

# MMVL3700T1

## High Voltage Silicon Pin Diode

These devices are designed primarily for VHF band switching applications but are also suitable for use in general-purpose switching circuits. They are supplied in a cost-effective plastic surface mount package for economical, high-volume consumer and industrial requirements.

### Features

- Long Reverse Recovery Time:  $t_{rr} = 300$  ns (Typ)
- Rugged PIN Structure Coupled with Wirebond Construction for Optimum Reliability
- Low Series Resistance @ 100 MHz:  
 $R_S = 0.7 \Omega$  (Typ) @  $I_F = 10$  mAdc
- Reverse Breakdown Voltage = 200 V (Min)
- Pb-Free Package is Available

### MAXIMUM RATINGS

| Rating                     | Symbol | Value | Unit |
|----------------------------|--------|-------|------|
| Continuous Reverse Voltage | $V_R$  | 200   | Vdc  |
| Peak Forward Current       | $I_F$  | 20    | mAdc |

### THERMAL CHARACTERISTICS

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

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.

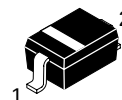
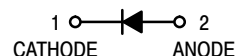
1. FR-4 Minimum Pad



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### SILICON PIN SWITCHING DIODE



PLASTIC  
SOD-323  
CASE 477  
STYLE 1

### MARKING DIAGRAM



4R = Device Code  
M = Date Code\*  
■ = Pb-Free Package

(Note: Microdot may be in either location)

\*Date Code orientation may vary depending upon manufacturing location.

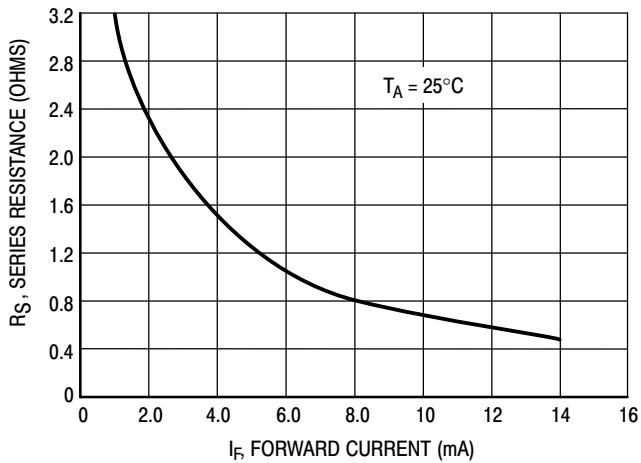
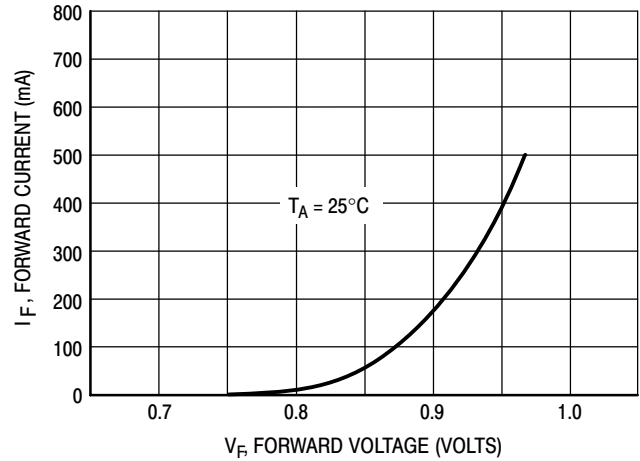
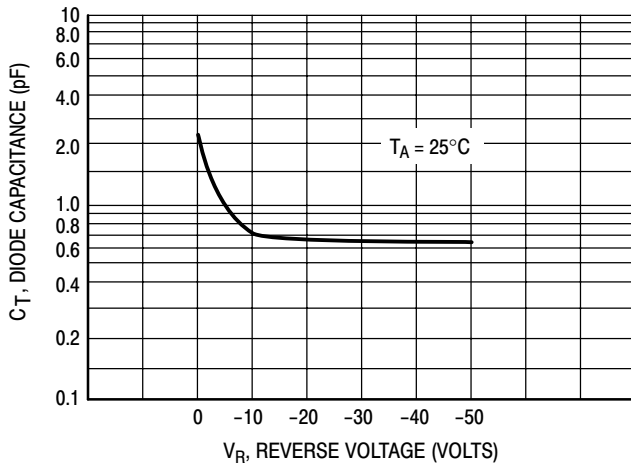
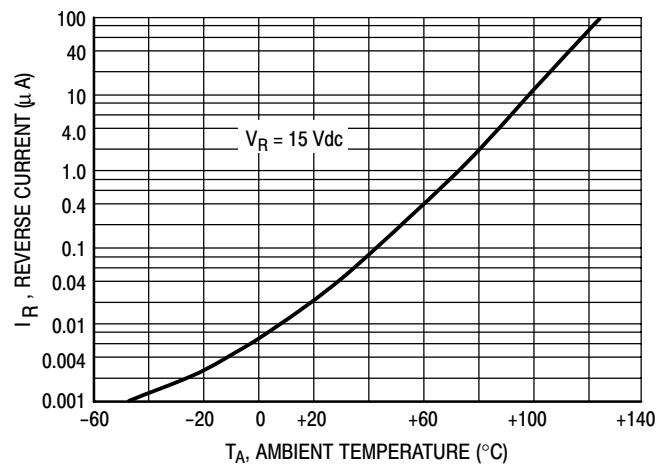
### ORDERING INFORMATION

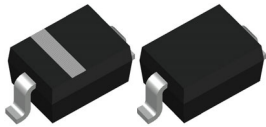
| Device      | Package              | Shipping†        |
|-------------|----------------------|------------------|
| MMVL3700T1  | SOD-323              | 3000/Tape & Reel |
| MMVL3700T1G | SOD-323<br>(Pb-Free) | 3000/Tape & Reel |

†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.

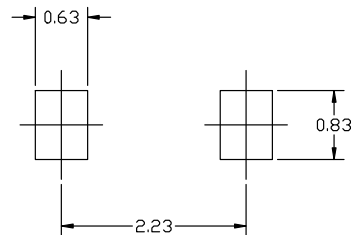
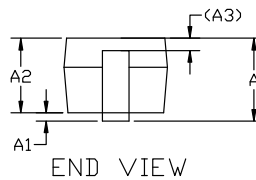
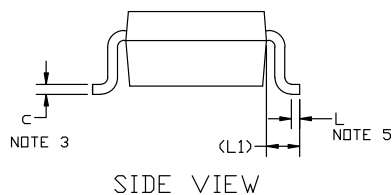
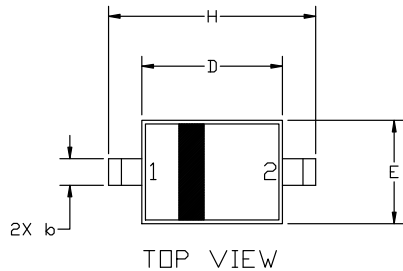
**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

| Characteristic                                                          | Symbol      | Min | Typ | Max | Unit          |
|-------------------------------------------------------------------------|-------------|-----|-----|-----|---------------|
| Reverse Breakdown Voltage<br>( $I_R = 10\ \mu\text{A}$ )                | $V_{(BR)R}$ | 200 | –   | –   | Vdc           |
| Diode Capacitance<br>( $V_R = 20\ \text{Vdc}$ , $f = 1.0\ \text{MHz}$ ) | $C_T$       | –   | –   | 1.0 | pF            |
| Series Resistance<br>( $I_F = 10\ \text{mA}$ )                          | $R_S$       | –   | 0.7 | 1.0 | $\Omega$      |
| Reverse Leakage Current<br>( $V_R = 150\ \text{Vdc}$ )                  | $I_R$       | –   | –   | 0.1 | $\mu\text{A}$ |
| Reverse Recovery Time<br>( $I_F = I_R = 10\ \text{mA}$ )                | $t_{rr}$    | –   | 300 | –   | ns            |

**TYPICAL CHARACTERISTICS****Figure 1. Series Resistance****Figure 2. Forward Voltage****Figure 3. Diode Capacitance****Figure 4. Leakage Current**


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

DATE 11 MAR 2024

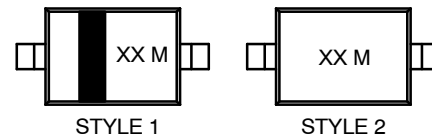


\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference manual, SOLDERRM/D.

## 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)  |      |      |

**GENERIC MARKING DIAGRAM\***


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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| <b>DESCRIPTION:</b>     | <b>SOD-323 1.70x1.25x0.85</b> | <b>PAGE 1 OF 1</b>                                                                                                                                                               |

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