

»Features

- Silicon technology
- Cannot be damaged by voltage
- Low capacitance
- Eliminate voltage overshoot
- Epoxy resin package
- Will not fatigue
- Complies with following standards:
 - GR1089
 - ITU K.20, K.21 and K.45
 - IEC 60950
 - UL 60950
 - TIA-968
- RoHS Compliant



SMB (DO-214AA)

»Mechanical Characteristics

- Package: SMB (3.67×5.4×2.3mm)
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020

»Applications

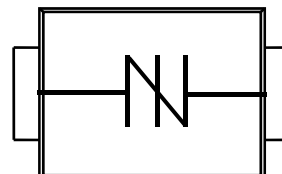
- COMMERCIAL SYSTEMS
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»Marking Information



xxxB = Type Code
YYWW = Date Code

»Pin Configuration



»Summary of Packing Options

| Package | Packing Description | Packing Quantity | Industry Standard |
|---------|---------------------|------------------|-------------------|
| SMB | Tape/Reel, 13" reel | 3000 | EIA-481-1 |
| | Tape/Reel, 7" reel | 500 | EIA-481-1 |

» Absolute Maximum Ratings

| Parameter | Symbol | Value | Units | Remarks |
|------------------------------------------------|-----------------|------------|-------|-----------|
| Peak Pulse Voltage | V_{PP} | 4000 | V | 10/700us |
| Peak Pulse Current | I_{PP} | 80 | A | 10/1000us |
| Peak Pulse Current | I_{PK} | 250 | A | 8/20us |
| Peak One-cycle Surge Current | I_{TSM} | 25 | A | 60Hz |
| Rate of Rise of Current | di/dt | 500 | A/us | |
| Typical Thermal Resistance Junction to Lead | $R_{\theta JL}$ | 20 | °C/W | |
| Typical Thermal Resistance Junction to Ambient | $R_{\theta JA}$ | 100 | °C/W | |
| Operating Temperature Range | T_J | -40 to 150 | °C | |
| Storage Temperature Range | T_{STG} | -55 to 150 | °C | |

» Electrical Characteristics (TA=25°C unless otherwise noted)

| Part Number | Marking | I_H mA MIN | V_S V 100KV/S MAX | I_{S_LMT} mA | V_T V @ I_T MAX | I_T A | I_D uA @ V_D MAX | V_D V | C_O pF 1MHz, 2V _{DC} TYP |
|-------------|---------|--------------------|------------------------------|--------------------|------------------------------|------------|-------------------------------|------------|----------------------------------------------|
| BEP0080SB | E-8B | 40 | 25 | 500 | 4 | 2.2 | 5 | 6 | 84 |
| BEP0220SB | P02B | 40 | 30 | 500 | 4 | 2.2 | 5 | 15 | 84 |
| BEP0300SB | P03B | 40 | 40 | 500 | 4 | 2.2 | 5 | 25 | 80 |
| BEP0640SB | P06B | 120 | 77 | 800 | 4 | 2.2 | 5 | 58 | 76 |
| BEP0720SB | P07B | 120 | 88 | 800 | 4 | 2.2 | 5 | 65 | 76 |
| BEP0900SB | P09B | 120 | 98 | 800 | 4 | 2.2 | 5 | 75 | 76 |
| BEP1100SB | P11B | 120 | 130 | 800 | 4 | 2.2 | 5 | 90 | 72 |
| BEP1300SB | P13B | 120 | 160 | 800 | 4 | 2.2 | 5 | 120 | 72 |
| BEP1500SB | P15B | 120 | 180 | 800 | 4 | 2.2 | 5 | 140 | 68 |
| BEP1800SB | P18B | 120 | 220 | 800 | 4 | 2.2 | 5 | 170 | 64 |
| BEP2300SB | P23B | 120 | 260 | 800 | 4 | 2.2 | 5 | 190 | 60 |
| BEP2600SB | P26B | 120 | 300 | 800 | 4 | 2.2 | 5 | 220 | 56 |
| BEP3100SB | P31B | 120 | 350 | 800 | 4 | 2.2 | 5 | 275 | 52 |
| BEP3500SB | P35B | 120 | 400 | 800 | 4 | 2.2 | 5 | 320 | 48 |
| BEP4200SB | P42B | 120 | 550 | 800 | 4 | 2.2 | 5 | 400 | 36 |

»Rating And Characteristic Curves (TA=25°C unless otherwise noted)

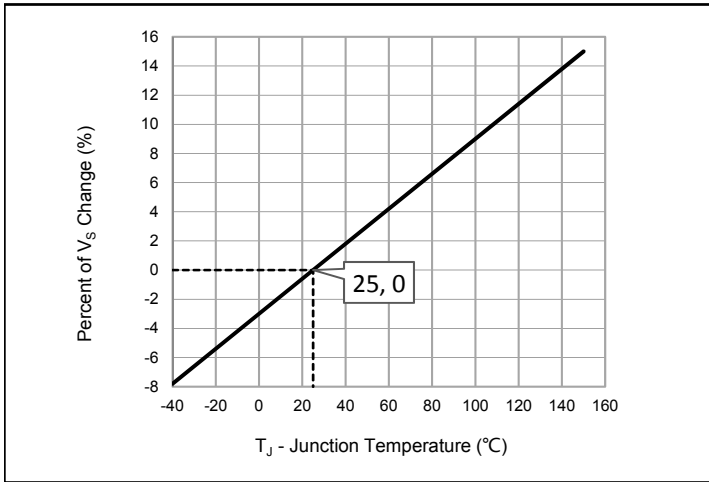


Fig. 1 - Peak Pulse Current Rating

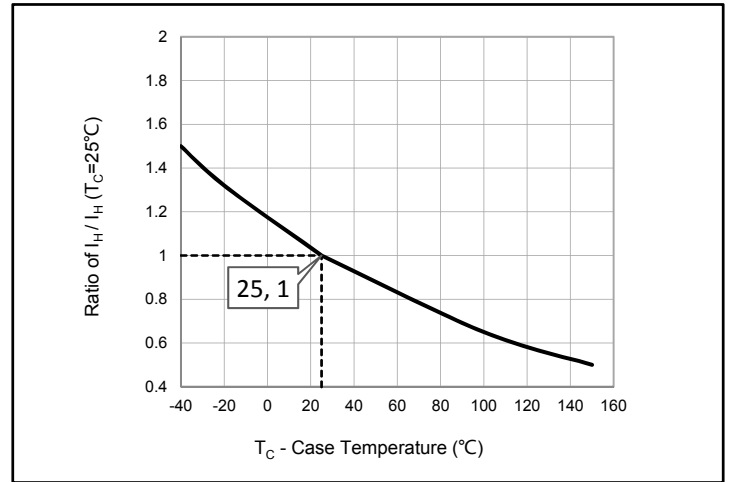


Fig. 2 - Normalized DC Holding Current vs. Case Temperature

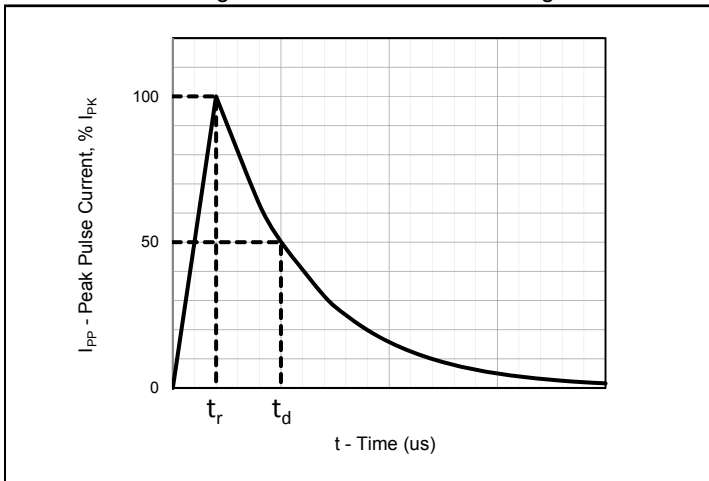


Fig. 3 - tr/td us Pulse Waveform

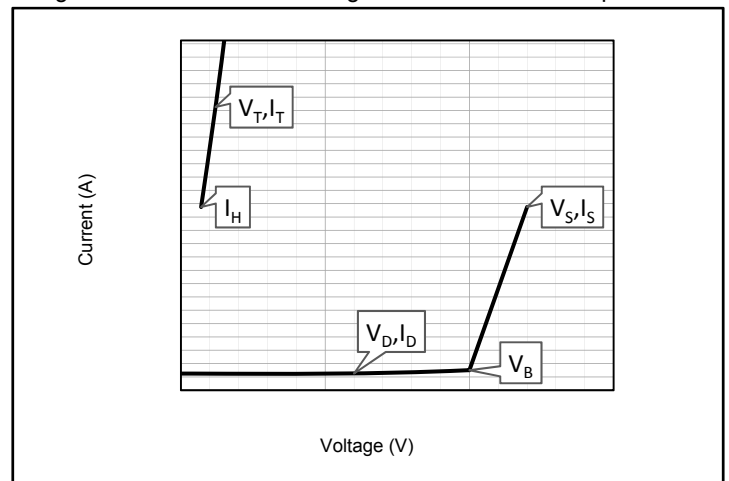


Fig. 4 - VI Curve

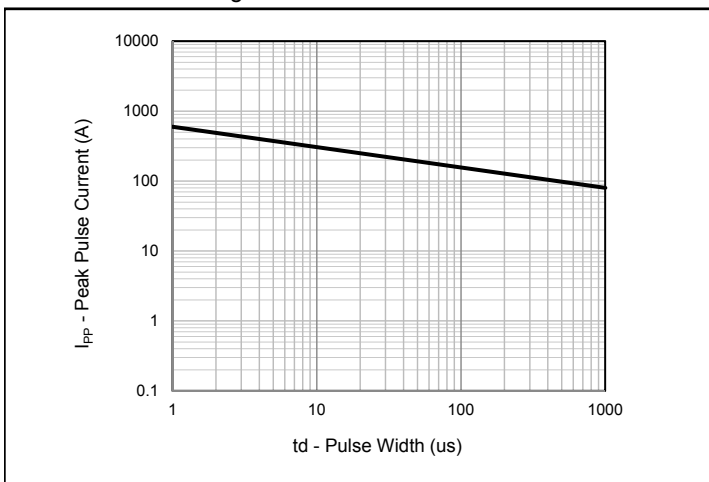


Fig. 5 - Peak Pulse Current Rating

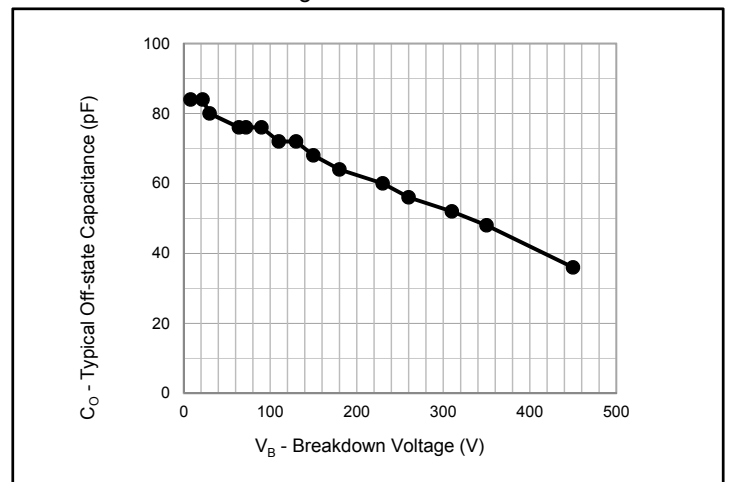
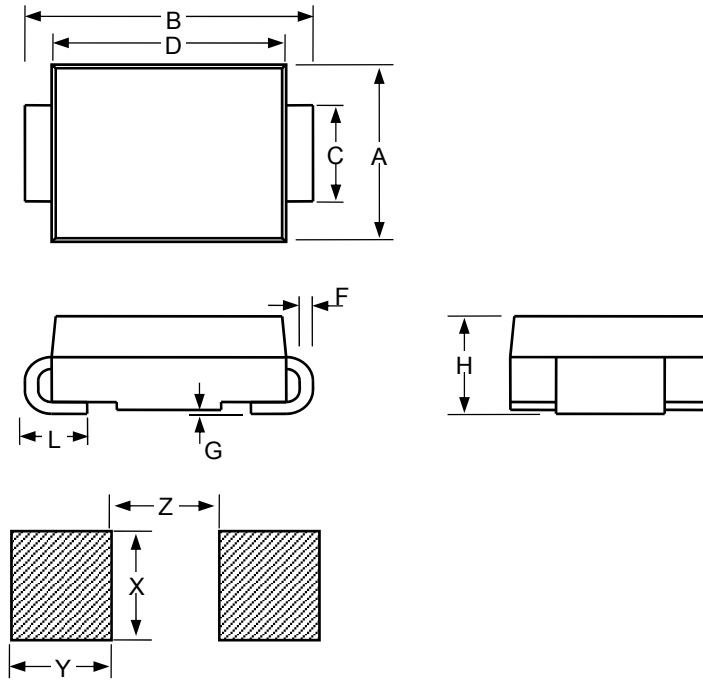


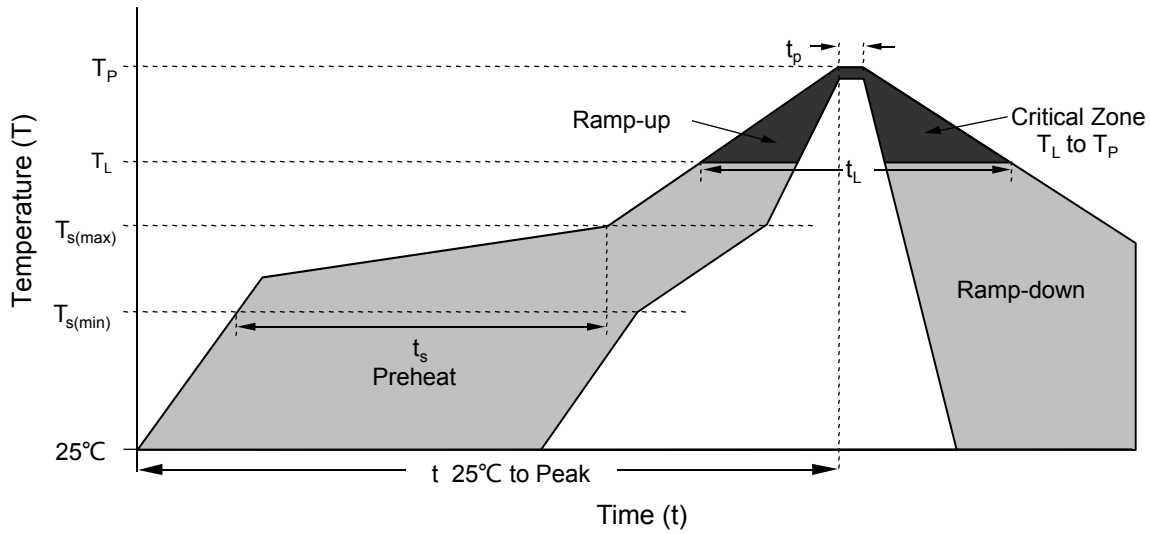
Fig. 6 - Typical Off-state Capacitance

» Package Dimensions



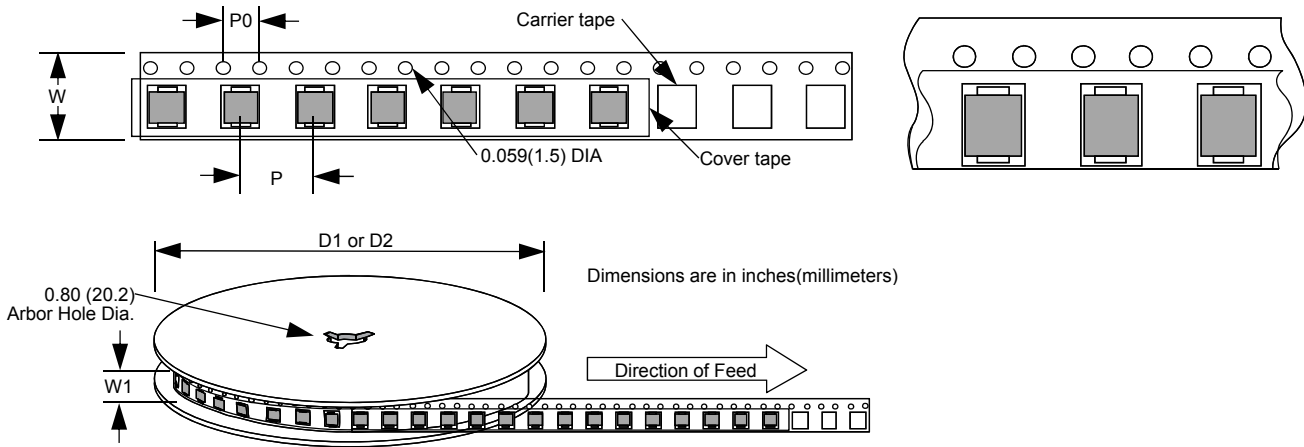
| SMB | | | | | | |
|-----------|--------|-------|-------|-------------|------|-------|
| Dimension | Inches | | | Millimeters | | |
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.134 | 0.144 | 0.155 | 3.4 | 3.67 | 3.94 |
| B | 0.205 | 0.213 | 0.22 | 5.21 | 5.4 | 5.59 |
| C | 0.075 | 0.079 | 0.083 | 1.9 | 2 | 2.1 |
| D | 0.169 | | 0.185 | 4.3 | | 4.7 |
| L | 0.03 | | 0.06 | 0.76 | | 1.52 |
| F | 0.006 | | 0.012 | 0.152 | | 0.305 |
| G | - | | 0.008 | - | | 0.203 |
| H | 0.085 | 0.091 | 0.096 | 2.15 | 2.3 | 2.45 |
| X | | 0.11 | | | 2.8 | |
| Y | | 0.079 | | | 2 | |
| Z | | 0.079 | | | 2 | |

» 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 ^{+0/-5} °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 |

»Tape and Reel Specification



| Dimension | Inches | | | Millimeters | | |
|-----------|--------|-------|-----|-------------|-------|-----|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| P | | 0.315 | | | 8 | |
| P0 | | 0.157 | | | 4 | |
| W | | 0.472 | | | 12 | |
| W1 | | 0.492 | | | 12.5 | |
| D1 | | 7 | | | 177.8 | |
| D2 | | 13 | | | 330.2 | |

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