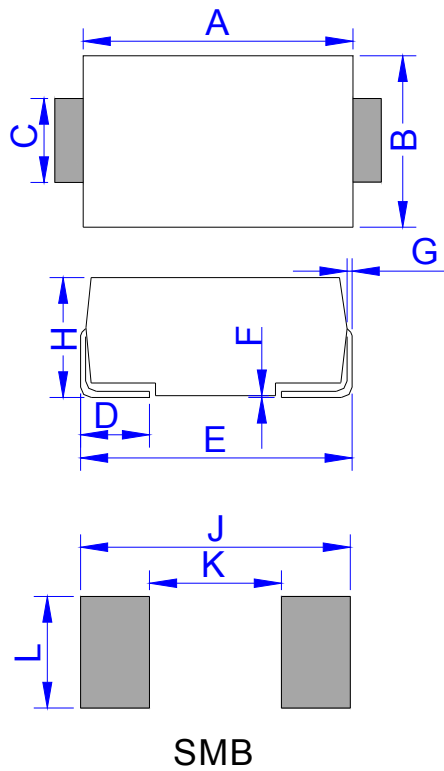
**FIG.3:** Normalized  $V_s$  change vs. junction temperature



**FIG.4:** Normalized DC holding current vs. case temperature

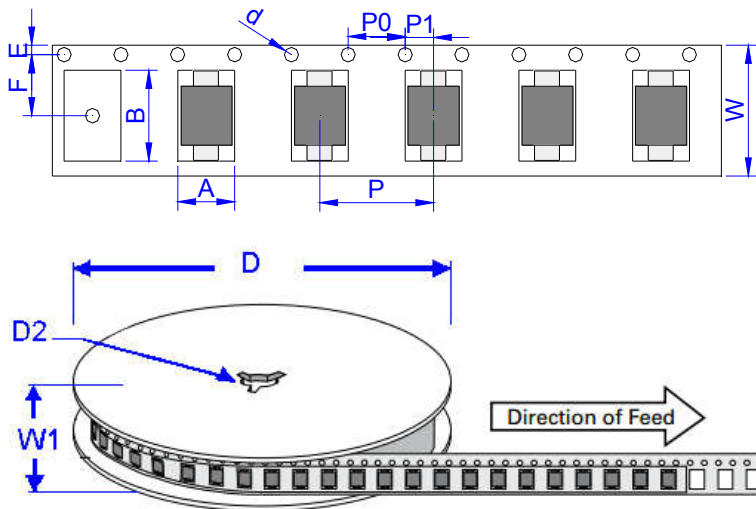


**PACKAGE MECHANICAL DATA**



| Ref. | Dimensions  |       |        |       |
|------|-------------|-------|--------|-------|
|      | Millimeters |       | Inches |       |
|      | Min.        | Max.  | Min.   | Max.  |
| A    | 4.25        | 4.75  | 0.167  | 0.187 |
| B    | 3.30        | 3.94  | 0.130  | 0.155 |
| C    | 1.85        | 2.25  | 0.073  | 0.087 |
| D    | 0.76        | 1.52  | 0.030  | 0.060 |
| E    | 5.21        | 5.59  | 0.205  | 0.220 |
| F    | 0.051       | 0.203 | 0.002  | 0.008 |
| G    | 0.15        | 0.31  | 0.006  | 0.012 |
| H    | 2.15        | 2.45  | 0.085  | 0.097 |
| J    | 6.80        |       | 0.268  |       |
| K    |             | 2.60  |        | 0.102 |
| L    | 2.40        |       | 0.094  |       |

TAPE AND REEL SPECIFICATION-SMB



| Ref. | Dimensions  |               |
|------|-------------|---------------|
|      | Millimeters | Inches        |
| A    | 3.65 ± 0.3  | 0.144 ± 0.012 |
| B    | 5.69 ± 0.3  | 0.244 ± 0.012 |
| d    | 1.5 ± 0.1   | 0.059 ± 0.004 |
| D    | 330.0       | 13.0          |
| D2   | 13 ± 0.3    | 0.512 ± 0.012 |
| E    | 1.5 ± 0.2   | 0.059 ± 0.008 |
| F    | 5.65 ± 0.2  | 0.222 ± 0.008 |
| P    | 8.0 ± 0.2   | 0.315 ± 0.008 |
| P0   | 4.0 ± 0.2   | 0.157 ± 0.008 |
| P1   | 2.0 ± 0.2   | 0.079 ± 0.008 |
| W    | 12.0 ± 0.2  | 0.472 ± 0.008 |
| W1   | 16.8 ± 2.0  | 0.661 ± 0.079 |

| OUTLINE | REEL (PCS) | PER CARTON (PCS) | REEL DIAMETERS (mm) |
|---------|------------|------------------|---------------------|
| TAPING  | 3,000      | 48,000           | 330                 |

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