

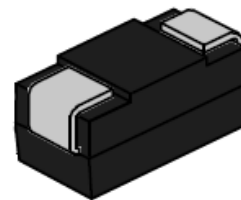


## CP0080TBD TSS

Rev.1.1

### DESCRIPTION:

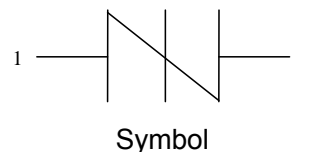
The thyristors of CP0080TBD are a type of semiconductor component. They are designed to protect baseband equipment such as phones, modems, line cards, answering machines, FAX machines, CPE and DSL form damaging overvoltage transients.



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.
- ✧ UL 497B item recognized. (File No.: E480698).
- ✧ IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact).
- ✧ Low capacitance.
- ✧ Non degenerative.

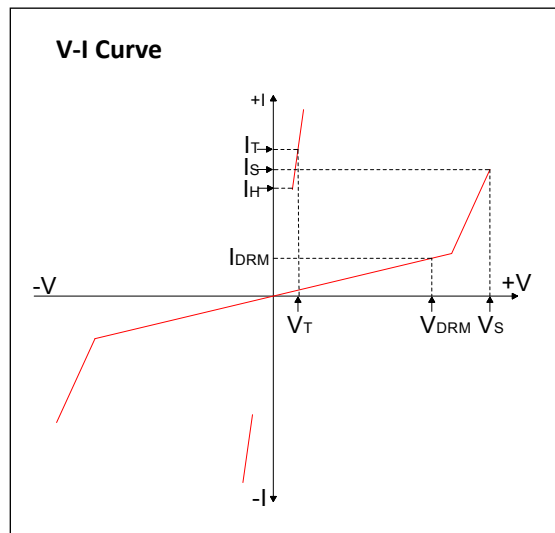


### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C, RH=45%-75%, unless otherwise noted)

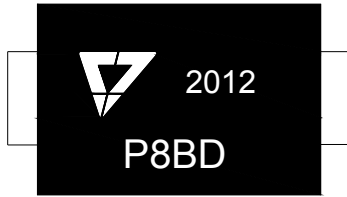
| Parameter                               | Symbol           | Value       | Unit |
|---|------------------|-------------|------|
| Storage temperature range               | T <sub>STG</sub> | -60 to +150 | °C   |
| Operating junction temperature range    | T <sub>J</sub>   | -40 to +125 | °C   |
| Repetitive peak pulse current@10/1000μs | I <sub>PP</sub>  | 150         | 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  |



MARKING



P8BD : Device Marking Code  
2012: the 12th week, 2020

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

| Part Number | I <sub>DRM</sub> @V <sub>DRM</sub> |   | V <sub>S</sub> <sup>①</sup> @I <sub>S</sub> |     | V <sub>T</sub> @I <sub>T</sub> |     | I <sub>H</sub> | Co <sup>②</sup> | Marking |
|-------------|------------------------------------|---|---|-----|--------------------------------|-----|----------------|-----------------|---------|
|             | μA                                 | V | V   | mA  | V                              | A   | mA             | pF              |         |
|             | max                                |   | max   | max | max                            | max | min            | max             |         |
| CP0080TBD   | 1                                  | 6 | 15  | 800 | 4                              | 2.2 | 50             | 50              | P8BD    |

① V<sub>S</sub> is measured at 100kV/s

② Off-state capacitance is measured in V<sub>DC</sub>=2V, V<sub>RMS</sub>=1V, f=1MHz

SURGE RATINGS

| Series | I <sub>PP</sub> (A) min |        |         |           |
|--------|-------------------------|--------|---------|-----------|
|        | 2/10μs                  | 8/20μs | 5/310μs | 10/1000μs |
| D      | 600                     | 500    | 200     | 150       |

ORDERING INFORMATION

|                          |                |                 |                  |                             |
|--------------------------|----------------|-----------------|------------------|-----------------------------|
| CP                       | 008            | 0               | TB               | D                           |
| Low capacitance<br>SIDAC | Median voltage | 0: Bi-direction | Package type:SMB | Surge ratings(8kV 10/700μs) |

SOLDERING PARAMETERS

|   |                                   |                                 |
|---|-----------------------------------|---------------------------------|
| Reflow Condition                                      |                                   | Pb-Free assembly<br>(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 (Liquidus Temp ( $T_L$ )to peak) |                                   | 3°C/sec. Max                    |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                  |                                   | 3°C/sec. Max                    |
| Reflow  | -Temperature( $T_L$ ) (Liquidus)  | +217°C                          |
|   | -Temperature( $t_L$ )             | 60-150 secs.                    |
| Peak Temp ( $T_p$ )                                   |                                   | +260(+0/-5)°C                   |
| Time within 5°C of actual Peak Temp ( $t_p$ )         |                                   | 30secs. 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

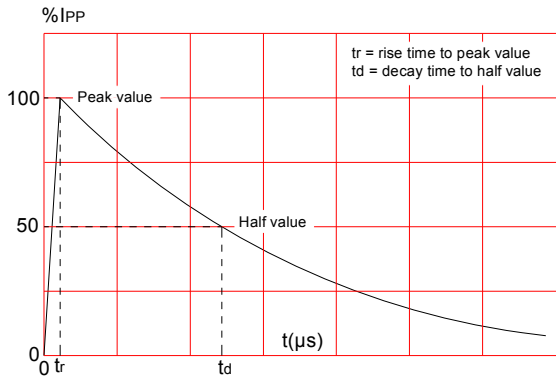


FIG.2: Reflow condition

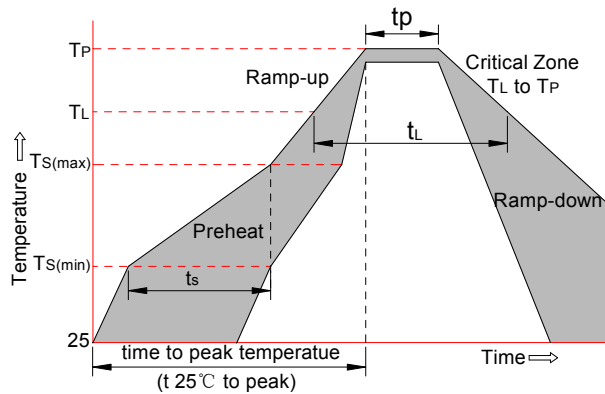


FIG.3: Normalized Vs change vs. junction temperature

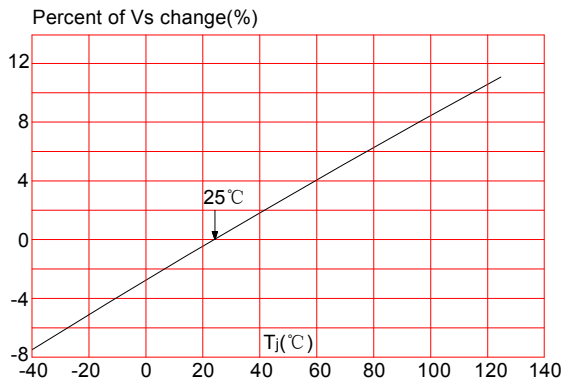
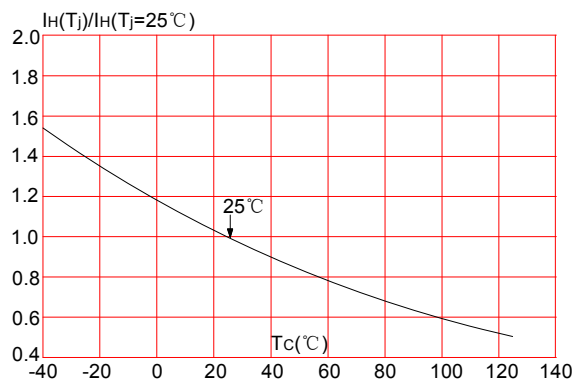
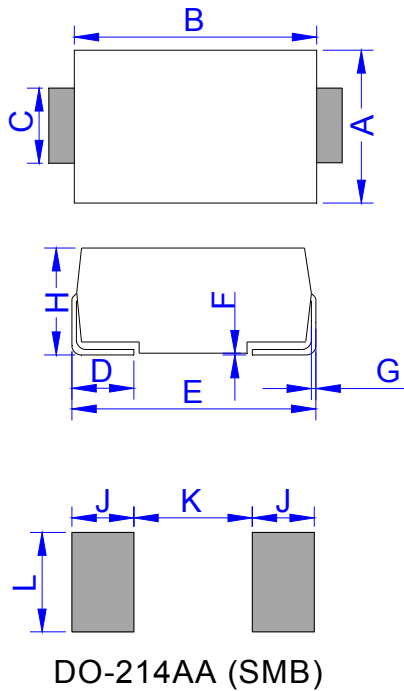


FIG.4: Normalized DC holding current vs. case temperature

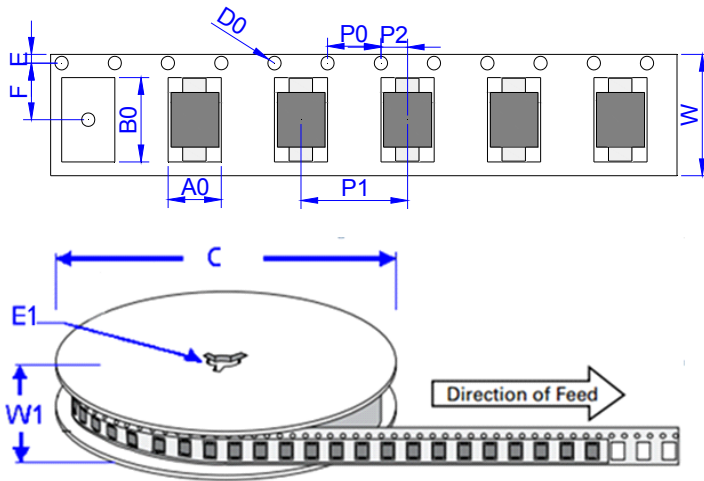


PACKAGE MECHANICAL DATA



| Ref. | Dimensions  |       |        |       |
|------|-------------|-------|--------|-------|
|      | Millimeters |       | Inches |       |
|      | Min.        | Max.  | Min.   | Max.  |
| A    | 3.30        | 3.94  | 0.130  | 0.155 |
| B    | 4.30        | 4.80  | 0.169  | 0.189 |
| C    | 1.90        | 2.20  | 0.075  | 0.087 |
| D    | 0.95        | 1.52  | 0.037  | 0.060 |
| E    | 5.20        | 5.60  | 0.205  | 0.220 |
| F    | 0.051       | 0.203 | 0.002  | 0.008 |
| G    | 0.15        | 0.31  | 0.006  | 0.012 |
| H    | 2.10        | 2.40  | 0.083  | 0.094 |
| J    | 2.20        |       | 0.087  |       |
| K    |             | 2.60  |        | 0.102 |
| L    | 2.30        |       | 0.091  |       |


TAPE AND REEL SPECIFICATION-SMB



| Ref. | Dimensions  |                |
|------|-------------|----------------|
|      | Millimeters | Inches         |
| A0   | 3.76 ± 0.3  | 0.148 ± 0.012  |
| B0   | 5.69 ± 0.3  | 0.224 ± 0.012  |
| C    | 330.0       | 13.0           |
| D0   | 1.55 ± 0.1  | 0.061 ± 0.004  |
| E    | 1.75 ± 0.2  | 0.069 ± 0.008  |
| E1   | 13.3 ± 0.3  | 0.524 ± 0.012  |
| F    | 5.5 ± 0.2   | 0.217 ± 0.008  |
| P0   | 4.00 ± 0.2  | 0.157 ± 0.008  |
| P1   | 8.00 ± 0.2  | 0.3145 ± 0.008 |
| P2   | 2.00 ± 0.2  | 0.079 ± 0.008  |
| W    | 12.0 ± 0.2  | 0.472 ± 0.008  |
| W1   | 15.7 ± 2.0  | 0.618 ± 0.079  |

| PART No.  | UNIT WEIGHT (g/PCS) typ. | REEL (PCS) | PER CARTON (PCS) | DESCRIPTION       |
|-----------|--------------------------|------------|------------------|-------------------|
| CP0080TBD | 0.098                    | 3,000      | 48,000           | 13 inch reel pack |

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