# **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 <sub>R</sub>	20	Vdc
Forward Current	Ι <sub>F</sub>	200	mAdc
Forward Power Dissipation @ T <sub>A</sub> = 25°C Derate above 25°C	P <sub>D</sub>	225 1.8	mW mW/°C
Junction Temperature	TJ	+125	°C
Storage Temperature Range	T <sub>stg</sub>	-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.



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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 <sup>†</sup>
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.

# **ELECTRICAL CHARACTERISTICS** (T<sub>A</sub> = 25°C unless otherwise noted)

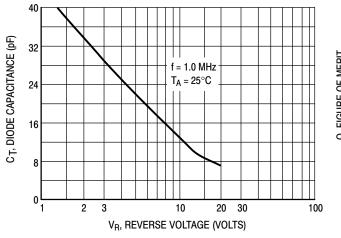
Characteristic	Symbol	Min	Тур	Max	Unit
Reverse Breakdown Voltage (I <sub>R</sub> = 10 μAdc)	V <sub>(BR)R</sub>	20	-	-	Vdc
Reverse Voltage Leakage Current (V <sub>R</sub> = 15 Vdc)	I <sub>R</sub>	-	_	0.1	μAdc
Diode Capacitance Temperature Coefficient (V <sub>R</sub> = 3.0 Vdc, f = 1.0 MHz)	TC <sub>C</sub>	-	300	-	ppm/°C

	C <sub>t</sub> , Diode Capacitance V <sub>R</sub> = 3.0 Vdc, f = 1.0 MHz pF		Q, Figure of Merit V <sub>R</sub> = 3.0 Vdc f = 50 MHz	C <sub>R</sub> , Capacitance Ratio C <sub>3</sub> /C <sub>8</sub> f = 1.0 MHz (Note 1)		
Device	Min	Nom	Max	Min	Min	Max
MMBV409LT1	26	29	32	200	1.5	1.9

<sup>1.</sup>  $C_R$  is the ratio of  $C_t$  measured at 3 Vdc divided by  $C_t$  measured at 8 Vdc.

## **TYPICAL CHARACTERISTICS**

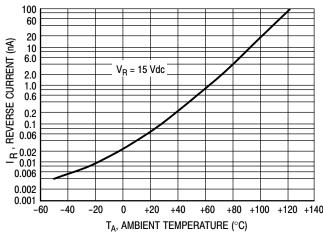
1000

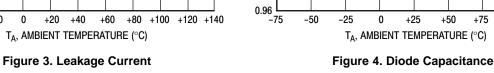


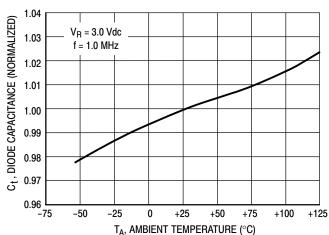
100 100 100 100 100 100 1000 1000

Figure 1. Diode Capacitance

Figure 2. Figure of Merit







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