

# MMBV809LT1

Preferred Device

## Silicon Tuning Diode

This device is designed for 900 MHz frequency control and tuning applications. It provides solid-state reliability in replacement of mechanical tuning methods.

### Features

- Controlled and Uniform Tuning Ratio
- Available in Surface Mount Package
- Available in 8 mm Tape and Reel
- Pb-Free Packages are Available

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	$V_R$	20	Vdc
Forward Current	$I_F$	20	mA <sub>dc</sub>
Total Power Dissipation (Note 1) @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	225 1.8	mW mW/ $^\circ\text{C}$
Junction Temperature	$T_J$	+125	$^\circ\text{C}$
Storage Temperature Range	$T_{\text{stg}}$	-55 to +125	$^\circ\text{C}$

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.

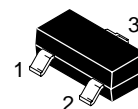
1. FR5 Board 1.0 x 0.75 x 0.62 in.



**ON Semiconductor®**

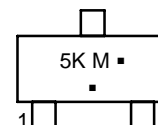
<http://onsemi.com>

## 4.5–6.1 pF VOLTAGE VARIABLE CAPACITANCE DIODE



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

### MARKING DIAGRAM



5K = 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†
MMBV809LT1	SOT-23	3,000 / Tape & Reel
MMBV809LT1G	SOT-23 (Pb-Free)	3,000 / Tape & Reel
MMBV809LT3	SOT-23	10,000 / Tape & Reel
MMBV809LT3G	SOT-23 (Pb-Free)	10,000 / 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.

# MMBV809LT1

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

Characteristic – All Types	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage ( $I_R = 10\ \mu\text{Adc}$ )	$V_{(BR)R}$	20	–	–	Vdc
Reverse Voltage Leakage Current ( $V_R = 15\ \text{Vdc}$ )	$I_R$	–	–	50	nAdc

	$C_T$ , Diode Capacitance $V_R = 2.0\ \text{Vdc}$ , $f = 1.0\ \text{MHz}$ pF			$Q$ , Figure of Merit $V_R = 3.0\ \text{Vdc}$ $f = 500\ \text{MHz}$	$C_R$ , Capacitance Ratio $C_2/C_8$ $f = 1.0\ \text{MHz}$ (Note 2)	
Device	Min	Typ	Max	Typ	Min	Max
MMBV809LT1	4.5	5.3	6.1	75	1.8	2.6

2.  $C_R$  is the ratio of  $C_T$  measured at 2.0 Vdc divided by  $C_T$  measured at 8.0 Vdc.

## TYPICAL CHARACTERISTICS

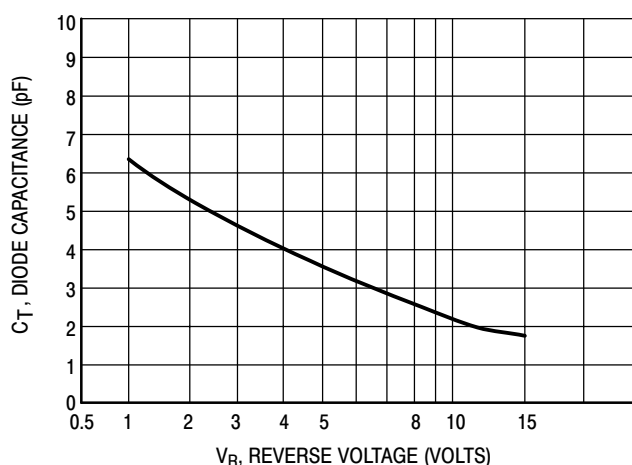


Figure 1. Diode Capacitance

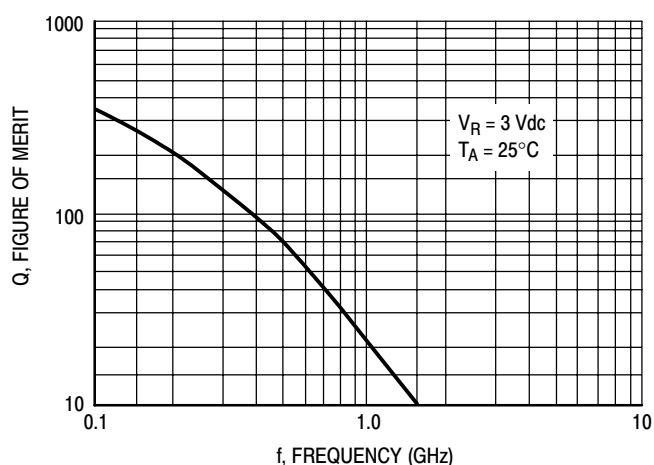


Figure 2. Figure of Merit

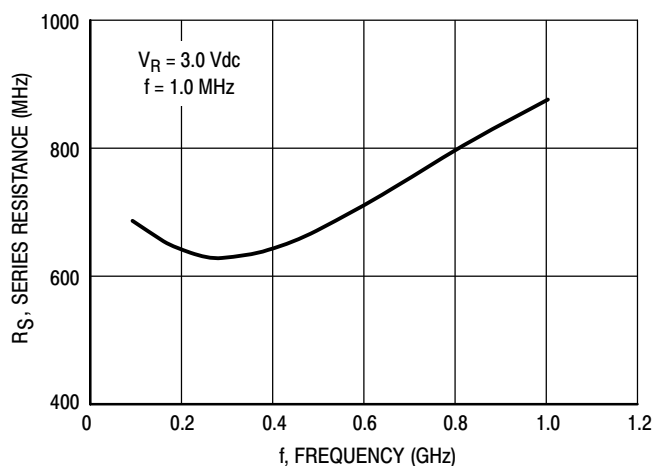


Figure 3. Series Resistance

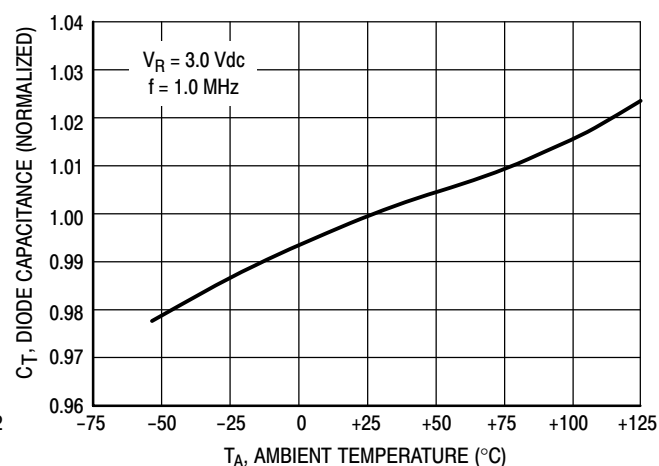


Figure 4. Diode Capacitance

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