# MMDL101T1G

# Schottky Barrier Diode

Schottky barrier diodes are designed primarily for high−efficiency UHF and VHF detector applications. Readily available to many other fast switching RF and digital applications.

**Features**

- Very Low Capacitance − Less than 1.0 pF @ 0 V
- Low Noise Figure − 6.0 dB Typ @ 1.0 GHz
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

**MAXIMUM RATINGS**

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Reverse Voltage | $V_R$ | 7.0 | Vdc |

**THERMAL CHARACTERISTICS**

| Characteristic | Symbol | Max | Unit |
|---|---|---|---|
| Total Device Dissipation FR−5 Board, (Note 1) @$T_A$ = 25°C<br>Derate above 25°C | $P_D$ | 200<br>1.57 | mW<br>mW/°C |
| Thermal Resistance, Junction−to−Ambient | $R_{\theta JA}$ | 635 | °C/W |
| Junction and Storage Temperature Range | $T_J$, $T_{stg}$ | −55 to +150 | °C |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. FR−5 Minimum Pad

**ELECTRICAL CHARACTERISTICS** ($T_A$ = 25°C unless otherwise noted)

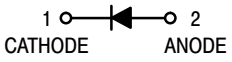
| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Reverse Breakdown Voltage ($I_R$ = 10 μA) | $V_{(BR)R}$ | 7.0 | 10 | – | V |
| Diode Capacitance ($V_R$ = 0, f = 1.0 MHZ), (Note 2)* | $C_T$ | – | 0.88 | 1.0 | pF |
| Reverse Leakage ($V_R$ = 3.0 V) | $I_R$ | – | 20 | 250 | nAdc |
| Noise Figure (f = 1.0 GHz), (Note 3)* | NF | – | 6.0 | – | dB |
| Forward Voltage ($I_F$ = 10 mA) | $V_F$ | – | 0.5 | 0.6 | Vdc |

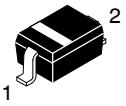
*Notes on Next Page

**ON Semiconductor®**

**http://onsemi.com**

## 1.0 pF SCHOTTKY BARRIER DIODE




**PLASTIC**
**SOD−323**
**CASE 477**
**STYLE 1**

**MARKING DIAGRAM**


4M = Device Code
M = Date Code*
▪ = Pb−Free Package

(Note: Microdot may be in either location)
*Date Code orientation may vary depending upon manufacturing location.

**ORDERING INFORMATION**

| Device | Package | Shipping† |
|---|---|---|
| MMDL101T1G | SOD−323 (Pb−Free) | 3000 / Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

## TYPICAL CHARACTERISTICS

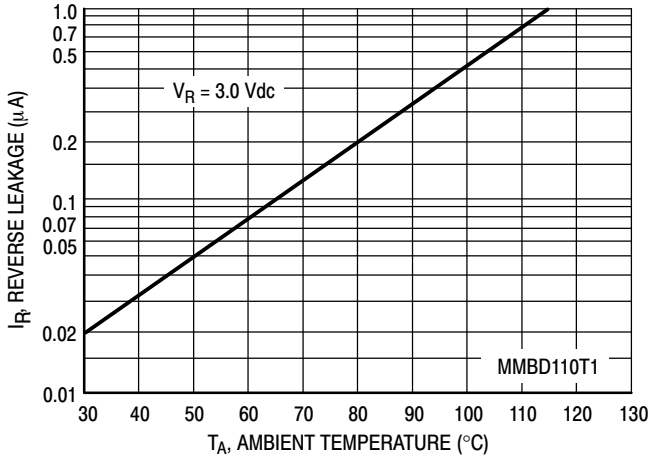



**Figure 1. Reverse Leakage**

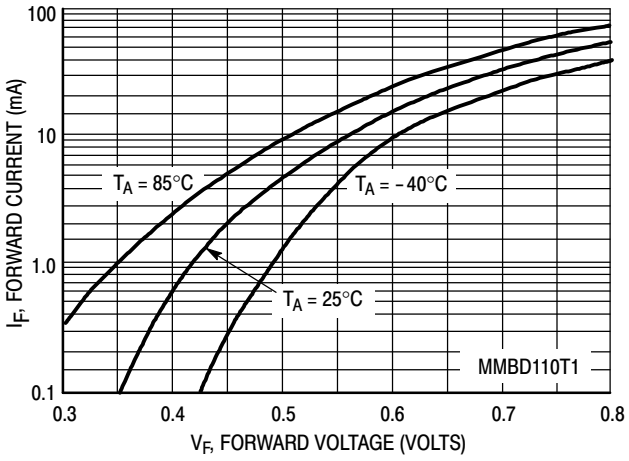



**Figure 2. Forward Voltage**

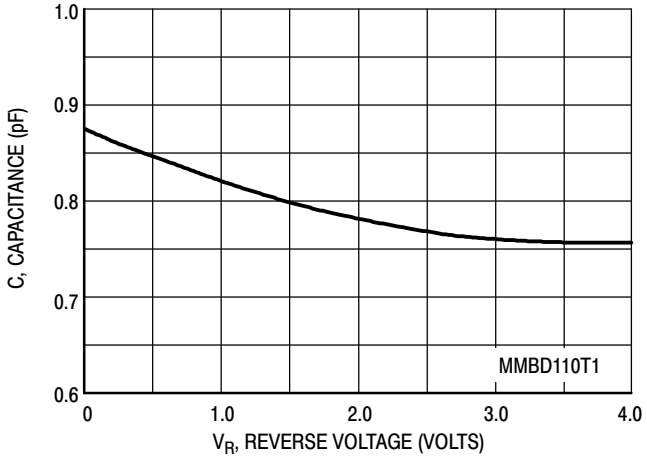



**Figure 3. Capacitance**

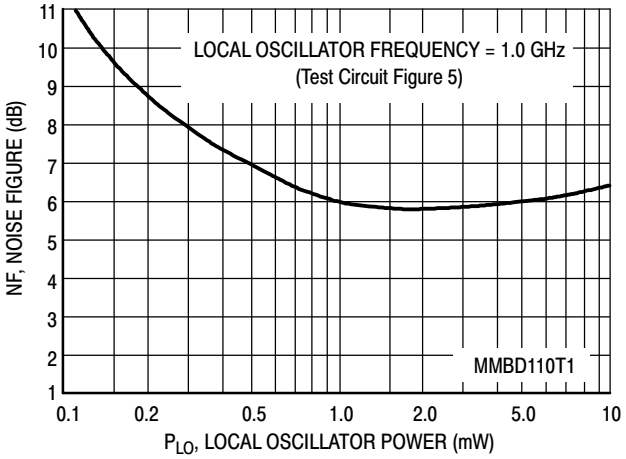



**Figure 4. Noise Figure**

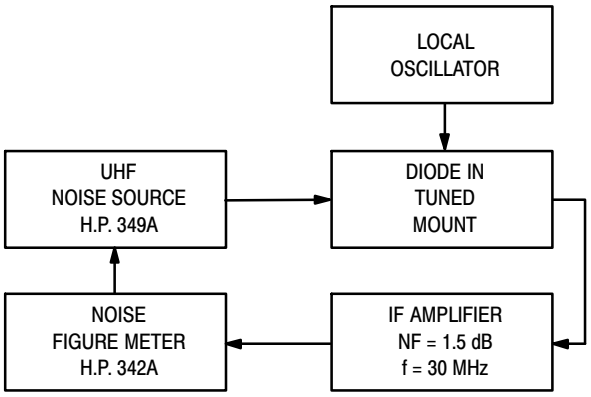
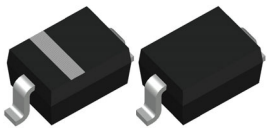



**Figure 5. Noise Figure Test Circuit**

**NOTES ON TESTING AND SPECIFICATIONS**

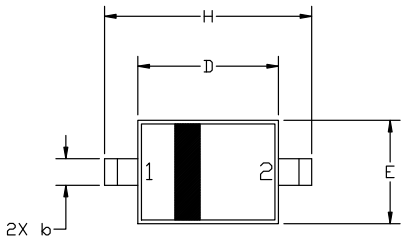
2. $C_C$ and $C_T$ are measured using a capacitance bridge (Boonton Electronics Model 75A or equivalent).
3. Noise figure measured with diode under test in tuned diode mount using UHF noise source and local oscillator (LO) frequency of 1.0 GHz. The LO power is adjusted for 1.0 mW. IF amplifier NF = 1.5 dB, f = 30 MHz, see Figure 5.

# MECHANICAL CASE OUTLINE
## PACKAGE DIMENSIONS

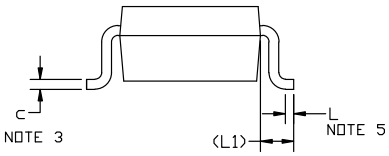


**SOD−323 1.70x1.25x0.85**
CASE 477
ISSUE K

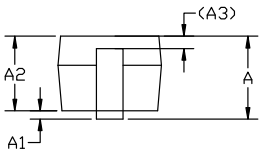
DATE 11 MAR 2024




TOP VIEW




SIDE VIEW

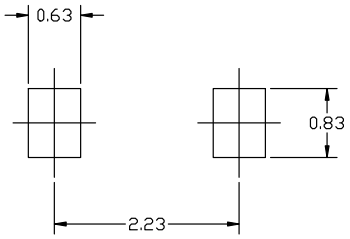



END VIEW

NOTES:

1. DIMENSIONING AND TOLERANCING AS PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. LEAD THICKNESS SPECIFIED PER L/F DRAWING WITH SOLDER PLATING.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
5. DIMENSION L IS MEASURE FROM END OF RADIUS.

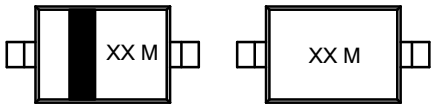
| DIM | MILLIMETERS | | |
|---|---|---|---|
| | MIN. | NOM. | MAX. |
| A | 0.80 | 0.90 | 1.00 |
| A1 | 0.00 | 0.05 | 0.10 |
| A2 | 0.75 | 0.85 | 0.95 |
| A3 | 0.15 (REF) | | |
| b | 0.25 | 0.32 | 0.4 |
| c | 0.09 | 0.12 | 0.18 |
| D | 1.60 | 1.70 | 1.80 |
| E | 1.15 | 1.25 | 1.35 |
| H | 2.30 | 2.50 | 2.70 |
| L | 0.08 | --- | --- |
| L1 | 0.40 (REF) | | |




RECOMMENDED MOUNTING FOOTPRINT

*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference manual, SOLDERRM/D.

### GENERIC MARKING DIAGRAM*




STYLE 1 STYLE 2

XX = Specific Device Code
M = Date Code

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.

STYLE 1:
PIN 1. CATHODE (POLARITY BAND)
2. ANODE

STYLE 2:
NO POLARITY

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|---|---|---|
| DESCRIPTION: | SOD−323 1.70x1.25x0.85 | PAGE 1 OF 1 |

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