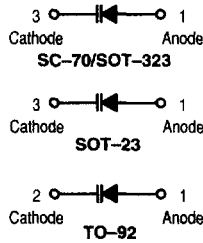


# Silicon Epicap Diodes

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 $25^\circ\text{C}$	$P_D$	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 ( $T_A = 25^\circ\text{C}$ 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	$\mu\text{Adc}$
Diode Capacitance Temperature Coefficient ( $V_R = 3.0 \text{Vdc}$ , $f = 1.0 \text{MHz}$ )	$TC_C$	—	300	—	ppm/°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	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**

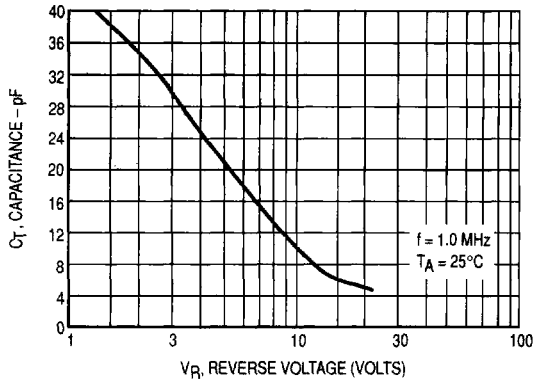
CASE 419-02, STYLE 3  
**SC-70/SOT-323**

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

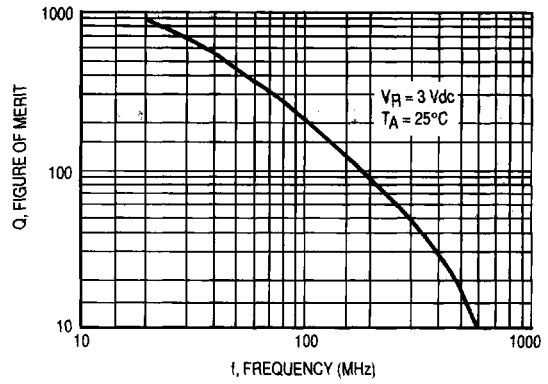
CASE 182-02, STYLE 1  
**TO-92 (TO-226AC)**

(Replaces MMBV109LT1/D)

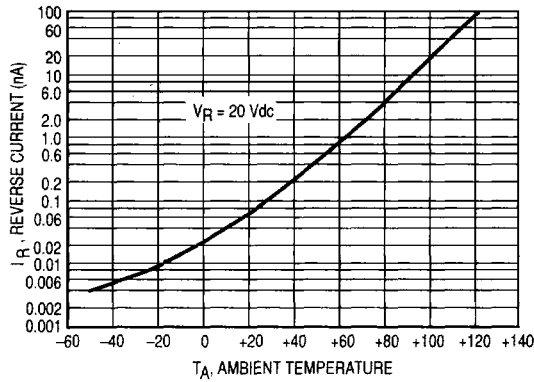
**MBV109T1 MMBV109LT1 MV209**



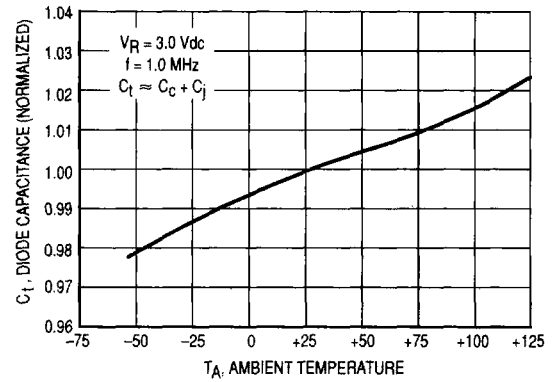
**Figure 1. DIODE CAPACITANCE**



**Figure 2. FIGURE OF MERIT**



**Figure 3. LEAKAGE CURRENT**



**Figure 4. DIODE CAPACITANCE**

**NOTES ON TESTING AND SPECIFICATIONS**

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