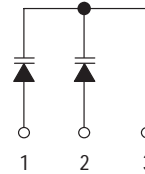


# Silicon Tuning Diode

This device is designed for FM tuning, general frequency control and tuning, or any top-of-the-line application requiring back-to-back diode configuration for minimum signal distortion and detuning. This device is supplied in the SOT-23 plastic package for high volume, pick and place assembly requirements.

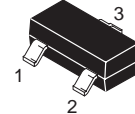
- High Figure of Merit —  $Q = 450$  (Typ) @  $V_R = 3.0$  Vdc,  $f = 50$  MHz
- Guaranteed Capacitance Range
- Dual Diodes – Save Space and Reduce Cost
- Surface Mount Package
- Available in 8 mm Tape and Reel
- Monolithic Chip Provides Improved Matching
- Hyper Abrupt Junction Process Provides High Tuning Ratio



## MMBV609LT1

Motorola Preferred Device

**DUAL  
VOLTAGE VARIABLE  
CAPACITANCE DIODE**



**CASE 318-08, STYLE 9  
SOT-23 (TO-236AB)**

### MAXIMUM RATINGS (Each Diode)

Rating	Symbol	Value	Unit
Reverse Voltage	$V_R$	20	Vdc
Forward Current	$I_F$	100	mAdc
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ 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	$T_{stg}$	-55 to +125	$^\circ\text{C}$

### DEVICE MARKING

MMBV609LT1 = 5L

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

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage ( $I_R = 10 \mu\text{Adc}$ )	$V_{(BR)R}$	20	—	—	Vdc
Reverse Voltage Leakage Current ( $V_R = 15$ Vdc)	$I_R$	—	—	10	nAdc
Diode Capacitance ( $V_R = 3.0$ Vdc, $f = 1.0$ MHz)	$C_T$	26	—	32	pF
Capacitance Ratio C3/C8 ( $f = 1.0$ MHz)	$C_R$	1.8	—	2.4	—
Figure of Merit ( $V_R = 3.0$ Vdc, $f = 50$ MHz)	$Q$	250	450	—	—

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

TYPICAL CHARACTERISTICS

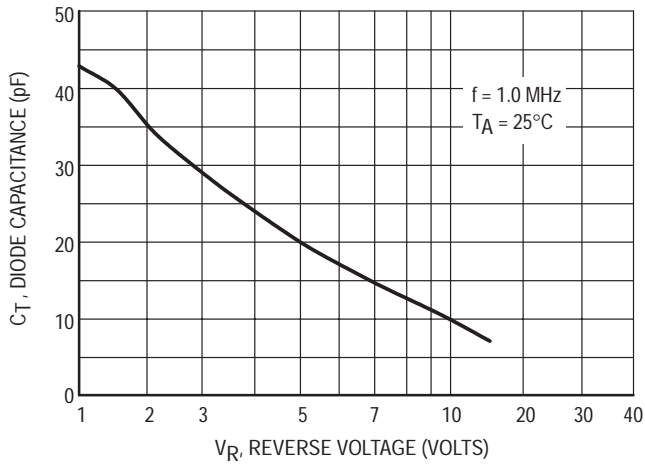


Figure 1. Diode Capacitance

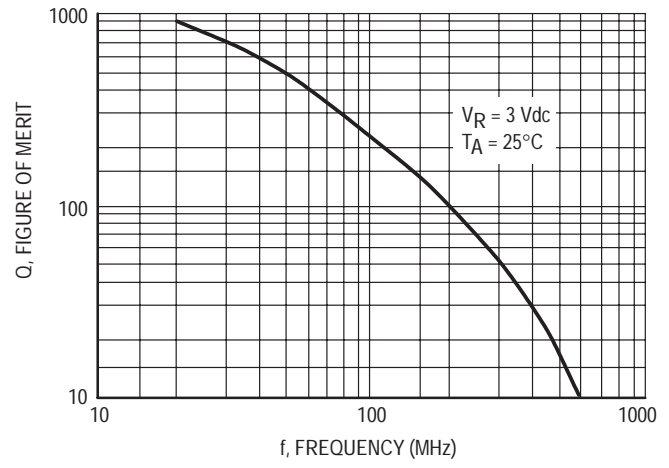


Figure 2. Figure of Merit

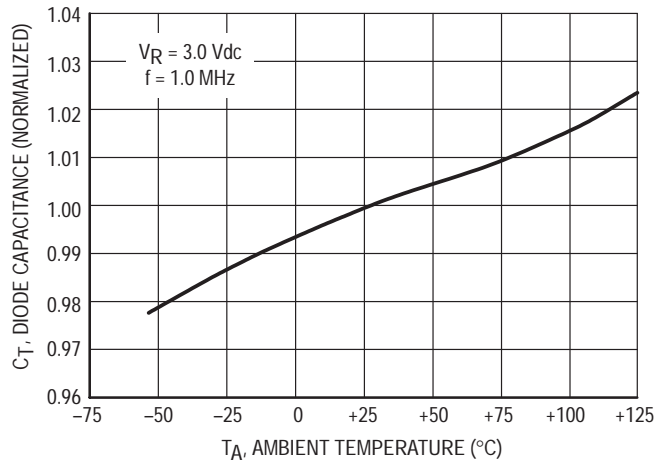


Figure 3. Diode Capacitance