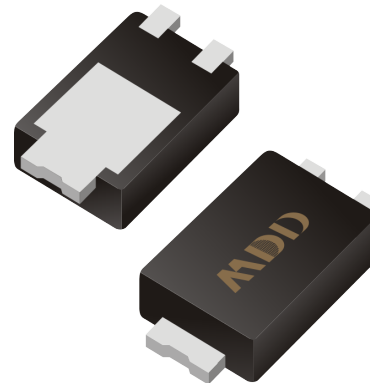


## SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

### Features

- ◆ Trench MOS Schottky barrier diodes
- ◆ Low forward voltage drop
- ◆ low profile - typical body height 1.1 mm
- ◆ Moisture sensitivity: level 1, per J-STD-020
- ◆ High temperature soldering guaranteed:  
260 °C/10 seconds - RoHS Compliant
- ◆ Halogen-free according to IEC 61249-2-21  
definition

TO-277



### Mechanical Data

**Case** : JEDEC TO-277 Molded plastic body

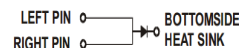
**Case Material**: Molding compound meets UL 94V-0  
flammability rating

**Terminals** :Plated Leads Solderable per MIL-STD-202,Method

208 **Polarity** : Polarity symbol marking on body

**Mounting Position** : Any

**Weight** : 0.003 ounce, 0.092 grams



Dimensions in inches and (millimeters)

### Maximum Ratings And Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.

| Parameter                                                                                                     | SYMBOL    | ST10150        | UNIT |
|---------------------------------------------------------------------------------------------------------------|-----------|----------------|------|
| Marking Code                                                                                                  |           | MDD<br>ST10150 |      |
| Maximum repetitive peak reverse voltage                                                                       | $V_{RRM}$ | 150            | V    |
| Maximum DC blocking voltage                                                                                   | $V_{DC}$  |                |      |
| RMS Reverse voltage                                                                                           | $V_{RMS}$ | 105            | V    |
| Average Rectified Output Current                                                                              | $I_{(O)}$ | 10             | A    |
| Non-Repetitive Peak Forward Surge 8.3ms<br>Single Half Sine-Wave Superimposed<br>on rated load (JEDEC Method) | $I_{FSM}$ | 220            | A    |

Electrical Characteristics  $T_a=25^{\circ}\text{C}$  unless otherwise noted

| Parameter                                         | Test Conditions           | Symbol          | Value       |      | Unit                        |
|---------------------------------------------------|---------------------------|-----------------|-------------|------|-----------------------------|
|                                                   |                           |                 | Typ         | Max  |                             |
| Forward Voltage Drop @ $I_F=10\text{A}$           | $T_A=25^{\circ}\text{C}$  | $V_F$           | 0.76        | 0.80 | V                           |
|                                                   | $T_A=125^{\circ}\text{C}$ |                 | 0.69        | 0.72 |                             |
| Peak reverse current at rated DC blocking voltage | $T_A=25^{\circ}\text{C}$  | $I_R$           | 15          | 50   | uA                          |
|                                                   | $T_A=125^{\circ}\text{C}$ |                 | 6           | 30   |                             |
| Typical junction capacitance                      | 4.0 V, 1 MHz              | $C_J$           | 240         |      | pF                          |
| Typical thermal resistance<br>Junction to Ambient |                           | $R_{\theta JA}$ | 35          |      | $^{\circ}\text{C}/\text{W}$ |
|                                                   |                           | $R_{\theta JL}$ | 10          |      |                             |
| Operating junction and storage temperature range  |                           | $T_J, T_{STG}$  | -55 to +150 |      | $^{\circ}\text{C}$          |

**Note:** 1. The typical data above is for reference only.

DN:T21A19A0

## Ratings And Characteristic Curves

FIG. 1: Forward Output Current Derating Curve

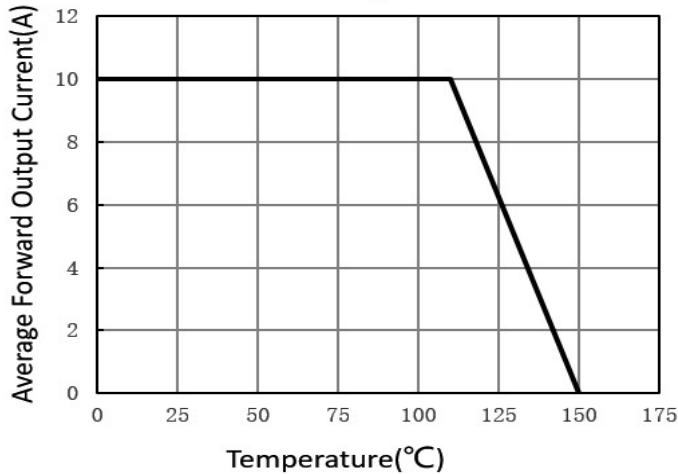


FIG.2: Maximum Non-Repetitive Peak Forward Surge Current

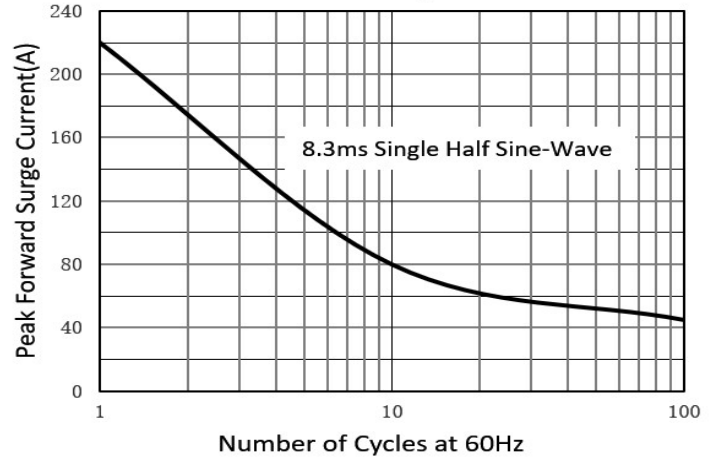


FIG.3: Typical Forward Characteristics

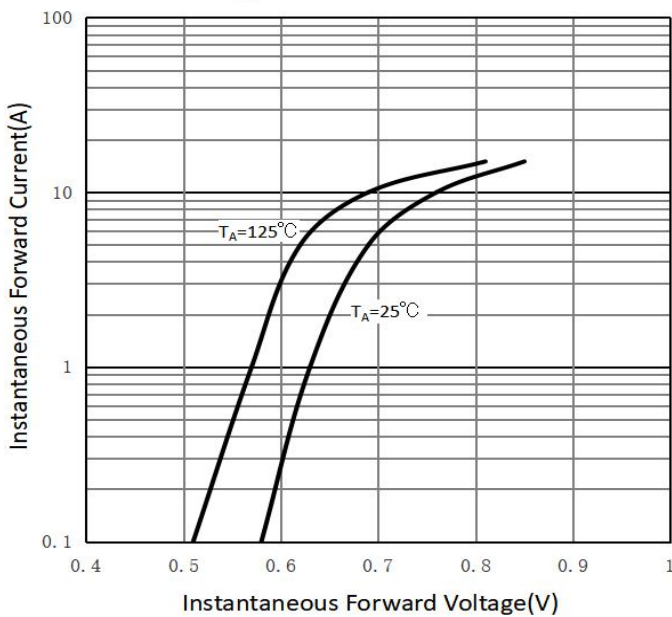
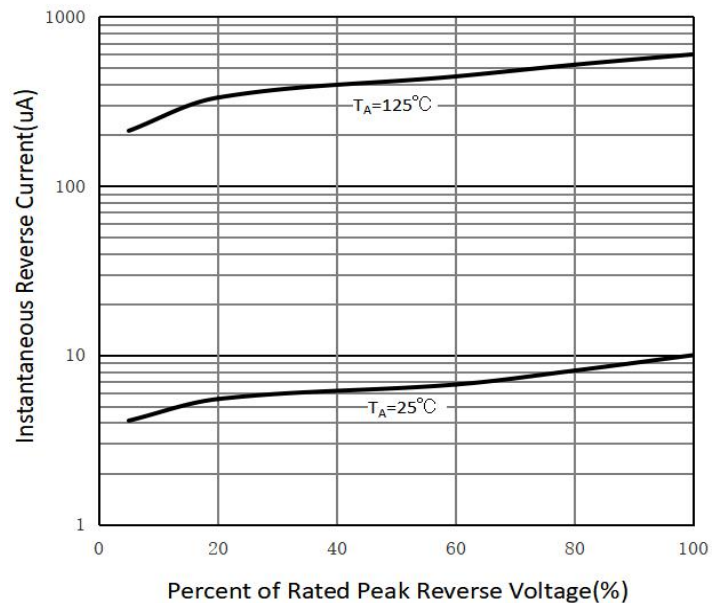
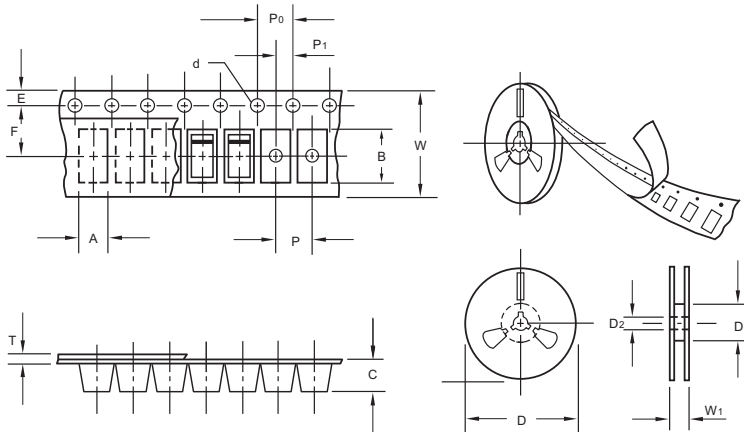


FIG.4: Typical Reverse Characteristics



The curve above is for reference only.

## Packing information



unit:mm

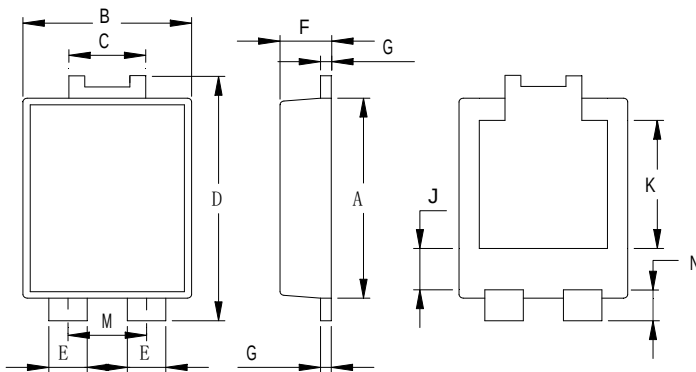
| Item                      | Symbol | Tolerance | TO-277 |
|---------------------------|--------|-----------|--------|
| Carrier width             | A      | 0.1       | 4.45   |
| Carrier length            | B      | 0.1       | 7.0    |
| Carrier depth             | C      | 0.1       | 1.60   |
| Sprocket hole             | d      | 0.05      | 1.55   |
| 13" Reel outside diameter | D      | 2.0       | 330.00 |
| 13" Reel inner diameter   | D1     | min       | 50.0   |
| Feed hole diameter        | D2     | 0.5       | 13.00  |
| Sprocket hole position    | E      | 0.1       | 1.75   |
| Punch hole position       | F      | 0.1       | 7.50   |
| Punch hole pitch          | P      | 0.1       | 8.00   |
| Sprocket hole pitch       | P0     | 0.1       | 4.00   |
| Embossment center         | P1     | 0.1       | 2.00   |
| Overall tape thickness    | T      | 0.1       | 0.25   |
| Tape width                | W      | 0.3       | 12.00  |
| Reel width                | W1     | 1.0       | 12.30  |

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

## Reel packing

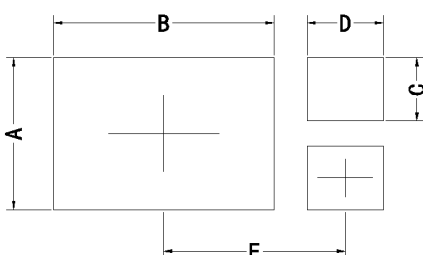
| PACKAGE | REEL SIZE | REEL (pcs) | COMPONENT SPACING (m/m) | BOX (pcs) | INNER BOX (m/m) | REEL DIA, (m/m) | CARTON SIZE (m/m) | CARTON (pcs) | APPROX. GROSS WEIGHT (kg) |
|---------|-----------|------------|-------------------------|-----------|-----------------|-----------------|-------------------|--------------|---------------------------|
| TO-277  | 13"       | 5,000      | 4.0                     | 10,000    | 210*208*203     | 330             | 430*430*235       | 80,000       | 13.0                      |

## TO-277 Outline Drawing



| Symbol | Dimensions in Millimeters |      |
|--------|---------------------------|------|
|        | Min                       | Max  |
| A      | 5.2                       | 5.8  |
| B      | 3.8                       | 4.3  |
| C      | 1.7                       | 1.9  |
| D      | 6.4                       | 6.6  |
| E      | 0.8                       | 1.0  |
| F      | 1.0                       | 1.3  |
| G      | 0.2                       | 0.45 |
| J      | 1.1                       | 1.5  |
| K      | 2.4                       | 4.0  |
| M      | 1.65                      | 1.95 |
| N      | 0.7                       | 1.3  |

## Suggested Pad Layout



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A      | 3.60      | 0.142       |
| B      | 5.35      | 0.211       |
| C      | 1.50      | 0.059       |
| D      | 1.85      | 0.073       |
| E      | 4.30      | 0.169       |