

Silicon Epicap Diodes

Designed for general frequency control and tuning applications; providing solid-state reliability in replacement of mechanical tuning methods.

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



MAXIMUM RATINGS

Rating	Symbol	MBV109T1	MMBV109LT1	MV209	Unit
Reverse Voltage	V_R	30			Vdc
Forward Current	I_F	200			mAdc
Forward Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	280 2.8	200 2.0	200 1.6	mW mW/ $^\circ\text{C}$
Junction Temperature	T_J	+125			$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150			$^\circ\text{C}$

DEVICE MARKING

MBV109T1 = J4A, MMBV109LT1 = M4A, MV209 = MV209

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

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage ($I_R = 10\ \mu\text{Adc}$)	$V_{(BR)R}$	30	—	—	Vdc
Reverse Voltage Leakage Current ($V_R = 25\ \text{Vdc}$)	I_R	—	—	0.1	μAdc
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_{25} $f = 1.0\ \text{MHz}$ (Note 1)	
	Min	Nom	Max		Min	Max
MBV109T1, MMBV109LT1, MV209	26	29	32	200	5.0	6.5

1. C_R is the ratio of C_t measured at 3 Vdc divided by C_t measured at 25 Vdc.

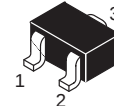
MMBV109LT1 is also available in bulk packaging. Use **MMBV109L** as the device title to order this device in bulk.

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

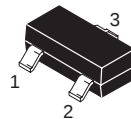
MBV109T1
MMBV109LT1*
MV209*

* Motorola Preferred Devices

26–32 pF
VOLTAGE VARIABLE
CAPACITANCE DIODES



CASE 419-02, STYLE 3
SC-70/SOT-323



CASE 318-08, STYLE 6
SOT-23 (TO-236AB)



CASE 182-02, STYLE 1
TO-92 (TO-226AC)

(Replaces MMBV109LT1/D)

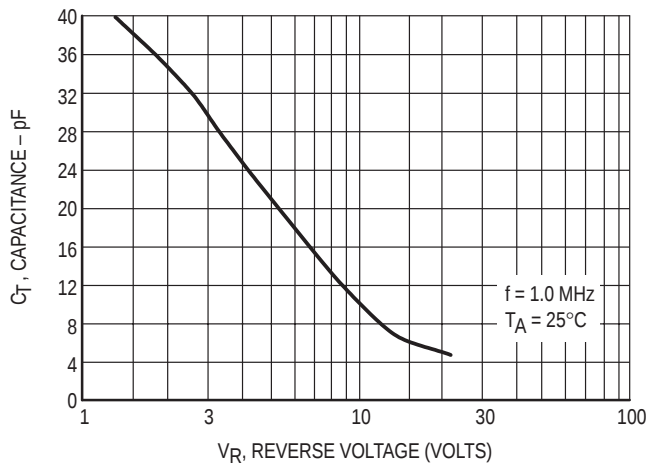


Figure 1. DIODE CAPACITANCE

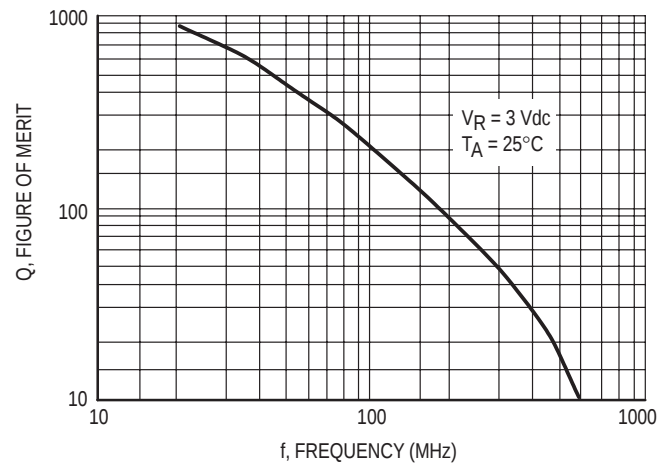


Figure 2. FIGURE OF MERIT

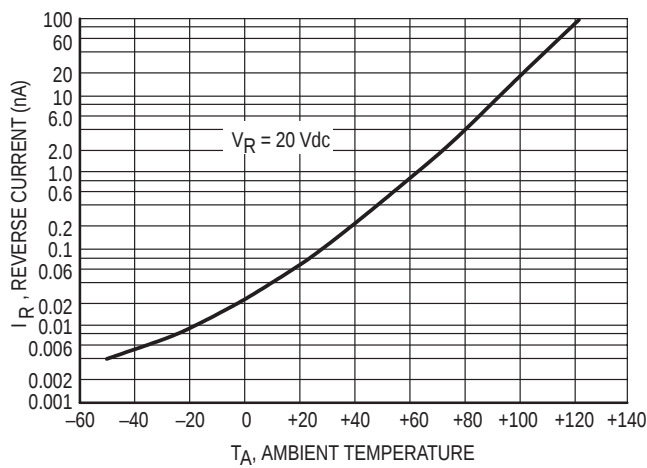


Figure 3. LEAKAGE CURRENT

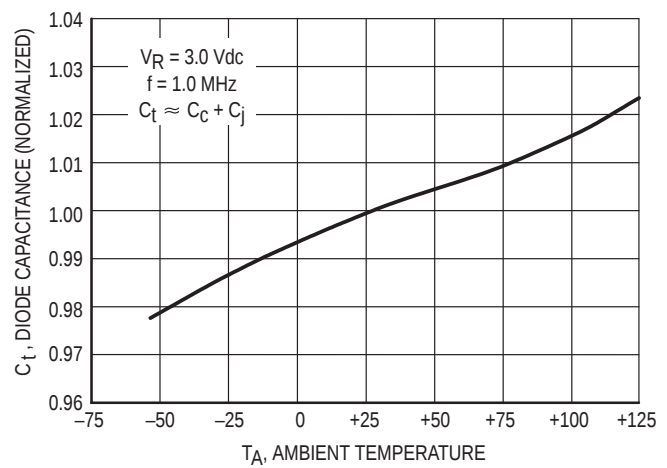


Figure 4. DIODE CAPACITANCE

NOTES ON TESTING AND SPECIFICATIONS

1. C_R is the ratio of C_T measured at 3.0 Vdc divided by C_T measured at 25 Vdc.