# MMDL6050T1

# Switching Diode

**Features**

- Pb−Free Package is Available

**MAXIMUM RATINGS**

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Continuous Reverse Voltage | $V_R$ | 70 | Vdc |
| Peak Forward Current | $I_F$ | 200 | mAdc |
| Peak Forward Surge Current | $I_{FM(surge)}$ | 500 | mAdc |

**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 | RθJA | 635 | °C/W |
| Junction and Storage Temperature | $T_J$, $T_{stg}$ | −55 to 150 | °C |

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

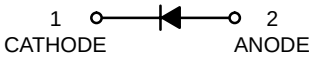
1. FR-4 Minimum Pad.

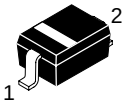
**ELECTRICAL CHARACTERISTICS** ($T_A$ = 25°C unless otherwise noted)

| Characteristic | Symbol | Min | Max | Unit |
|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | |
| Reverse Breakdown Voltage ($I_{(BR)}$ = 100 μAdc) | $V_{(BR)}$ | 70 | − | Vdc |
| Reverse Voltage Leakage Current ($V_R$ = 50 Vdc) | $I_R$ | − | 0.1 | μAdc |
| Forward Voltage<br>($I_F$ = 1.0 mAdc)<br>($I_F$ = 100 mAdc) | $V_F$ | <br>0.55<br>0.85 | <br>0.7<br>1.1 | Vdc |
| Reverse Recovery Time ($I_F$ = $I_R$ = 10 mAdc, $I_{R(REC)}$ = 1.0 mAdc) (Figure 1) | $t_{rr}$ | − | 4.0 | ns |
| Capacitance ($V_R$ = 0 V) | C | − | 2.5 | pF |

**ON Semiconductor®**

**http://onsemi.com**




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

**MARKING DIAGRAM**


5A = Device Code
M = Date Code*
▪ = Pb−Free Package

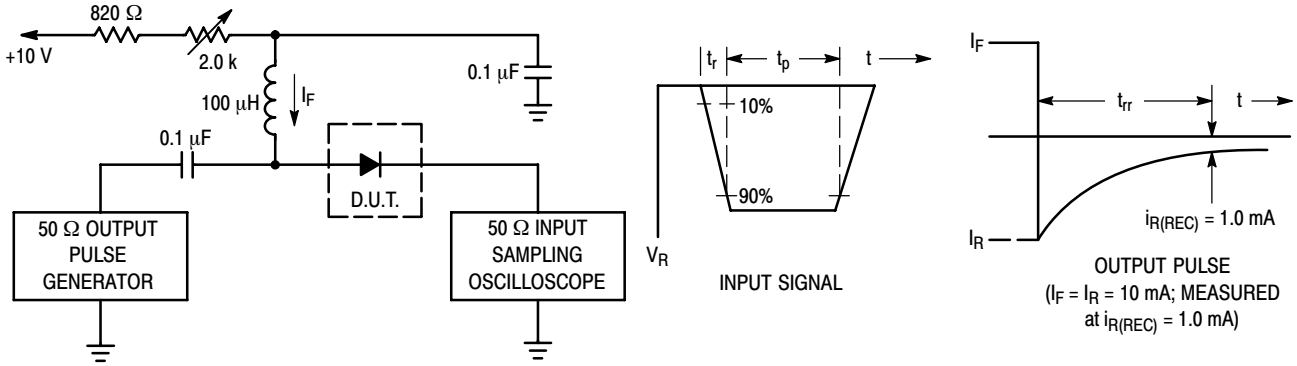
(Note: Microdot may be in either location)

*Date Code orientation may vary depending upon manufacturing location.

**ORDERING INFORMATION**

| Device | Package | Shipping† |
|---|---|---|
| MMDL6050T1 | SOD−323 | 3000/Tape & Reel |
| MMDL6050T1G | 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.




Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current ($I_F$) of 10 mA.
2. Input pulse is adjusted so $I_{R(peak)}$ is equal to 10 mA.
3. $t_p \gg t_{rr}$

**Figure 1. Recovery Time Equivalent Test Circuit**

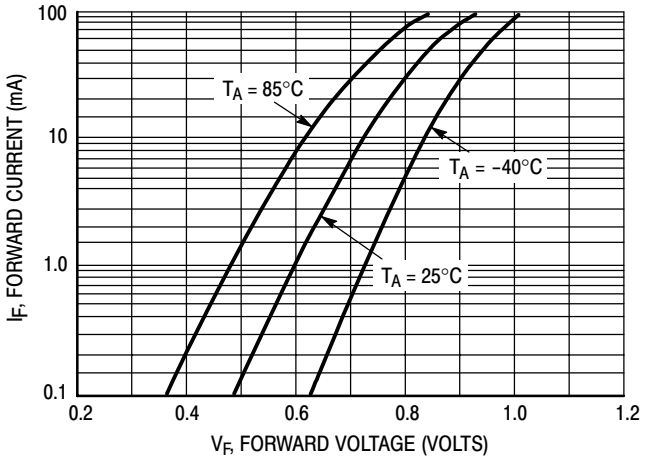



**Figure 2. Forward Voltage**

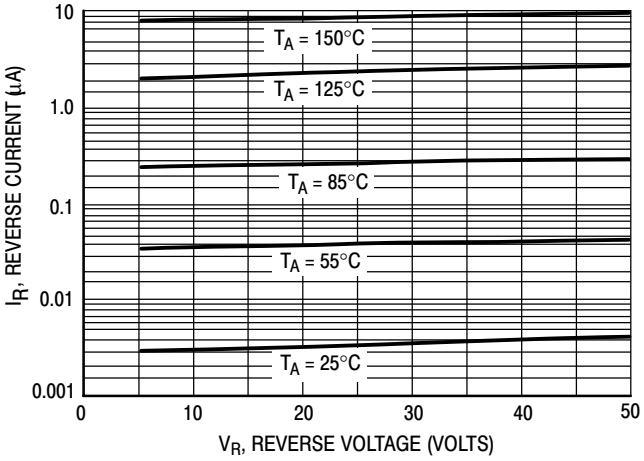



**Figure 3. Leakage Current**

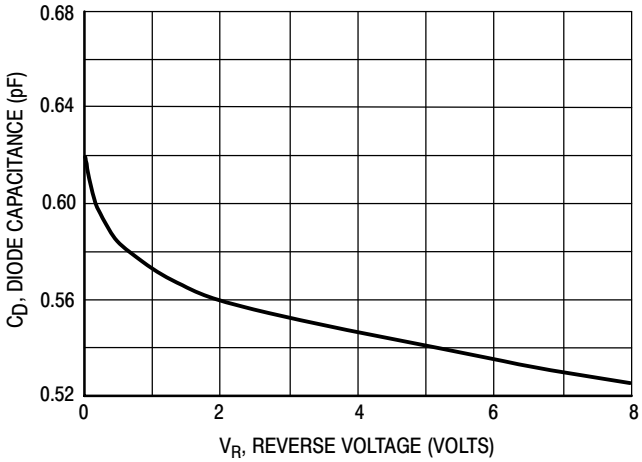
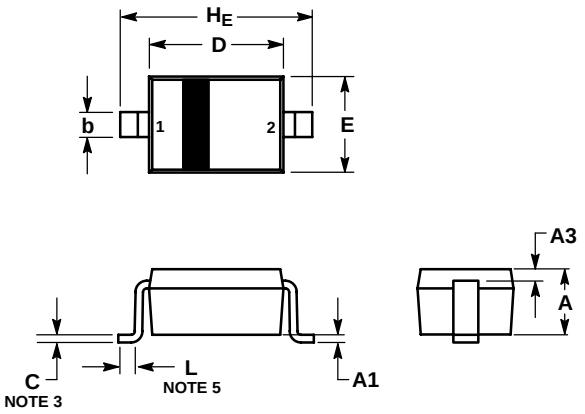



**Figure 4. Capacitance**

# MMDL6050T1

## PACKAGE DIMENSIONS

**SOD−323**
CASE 477−02
ISSUE G

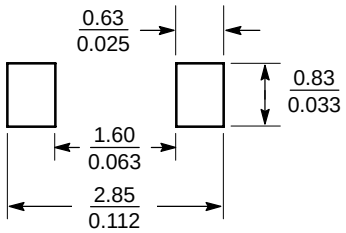



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. LEAD THICKNESS SPECIFIED PER L/F DRAWING WITH SOLDER PLATING.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
5. DIMENSION L IS MEASURED FROM END OF RADIUS.

| | MILLIMETERS | | | INCHES | | |
|---|---|---|---|---|---|---|
| **DIM** | **MIN** | **NOM** | **MAX** | **MIN** | **NOM** | **MAX** |
| **A** | 0.80 | 0.90 | 1.00 | 0.031 | 0.035 | 0.040 |
| **A1** | 0.00 | 0.05 | 0.10 | 0.000 | 0.002 | 0.004 |
| **A3** | 0.15 REF | | | 0.006 REF | | |
| **b** | 0.25 | 0.32 | 0.4 | 0.010 | 0.012 | 0.016 |
| **C** | 0.089 | 0.12 | 0.177 | 0.003 | 0.005 | 0.007 |
| **D** | 1.60 | 1.70 | 1.80 | 0.062 | 0.066 | 0.070 |
| **E** | 1.15 | 1.25 | 1.35 | 0.045 | 0.049 | 0.053 |
| **L** | 0.08 | | | 0.003 | | |
| **$H_E$** | 2.30 | 2.50 | 2.70 | 0.090 | 0.098 | 0.105 |

STYLE 1:
PIN 1. CATHODE
2. ANODE

## SOLDERING 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.



**PUBLICATION ORDERING INFORMATION**

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**MMDL6050T1/D**