

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.

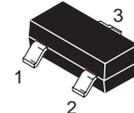
- Controlled and Uniform Tuning Ratio
- Available in Surface Mount Package
- Available in 8 mm Tape and Reel



MMBV809LT1

Motorola Preferred Device

4.5–6.1 pF
VOLTAGE VARIABLE
CAPACITANCE DIODE



CASE 318–08, STYLE 8
SOT–23 (TO–236AB)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	20	Vdc
Forward Current	I_F	20	mAdc
Total Power Dissipation ⁽¹⁾ @ $T_A = 25^\circ\text{C}$ 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 +125	$^\circ\text{C}$

1. FR5 Board 1.0 x 0.75 x 0.62 in.

DEVICE MARKING

MMBV809LT1 = 5K

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

Device	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 $f = 1.0 \text{MHz}$ (2)	
	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.

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

TYPICAL CHARACTERISTICS

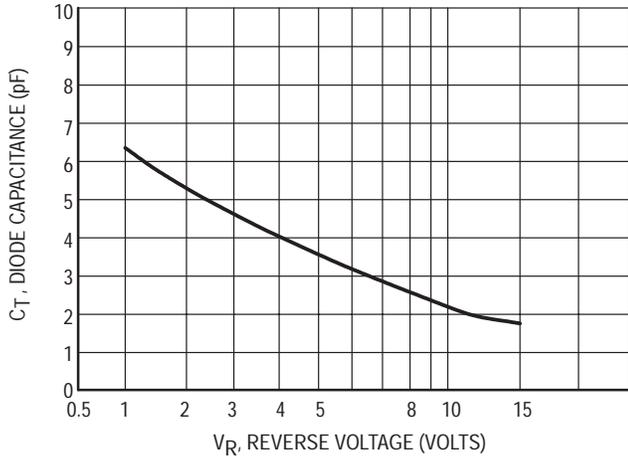


Figure 1. Diode Capacitance

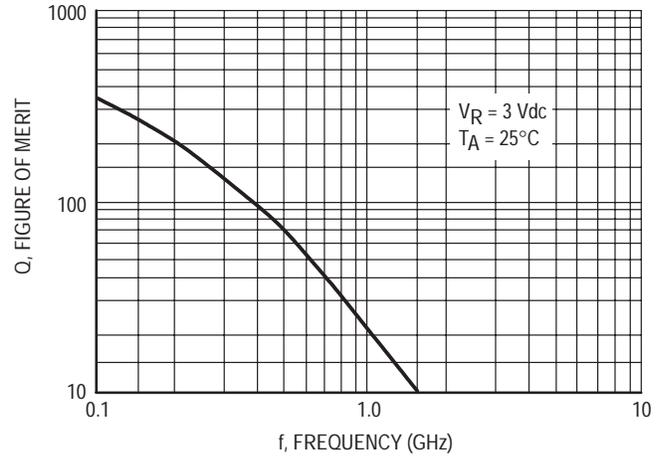


Figure 2. Figure of Merit

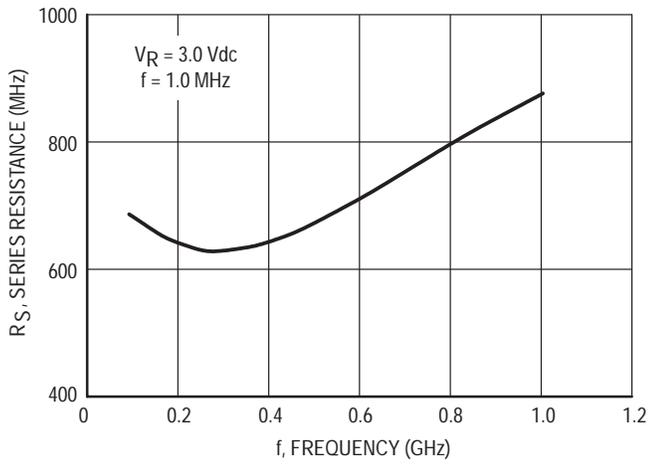


Figure 3. Series Resistance

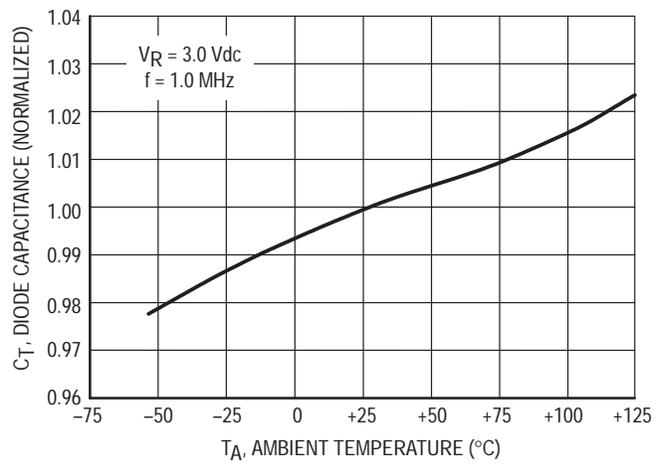


Figure 4. Diode Capacitance