**LITEON** LITE-ON SEMICONDUCTOR

# S2MAD

## SURFACE MOUNT GLASS PASSIVATED RECTIFIER

## REVERSE VOLTAGE – 1000 Volts FORWARD CURRENT –2.0 Ampere

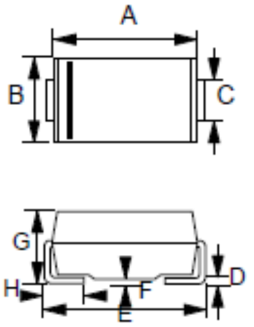
### FEATURES

- For surface mounted applications.
- Low reverse leakage current
- Low forward voltage drop
- High current capability
- Qualification is according to AEC-Q101 Rev_C

### MECHANICAL DATA

- Case: Molded plastic
- Case Material: “Green” molding compound, UL flammability classification 94V-0, (No Br. Sb. Cl.) “Halogen-free”
- Terminals: Lead Free Plating (Matte Tin Finish.)
- Component in accordance to RoHs 2002/95/EC
- Marking code: S2MAD
- Weight: 0.002 ounce, 0.064 grams (Approximate)

### SMA



| SMA | | |
|---|---|---|
| **DIM.** | **MIN.** | **MAX.** |
| A | 4.06 | 4.57 |
| B | 2.29 | 2.92 |
| C | 1.27 | 1.63 |
| D | 0.15 | 0.31 |
| E | 4.83 | 5.59 |
| F | 0.05 | 0.20 |
| G | 2.01 | 2.40 |
| H | 0.76 | 1.52 |
| All dimension in millimeter | | |

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

### ABSOLUTE RATINGS

| PARAMETER | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 1000 | V |
| Average rectified output current $T_C$=80°C | $I_{(AV)}$ | 2.0 | A |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load. | $I_{FSM}$ | 50 | A |
| $I^2t$ rating for fusing (t = 8.3ms) | $I^2t$ | 20.75 | $A^2S$ |
| Operating junction temperature range | $T_J$ | -55 to +150 | °C |
| Storage temperature range | $T_{STG}$ | -55 to +150 | °C |

### STATIC ELECTRICAL CHARACTERISTICS

| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX | UNIT |
|---|---|---|---|---|---|---|
| Forward voltage | $I_F$ = 2A | $T_J$ =25°C | $V_F$ | -- | 1.1 | V |
| Leakage current | $V_R$ = 1000V | $T_J$ =25°C<br>$T_J$ =125°C | $I_R$ | --<br>-- | 5.0<br>125 | uA |
| Typical junction capacitance (Note 1) | | | $C_J$ | 15 | | pF |

### THERMAL CHARACTERISTICS

| THERMAL CHARACTERISTIC | SYMBOL | TYP. | UNIT |
|---|---|---|---|
| Typical thermal resistance (Note 2) | $RthJ_C$<br>$RthJ_L$<br>$RthJ_A$ | 40<br>15<br>45 | °C/W |

### DYNAMIC ELECTRICAL CHARACTERISTICS

| PARAMETER | TEST CONDITION | SYMBOL | MIN. | MAX | UNIT |
|---|---|---|---|---|---|
| Reverse recovery time | $I_F$= 0.5A, Irr= 0.25A, $I_R$ =1.0A $T_J$=25°C | $T_{RR}$ | 500 | 1000 | nS |

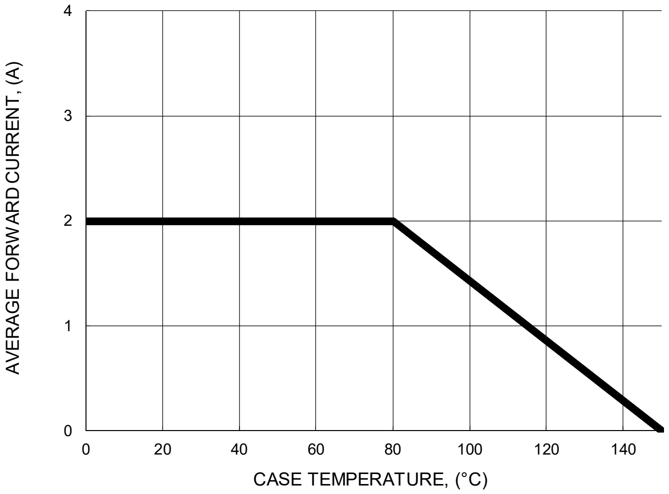
**Note :**

(1) Measured at 1.0MHz and applied voltage of 4.0VDC.

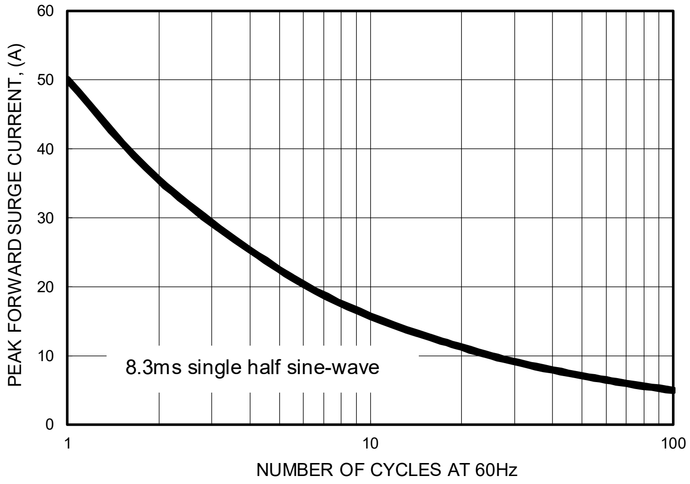
(2) Thermal resistance test performed in accordance with JESD-51. Unit mounted on glass-epoxy substrate with 1oz/$ft^2$_5 mm x 7 mm copper pad per pin.

# RATING AND CHARACTERISTIC CURVES
# S2MAD

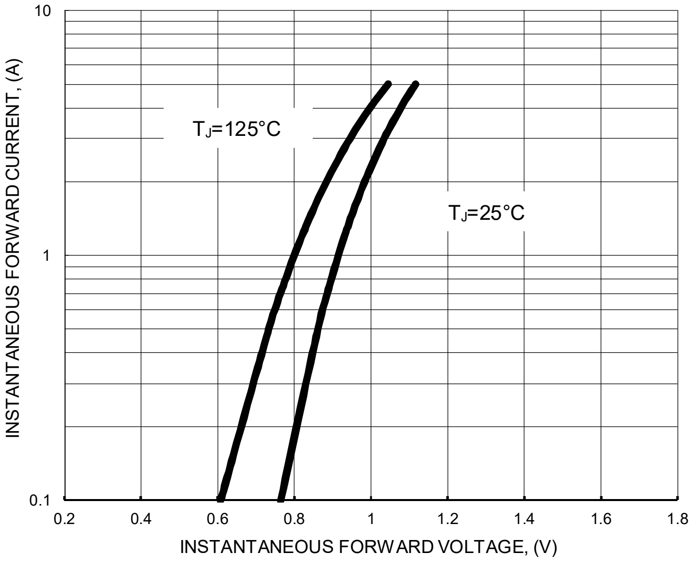
### FIG.1- FORWARD CURRENT DERATING CURVE



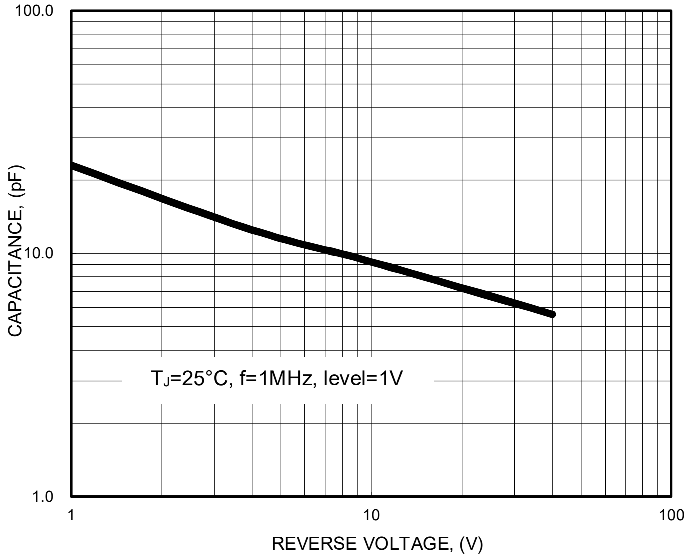
### FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT



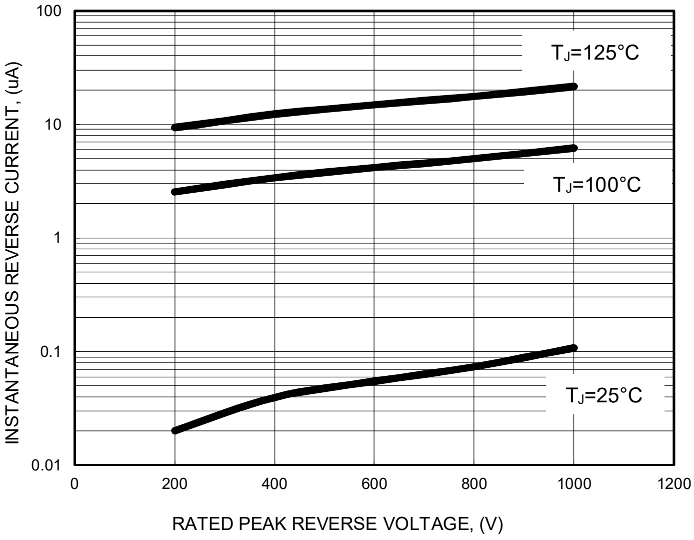
### FIG.3- TYPICAL FORWORD CHARACTERISTICS



### FIG.4- TYPICAL JUNCTION CAPACITANCE

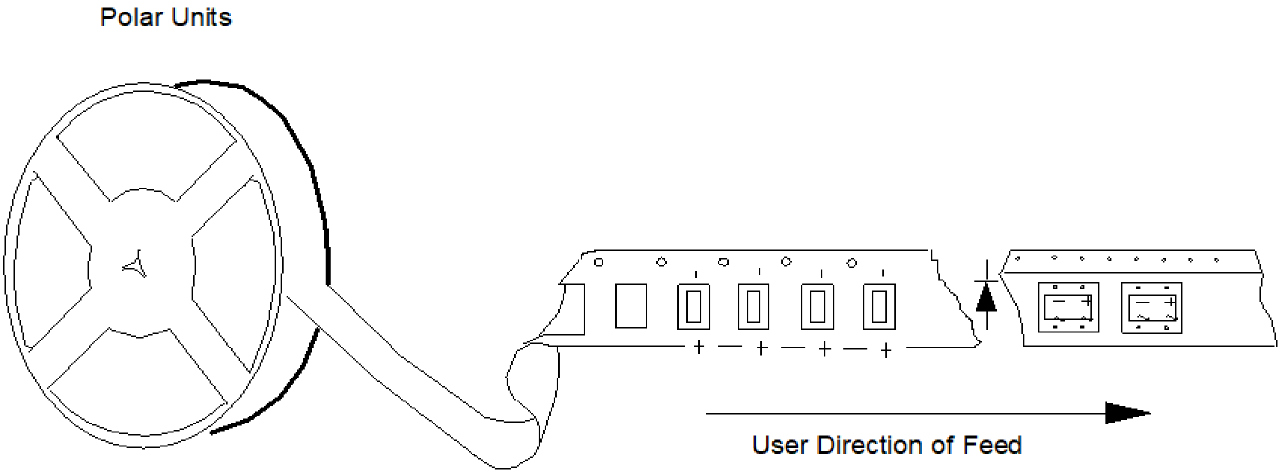


### FIG.5- TYPICAL REVERSE CHARACTERISTICS



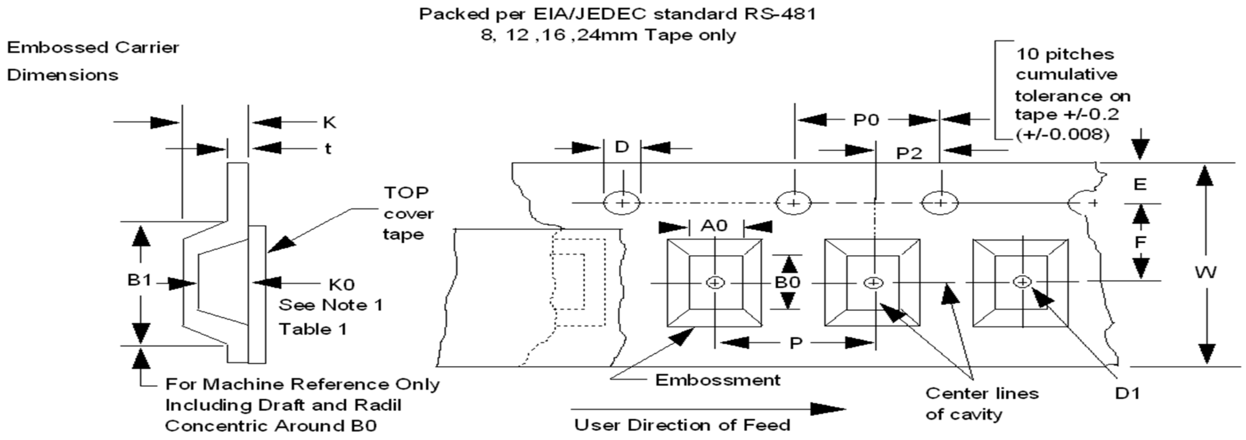
# PACKAGING AND CARRIER DIMENSIONS INFORMATION
# S2MAD

## Packaging Information



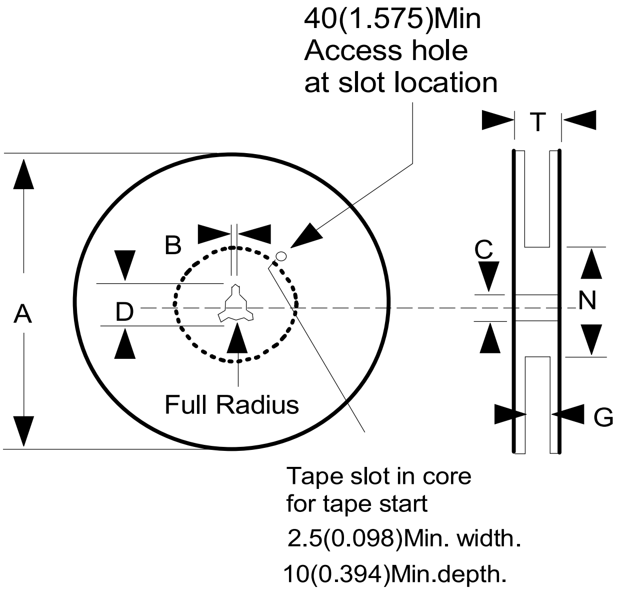
| DEVICE | Q'TY/REEL (PCS) | REEL DIA. (mm) | BOX SIZE (mm) | Q'TY/BOX (PCS) | CARTON SIZE (mm) | Q'TY/CARTON (PCS) |
|---|---|---|---|---|---|---|
| S2MAD | 5K | 330 | 340X340X21 | 5K | 350X350X340 | 60K |

## Embossed Carrier Dimensions Information



| TAPE SIZE | D | E | PO | t(MAX) | W | P | UNIT |
|---|---|---|---|---|---|---|---|
| 12mm | 1.55+0.10/-0.0 | 1.75±0.10 | 4.0+0.1 | 0.4 | 12.0±0.30 | 4.0±0.1 | mm |
| | B1(MAX) | D1(MIN) | F | K(MAX) | P2 | A0B0K0 | |
| | 8.2 | 1.5 | 5.5±0.1 | 4.5 | 2.0±0.05 | SEE NOTE 1 | |

Note 1: A0B0K0 are determined by component size. The clearance between the component and the cavity must be within 0.05 min. to 0.50 max.for 8 mm tape. 0.05 min. to 0.65 max. for 12mm tape. 0.15 min. to 0.90 max. for 16mm tape and 0.05 min. to 1.00 max. for 24 mm tape and larger.



| TAPE SIZE | A MAX | B MIN | C | D MIN | N | G | T MAX | UNIT |
|---|---|---|---|---|---|---|---|---|
| 12mm | 178/330 | 1.5 | 13.0+/-0.5 | 20.2 | 75 | 12.4+2.0/-0.0 | 18.4 | mm |

# Important Notice and Disclaimer

LSC reserves the right to make changes to this document and its products and specifications at any time without notice. Customers should obtain and confirm the latest product information and specifications before final design, purchase or use.

LSC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does LSC assume any liability for application assistance or customer product design. LSC does not warrant or accept any liability with products which are purchased or used for any unintended or unauthorized application.

No license is granted by implication or otherwise under any intellectual property rights of LSC.

LSC products are not authorized for use as critical components in life support devices or systems without express written approval of LSC.