

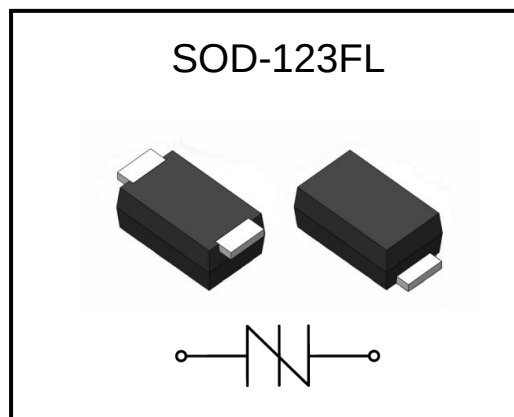
# BEP0080MA

Thyristor Surge Suppressor

## Features

- Bi-directional crowbar transient voltage protection
- High surge capability
- High off-state impedance
- Low leakage current
- Low on-state voltage
- Package: SOD-123FL

## Package



## General Description

BORN's thyristor surge protector devices are designed to help protect sensitive telecommunication equipment from the hazards caused by lightning ,power contact, and power induction. These devices enable equipment to comply with various regulatory requirements including GR 1089,ITU K.20,K.21and K.45,IEC 60950,UL 60950,and TIA-968-A(formerly known as FCC Part 68).

## Applications

- Central office switching equipment. Analog and digital linecards(xDSL,T1/E1,ISDN...)
- Customer Premises Equipment(CPE)such as phones, fax machines,modems,POS terminals,PBX systems and caller ID adjunct boxes.
- Primary protection modules including Main Distribution Frames(MDF),building entrance equipment and station protection modules.
- Access network equipment such as remote terminals,line repeaters,multiplexers,cross-connects,WAN equipment,Network Interface Devices(NID).
- Data lines and security systems.
- CATV line amplifiers and power inserters.

## Making Information



## Summary of Packing Options

| Order code | Marking | Package  | Base qty | Delivery mode |
|------------|---------|----------|----------|---------------|
| BEP0080MA  | P08DV   | SOD123FL | 3000     | Tape and reel |

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Specifications are subject to change without notice.

Please refer to <http://www.born-tw.com> for current information.

Revision: 2022-Jan-1-A

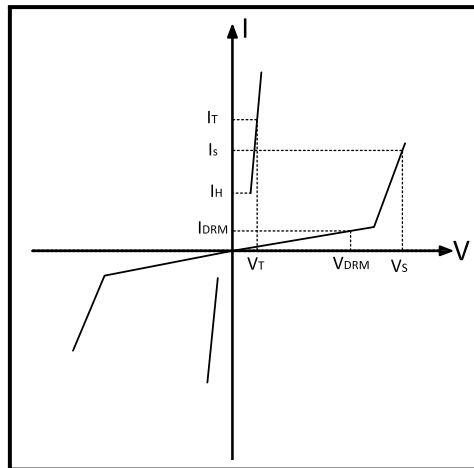


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Thyristor Surge Suppressor

Electrical Parameters ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

| Symbol    | Parameter              |
|-----------|------------------------|
| $I_{DRM}$ | Off-state Current      |
| $V_S$     | Switching Voltage      |
| $V_{DRM}$ | Peak Off-state Voltage |
| $I_S$     | Switching Current      |
| $I_H$     | Holding Current        |
| $V_T$     | On-state Voltage       |
| $C_O$     | Off-state Capacitance  |
| $I_T$     | On-state Current       |



## Absolute Maximum Ratings

| Parameter                                      | Symbol          | Value      | Units              |
|------------------------------------------------|-----------------|------------|--------------------|
| Typical Thermal Resistance Junction to Ambient | $R_{\theta JA}$ | 90         | $^\circ\text{C/W}$ |
| Operating Temperature Range                    | $T_J$           | -40 to 150 | $^\circ\text{C}$   |
| Storage Temperature Range                      | $T_{STG}$       | -40 to 150 | $^\circ\text{C}$   |

Electrical Parameters ( $T_A = +25^\circ\text{C}$ , unless otherwise noted)

| Pact Number | Marking | $I_H$ | $V_S$   | $I_{SLMT}$ | $V_T$   | $I_T$ | $I_D$   | $V_D$ | $C_O$                  |
|-------------|---------|-------|---------|------------|---------|-------|---------|-------|------------------------|
|             |         | (mA)  | (V)     | (mA)       | (V)     | (A)   | (uA)    | (V)   | (pF)                   |
|             |         |       | 100KV/S |            | @ $I_T$ |       | @ $V_D$ |       | 1MHZ, 2V <sub>DC</sub> |
|             |         | MIN.  | MAX.    |            | MAX.    |       | MAX.    |       | TYP                    |
| BEP0080MA   | P08DV   | 50    | 25      | 800        | 4       | 2.2   | 5       | 6     | 50                     |



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Thyristor Surge Suppressor

Ratings and Characteristic Curves( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Figure 1:  $t_r - t_d$  Pulse Wave-form

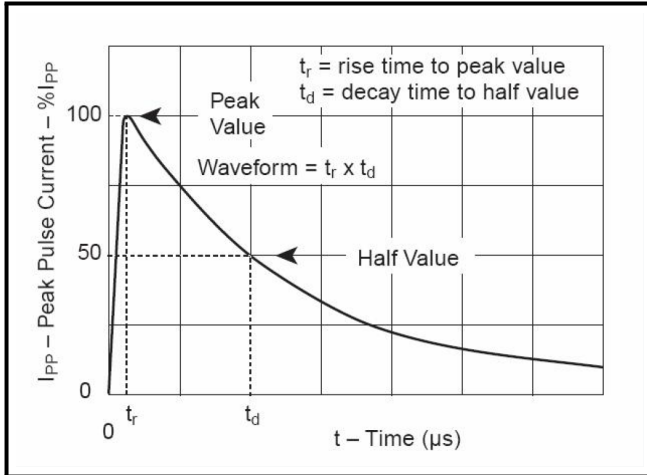


Figure 2: Normalized  $V_S$  Change versus Junction Temperature

Temperature

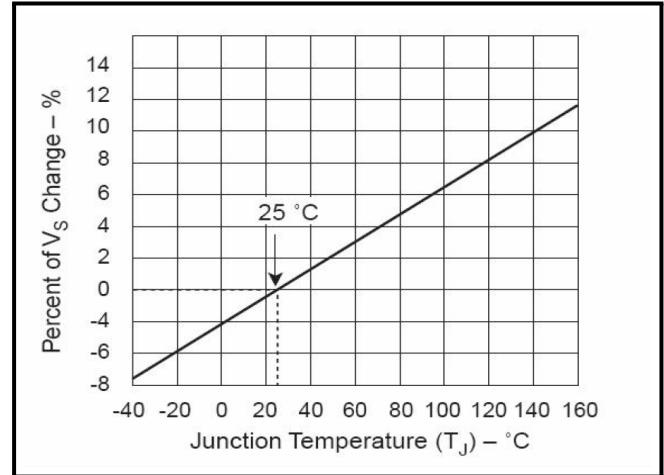
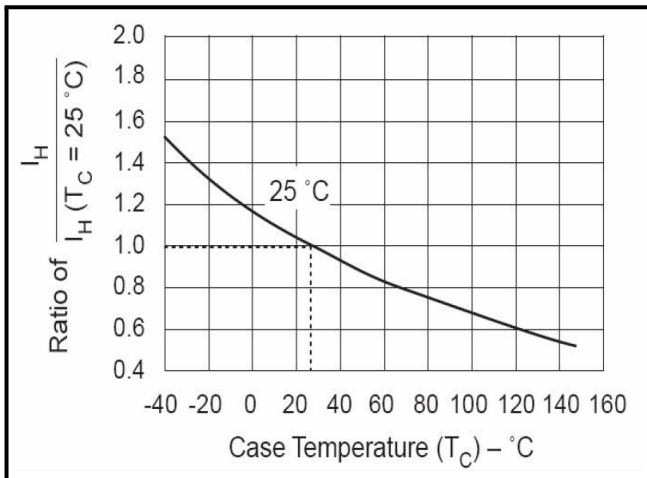
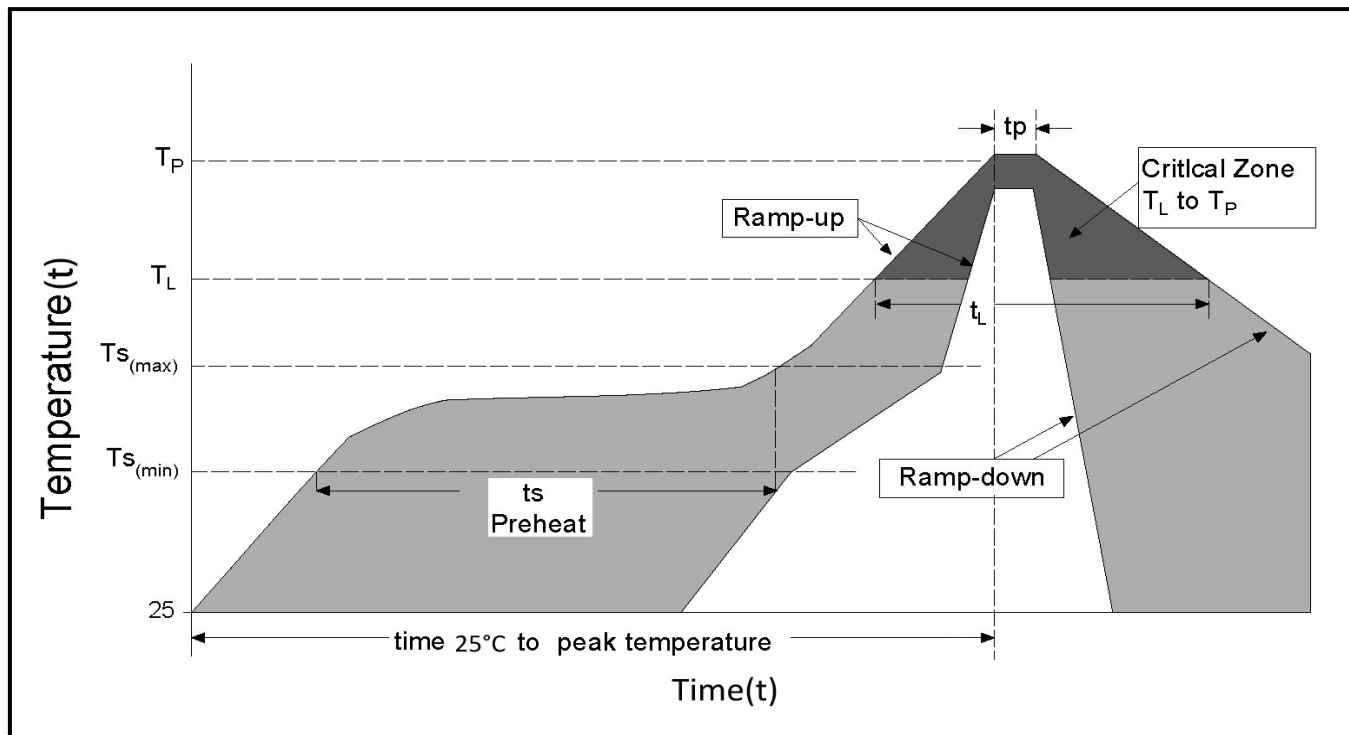


Figure 3 : Normalized DC Holding Current



**Soldering Parameters**



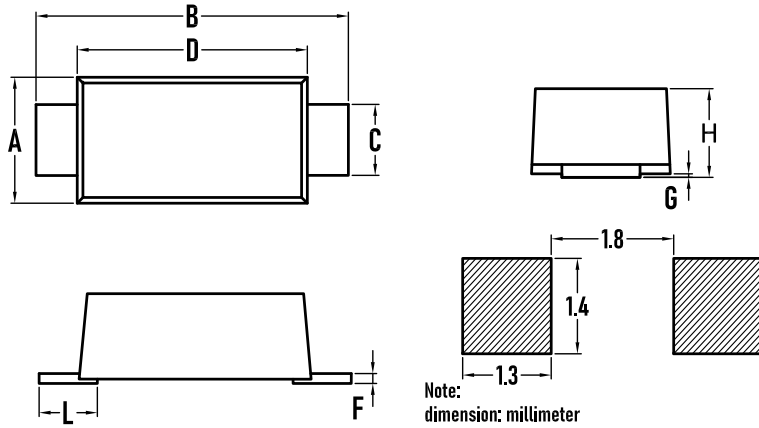
| Reflow Condition                                       |                                    | Lead-free assembly      |
|--------------------------------------------------------|------------------------------------|-------------------------|
| Pre Heat                                               | - Temperature Min ( $T_{S(min)}$ ) | 150°C                   |
|                                                        | - Temperature Max ( $T_{S(max)}$ ) | 200°C                   |
|                                                        | - Time (min to max) ( $t_s$ )      | 60 - 180 secs           |
| 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 ( $t_L$ )                   | 60 -150 secs            |
| Peak Temperature ( $T_P$ )                             |                                    | 260 <sup>+0/-5</sup> °C |
| Time within 5°C of actual peak Temperature ( $t_p$ )   |                                    | 20 – 40 secs            |
| Ramp-down Rate                                         |                                    | 6°C/second max          |
| Time 25°C to peak Temperature (t)                      |                                    | 8 minutes Max.          |
| Do not exceed                                          |                                    | 260°C                   |



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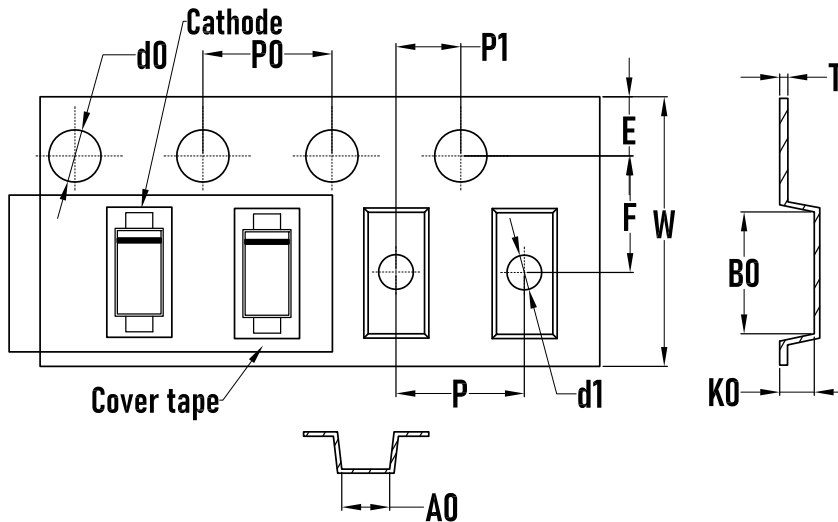
Thyristor Surge Suppressor

## Package Mechanical Data - SOD-123FL



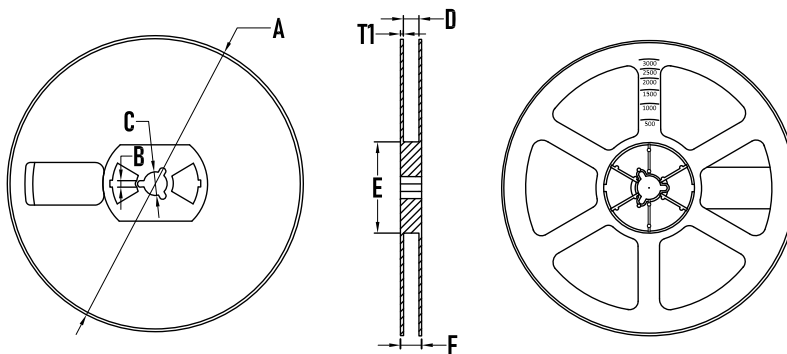
| SYMBOL | MILLIMETER |      |      |
|--------|------------|------|------|
|        | MIN.       | Typ. | MAX. |
| A      | 1.50       | 1.75 | 2.00 |
| B      | 3.40       | 3.65 | 3.90 |
| C      | 0.70       | 0.95 | 1.20 |
| D      | 2.50       | 2.70 | 2.90 |
| F      | 0.05       | 0.15 | 0.26 |
| G      | 0.00       | —    | 0.10 |
| H      | 0.95       | 1.15 | 1.35 |
| L      | 0.35       | 0.63 | 0.90 |

## Packaging Tape - SOD-123FL



| SYMBOL | MILLIMETER |
|--------|------------|
| A0     | 2.10±0.1   |
| B0     | 4.0 ±0.1   |
| d0     | 1.5±0.1    |
| d1     | 1.0±0.1    |
| E      | 1.75±0.1   |
| F      | 3.50±0.1   |
| K0     | 1.25±0.1   |
| P      | 4.00±0.1   |
| P0     | 4.00±0.1   |
| P1     | 2.00±0.1   |
| W      | 8.00±0.1   |
| T      | 0.2±0.02   |

## Packaging Reel



| SYMBOL   | MILLIMETER |
|----------|------------|
| A        | 177.8±0.2  |
| B        | 2.7±0.2    |
| C        | 13.5±0.2   |
| D        | 9.6±0.3    |
| E        | 54.5±0.2   |
| F        | 12.3±0.3   |
| T1       | 1.0±0.2    |
| Quantity | 3000PCS    |

