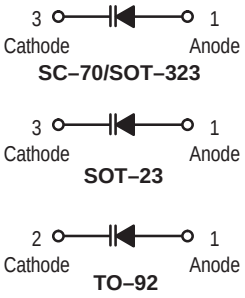
Silicon Epicap Diodes

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

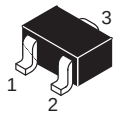
- High Q with Guaranteed Minimum Values at VHF Frequencies
- Controlled and Uniform Tuning Ratio
- Available in Surface Mount Package



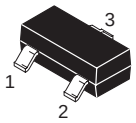
MBV109T1
MMBV109LT1*
MV209*

*** 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)

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°C Derate above 25°C	P_D	280 2.8	200 2.0	200 1.6	mW mW/°C
Junction Temperature	T_J	+125			°C
Storage Temperature Range	T_{stg}	–55 to +150			°C

DEVICE MARKING

MBV109T1 = J4A, MMBV109LT1 = M4A, MV209 = MV209

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage (I_R = 10 μAdc)	$V_{(BR)R}$	30	—	—	Vdc
Reverse Voltage Leakage Current (V_R = 25 Vdc)	I_R	—	—	0.1	μAdc
Diode Capacitance Temperature Coefficient (V_R = 3.0 Vdc, f = 1.0 MHz)	TC_C	—	300	—	ppm/°C

	C_t, Diode Capacitance V_R = 3.0 Vdc, f = 1.0 MHz pF			Q, Figure of Merit V_R = 3.0 Vdc f = 50 MHz	C_R, Capacitance Ratio C_3/C_{25} f = 1.0 MHz (Note 1)	
Device	**Min**	**Nom**	**Max**	**Min**	**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.

(Replaces MMBV109LT1/D)

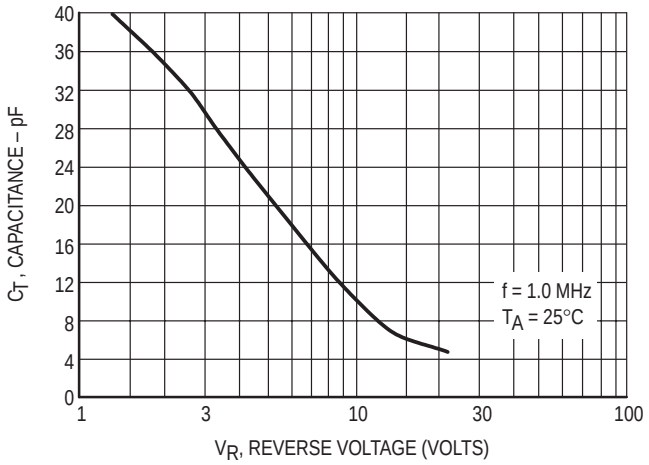


Figure 1. DIODE CAPACITANCE

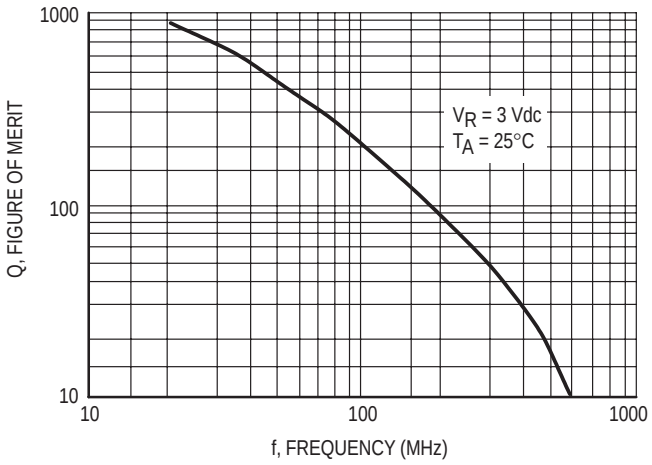


Figure 2. FIGURE OF MERIT

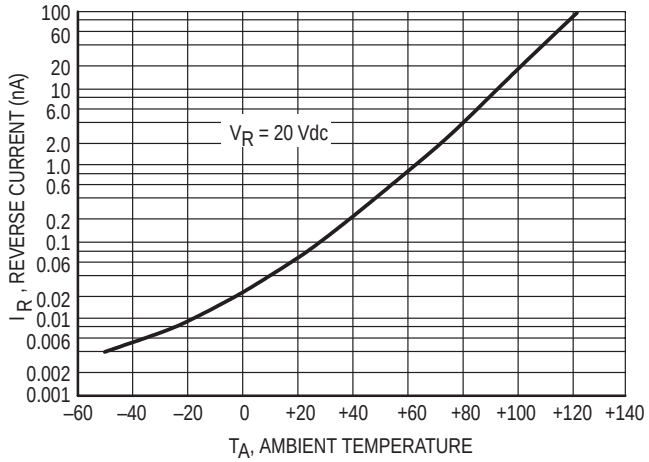


Figure 3. LEAKAGE CURRENT

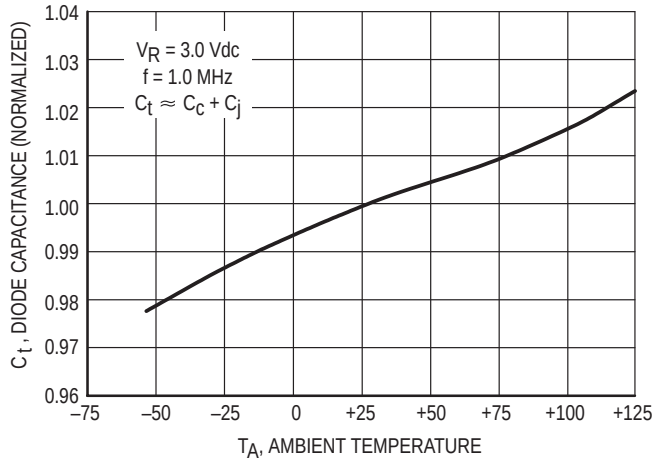


Figure 4. DIODE CAPACITANCE

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.