

MMBV409LT1

Preferred Device

Silicon Tuning Diode

This device is designed in the Surface Mount package for general frequency control and tuning applications. It provides solid-state reliability in replacement of mechanical tuning methods.

Features

- High Q with Guaranteed Minimum Values at VHF Frequencies
- Controlled and Uniform Tuning Ratio
- Available in Surface Mount Package
- Pb-Free Package is Available

MAXIMUM RATINGS

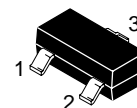
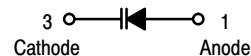
| Rating | Symbol | Value | Unit |
|---|-----------|-------------|----------------------------|
| Reverse Voltage | V_R | 20 | Vdc |
| Forward Current | I_F | 200 | mAdc |
| Forward Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 225 1.8 | mW mW/ $^\circ\text{C}$ |
| Junction Temperature | T_J | +125 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | -55 to +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.



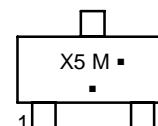
ON Semiconductor®

<http://onsemi.com>



SOT-23 (TO-236)
CASE 318
STYLE 8

MARKING DIAGRAM



X5 = Specific Device Code

M = Date Code*

▪ = Pb-Free Package

(Note: Microdot may be in either location)

*Date Code orientation and/or overbar may vary depending upon manufacturing location.

ORDERING INFORMATION

| Device | Package | Shipping† |
|-------------|---------------------|---------------------|
| MMBV409LT1 | SOT-23 | 3,000 / Tape & Reel |
| MMBV409LT1G | SOT-23 (Pb-Free) | 3,000 / 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.

Preferred devices are recommended choices for future use and best overall value.

MMBV409LT1

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

| Characteristic | Symbol | Min | Typ | Max | Unit |
|--|-------------|-----|-----|-----|-----------------------|
| Reverse Breakdown Voltage ($I_R = 10 \mu\text{A}$) | $V_{(BR)R}$ | 20 | – | – | Vdc |
| Reverse Voltage Leakage Current ($V_R = 15 \text{Vdc}$) | I_R | – | – | 0.1 | μA |
| Diode Capacitance Temperature Coefficient ($V_R = 3.0 \text{Vdc}$, $f = 1.0 \text{MHz}$) | TC_C | – | 300 | – | ppm/ $^\circ\text{C}$ |

| Device | C_t , Diode Capacitance $V_R = 3.0 \text{Vdc}$, $f = 1.0 \text{MHz}$ pF | | | Q , Figure of Merit $V_R = 3.0 \text{Vdc}$ $f = 50 \text{MHz}$ | C_R , Capacitance Ratio C_3/C_8 $f = 1.0 \text{MHz}$ (Note 1) | |
|------------|--|-----|-----|--|---|-----|
| | Min | Nom | Max | Min | Min | Max |
| MMBV409LT1 | 26 | 29 | 32 | 200 | 1.5 | 1.9 |

1. C_R is the ratio of C_t measured at 3 Vdc divided by C_t measured at 8 Vdc.

TYPICAL CHARACTERISTICS

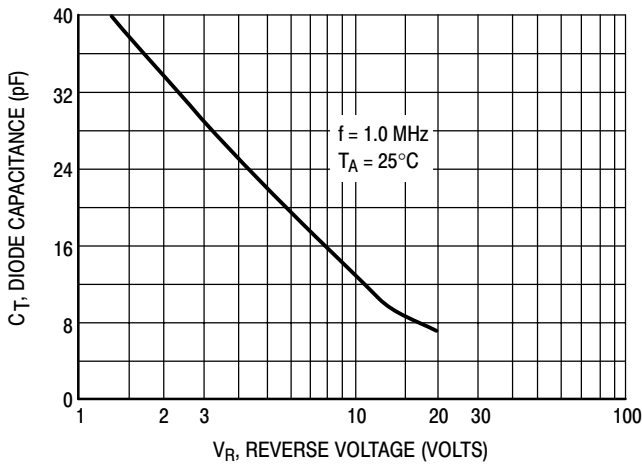


Figure 1. Diode Capacitance

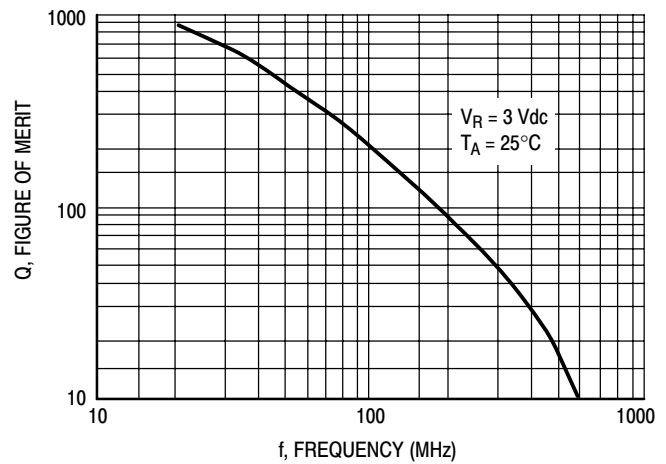


Figure 2. Figure of Merit

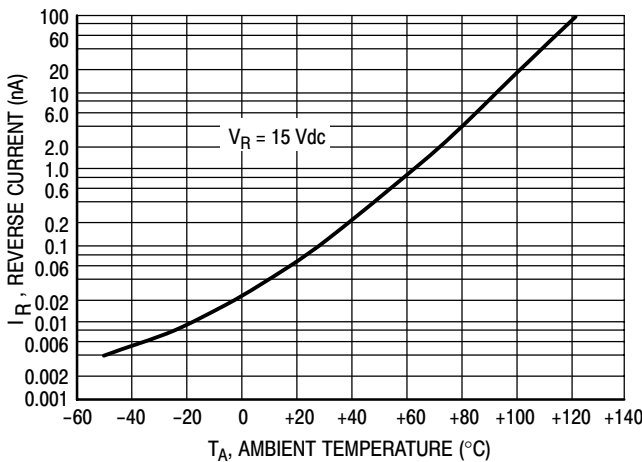


Figure 3. Leakage Current

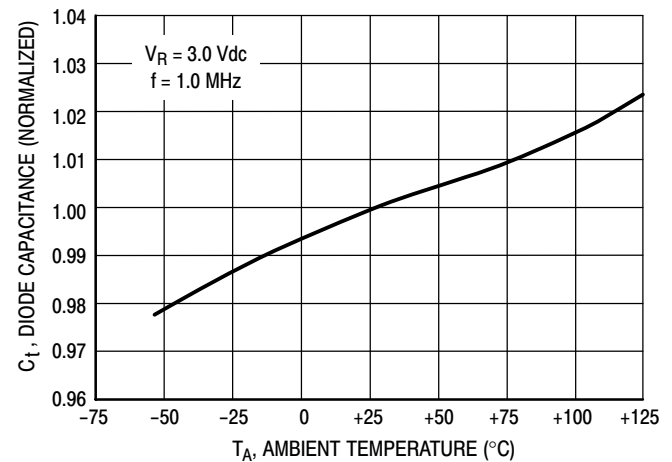


Figure 4. Diode Capacitance

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