

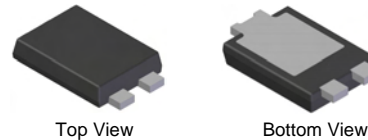
# 10.0A SUPER BARRIER RECTIFIER

## SL1045

# Formosa MS

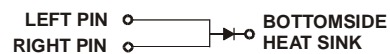
### Features

- Bypass Diodes for Solar Panels
- Maximum Junction Temperature 200°C
- High Thermal Reliability
- Patented Super Barrier Rectifier Technology
- High Forward Surge Capability
- Ultra Low Power Loss, High Efficiency
- Excellent High Temperature Stability



### Mechanical Data

- Case: TO-277 Molded Plastic "Green" Molding Compound
- Terminals: Plated Leads Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Weight: 0.093 grams (approx.)
- Mounting Position: Any
- Marking: Type Number
- Lead Free: For RoHS/Lead Free Version



Note: Pins Left & Right must be electrically connected at the printed circuit board.

### Maximum Ratings and Electrical Characteristics @T<sub>A</sub>=25°C unless otherwise specified

Single Phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

| Characteristic   | Symbol              | SL1045                      | Unit |
|--|---------------------|-----------------------------|------|
| Peak Repetitive Reverse Voltage  | V <sub>RRM</sub>    | 45                          | V    |
| Working Peak Reverse Voltage   | V <sub>RWM</sub>    |                             |      |
| DC Blocking Voltage  | V <sub>R</sub>      |                             |      |
| RMS Reverse Voltage  | V <sub>R(RMS)</sub> | 32                          | V    |
| Average Rectified Output Current (Note 1) @T <sub>L</sub> = 90°C   | I <sub>o</sub>      | 10.0                        | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave superimposed on rated load (JEDEC Method) @T <sub>L</sub> = 75°C | I <sub>FSM</sub>    | 275                         | A    |
| Forward Voltage Drop @I <sub>F</sub> = 8A, T <sub>j</sub> = 25°C   | V <sub>FM</sub>     | 0.42                        | V    |
| @I <sub>F</sub> = 10A, T <sub>j</sub> = 25°C   |                     | 0.47                        |      |
| @I <sub>F</sub> = 10A, T <sub>j</sub> = 125°C  |                     | 0.41                        |      |
| Peak Reverse Current @V <sub>R</sub> = 45V, T <sub>j</sub> = 25°C  | I <sub>RM</sub>     | 0.3                         | mA   |
| At Rated DC Blocking Voltage @V <sub>R</sub> = 45V, T <sub>j</sub> = 100°C   |                     | 15                          |      |
| @V <sub>R</sub> = 45V, T <sub>j</sub> = 150°C  |                     | 75                          |      |
| Repetitive Peak Avalanche Power(1us,25°C)  | P <sub>ARM</sub>    | 30000                       | W    |
| Typical Thermal Resistance Junction to Ambient (Note 2)  | R <sub>θJA</sub>    | 73                          | °C/W |
| (Note 3)   |                     | 31                          |      |
| Operating Temperature Range @V <sub>R</sub> ≤ 80% V <sub>RRM</sub><br>@V <sub>R</sub> ≤ 50% V <sub>RRM</sub><br>DC Forward Mode        | T <sub>j</sub>      | -65 to +150<br>≤180<br>≤200 | °C   |
| Storage Temperature Range  | T <sub>STG</sub>    | -65 to +150                 | °C   |

- Note: 1. Valid provided that leads are kept at ambient temperature at a distance of 9.5mm from the case.  
2. FR-4 PCB, 2oz. Copper, minimum recommended pad layout .  
3. Polyimide PCB, 2oz. Copper. Cathode pad dimensions 18.8mm x 14.4mm. Anode pad dimensions 5.6mm x 14.4mm.



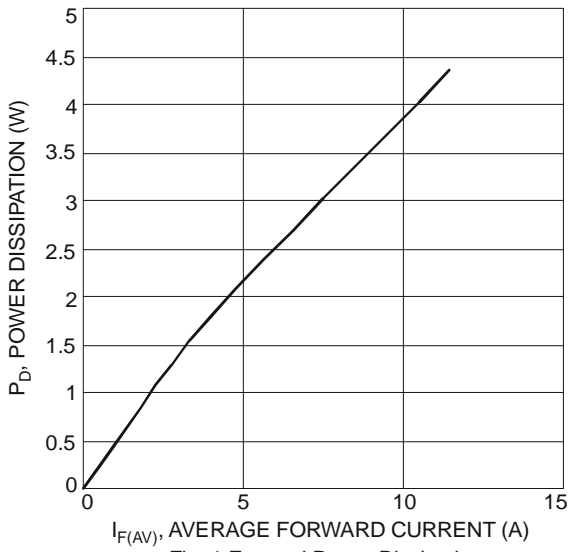


Fig. 1 Forward Power Dissipation

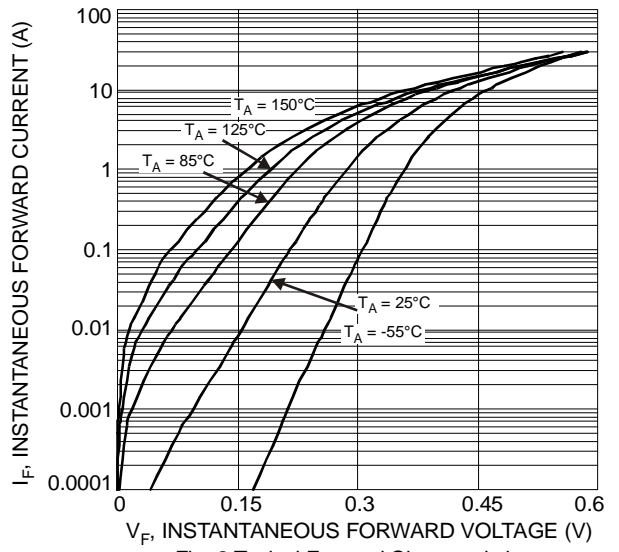


Fig. 2 Typical Forward Characteristics

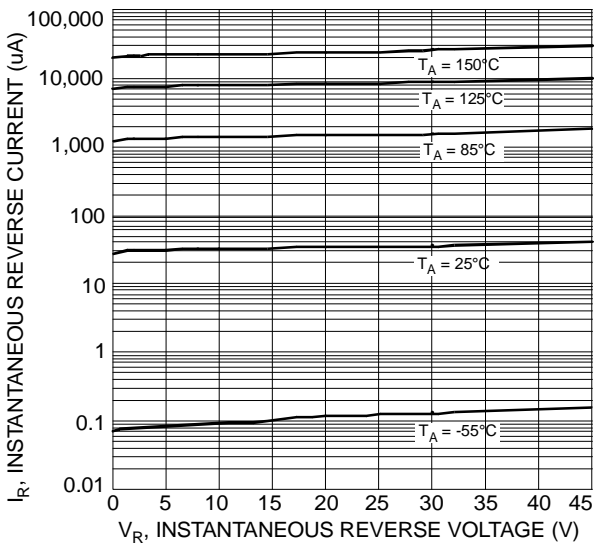


Fig. 3 Typical Reverse Characteristics

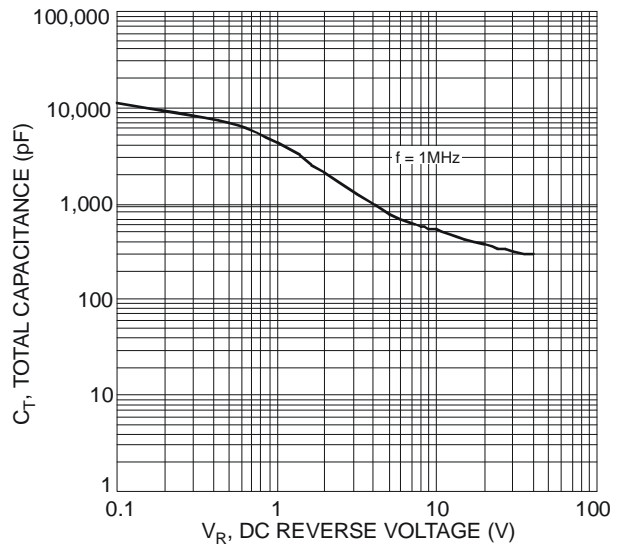


Fig. 4 Total Capacitance vs. Reverse Voltage

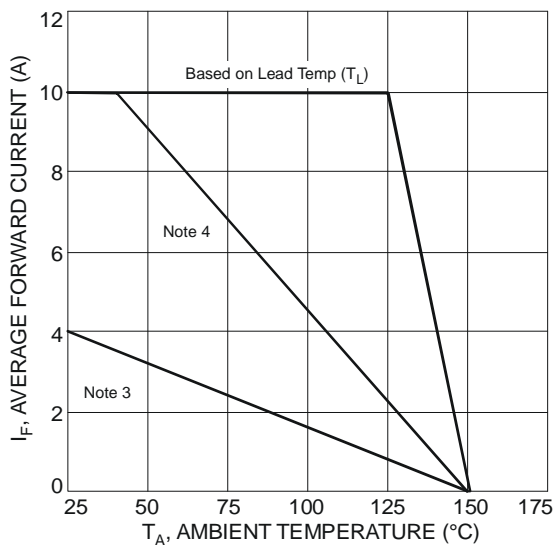


Fig. 5 Forward Current Derating Curve

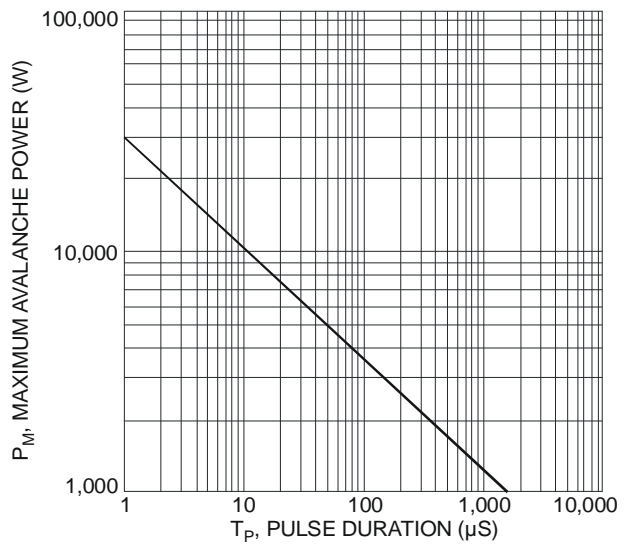


Fig. 6 Maximum Avalanche Power

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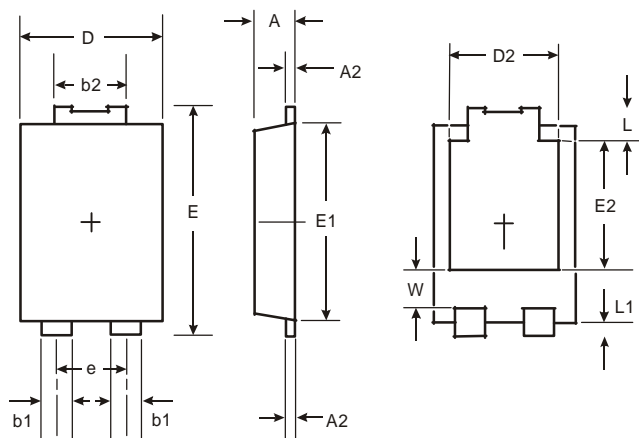
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### Ordering Information

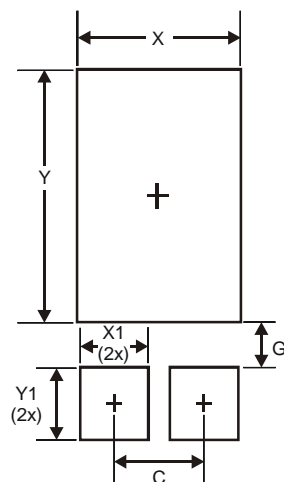
| Part Number | Case   | Packaging        |
|-------------|--------|------------------|
| SL1045      | TO-277 | 5000/Tape & Reel |

### Package Outline Dimensions



| TO-277                      |           |      |
|-----------------------------|-----------|------|
| Dim                         | Min       | Max  |
| A                           | 1.05      | 1.15 |
| A2                          | 0.33      | 0.43 |
| b1                          | 0.80      | 0.99 |
| b2                          | 1.70      | 1.88 |
| D                           | 3.90      | 4.05 |
| D2                          | 3.054 Typ |      |
| E                           | 6.40      | 6.60 |
| e                           | 1.84 Typ  |      |
| E1                          | 5.30      | 5.45 |
| E2                          | 3.549 Typ |      |
| L                           | 0.75      | 0.95 |
| L1                          | 0.50      | 0.65 |
| W                           | 1.10      | 1.41 |
| <b>All Dimensions in mm</b> |           |      |

### Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 1.840         |
| G          | 0.852         |
| X          | 3.360         |
| X1         | 1.390         |
| Y          | 4.860         |
| Y1         | 1.400         |