

## FEATURES

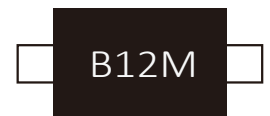
- | 400Watts peak pulse power ( $t_p = 8/20\mu s$ )
- | Protects One Signal Line or I/O Port
- | Low clamping voltage
- | Low leakage current

## APPLICATIONS

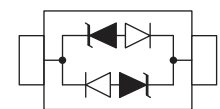
- | Ethernet - 10/100/1000 Base T
- | Cellular Phones
- | I<sup>2</sup>C Bus Protection
- | Parallel & Serial Port Protection
- | Personal Digital Assistant (PDA)
- | Microcontroller Input Protection
- | WAN/LAN Equipment



SOD-123



Marking



Schematic Symbol

## IEC COMPATIBILITY

- | IEC61000-4-2 (ESD)  $\pm 30kV$  (air),  $\pm 30kV$  (contact)
- | IEC61000-4-4 (EFT) 40A (5/50ns)

## APPROVALS

|             |                                    |
|-------------|------------------------------------|
| <b>RoHS</b> | Compliance with 2011/65/EU         |
| <b>HF</b>   | Compliance with IEC61249-2-21:2003 |

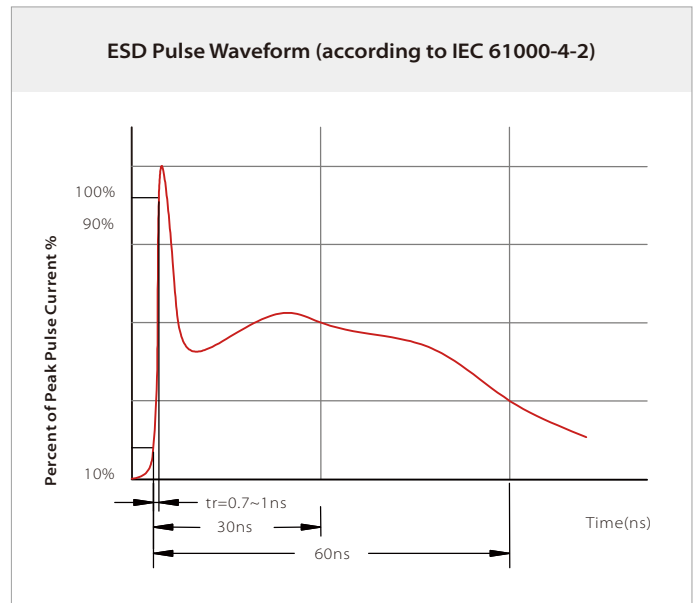
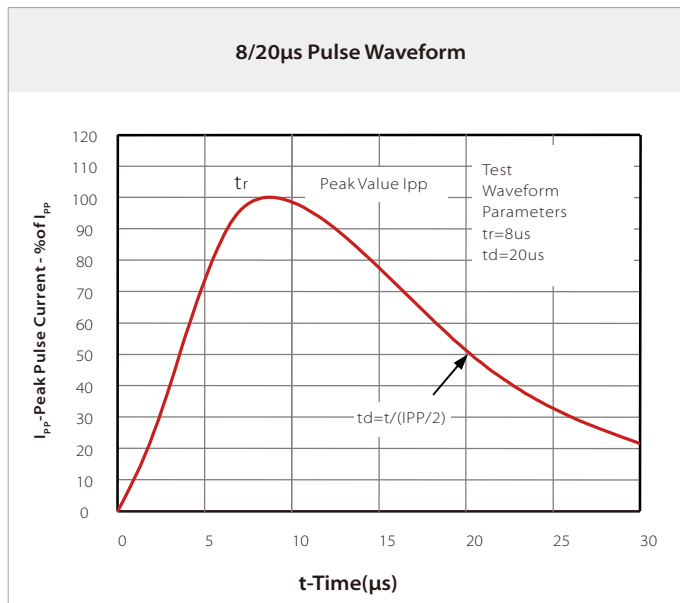
## THERMAL CONSIDERATIONS

| Symbol    | Parameter                                    | Value       | Unit  |
|-----------|--|-------------|-------|
| $P_{PP}$  | Peak Pulse Power ( $t_p=8/20\mu s$ waveform) | 400         | Watts |
| $T_J$     | Operating Temperature Range                  | -55 to +150 | °C    |
| $T_{STG}$ | Storage Temperature Range                    | -55 to +150 | °C    |

## ELECTRICAL CHARACTERISTICS

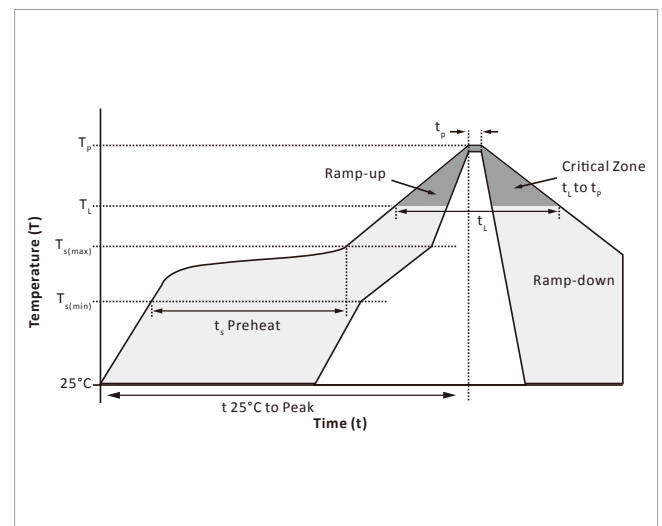
| Symbol    | Parameter                              | Condition                   | Min. | Typ. | Max. | Unit    |
|-----------|--|-----------------------------|------|------|------|---------|
| $V_{RWM}$ | Reverse Stand-off Voltage              |                             |      |      | 12   | V       |
| $V_{BR}$  | Reverse Breakdown Voltage              | $I_T=1mA$                   | 13.3 |      |      | V       |
| $I_R$     | Reverse Leakage Current                | $V_{RWM}=12V$               |      |      | 0.5  | $\mu A$ |
| $V_C$     | Clamping Voltage ( $T_p=8/20\mu s$ )   | $I_{pp}=1A, t_p=8/20\mu s$  |      |      | 18   | V       |
| $V_C$     | Clamping Voltage ( $T_p=8/20\mu s$ )   | $I_{pp}=12A, t_p=8/20\mu s$ |      |      | 29   | V       |
| $I_{pp}$  | Peak Pulse Current ( $T_p=8/20\mu s$ ) | $t_p=8/20\mu s$             |      |      | 12   | A       |
| $C_J$     | Off State Junction Capacitance         | $V_R=0V, f=1MHz$            |      | 1    |      | pF      |

## CHARACTERISTIC CURVES

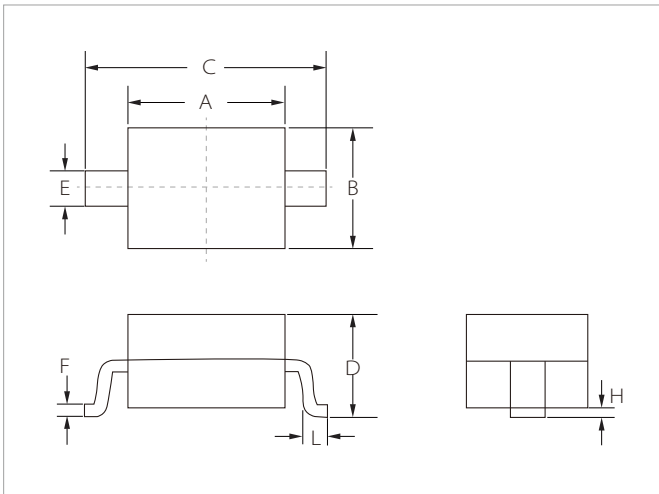


## SOLDERING PARAMETERS

| Reflow Condition                                       |                                  | Lead-free assembly |
|--|----------------------------------|--------------------|
| Pre Heat   | Temperature Max ( $T_{s(min)}$ ) | 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 (min to max) ( $t_L$ )      | 60 – 150 seconds   |
| Peak Temperature ( $T_p$ )                             |                                  | 260°C              |
| Time within 5°C of actual peak Temperature ( $t_p$ )   |                                  | 20 – 40 seconds    |
| Ramp-down Rate   |                                  | 6°C/second max     |
| Time 25°C to peak Temperature ( $T_p$ )                |                                  | 8 minutes max.     |
| Do not exceed  |                                  | 260°C              |

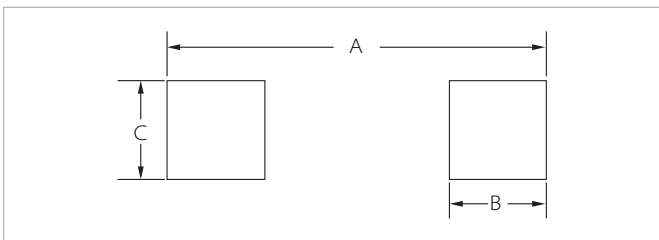


## SOD-123 PACKAGE INFORMATION



| Ref. | Millimeters |      | Inches |       |
|------|-------------|------|--------|-------|
|      | Min.        | Max. | Min.   | Max.  |
| A    | 2.60        | 2.80 | 0.102  | 0.110 |
| B    | 1.50        | 1.70 | 0.059  | 0.067 |
| C    | 3.55        | 3.85 | 0.140  | 0.152 |
| D    | 1.05        | 1.25 | 0.041  | 0.049 |
| E    | 0.45        | 0.65 | 0.018  | 0.026 |
| F    | 0.08        | 0.15 | 0.003  | 0.006 |
| H    | 0.00        | 0.10 | 0.000  | 0.004 |
| L    | 0.25        | 0.45 | 0.010  | 0.018 |

## RECOMMENDED PAD LAYOUT DIMENSIONS



| Ref. | Millimeters |      | Inches |       |
|------|-------------|------|--------|-------|
|      | Min.        | Max. | Min.   | Max.  |
| A    | 4.00        | 4.30 | 0.157  | 0.169 |
| B    | 0.75        | 0.85 | 0.030  | 0.033 |
| C    | 0.95        | 1.05 | 0.037  | 0.041 |

## ORDERING INFORMATION

| Part Number | Component Package | QTY/Reel | Reel Size |
|-------------|-------------------|----------|-----------|
| SE1D40B12MA | SOD-123           | 3000PCS  | 7"        |

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