

# Silicon Epicap Diode

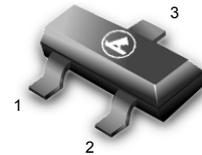
Designed for general frequency control and tuning applications; providing solid-state reliability in replacement of mechanical tuning methods.

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



**MMBV109LT1**  
**MBV109T1**  
**MV209**

**26–32 pF**  
**VOLTAGE VARIABLE**  
**CAPACITANCE DIODES**



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

## MAXIMUM RATINGS

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

## DEVICEMARKING

MBV109T1= J4A, MMBV109LT1 =M4A, MV209 = MV209

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

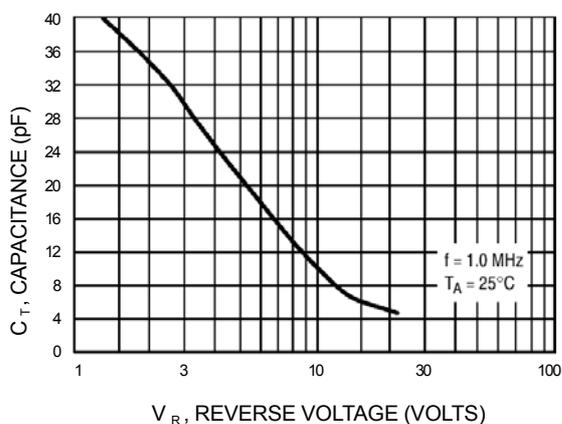
Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage ( $I_R = 10 \mu\text{Adc}$ )	$V_{(BR)R}$	30	—	—	Vdc
Reverse Voltage Leakage Current ( $V_R = 25\text{Vdc}$ )	$I_R$	—	—	0.1	mAdc
Diode Capacitance Temperature Coefficient ( $V_R = 3.0\text{Vdc}$ , $f = 1.0\text{MHz}$ )	$TC_C$	—	300	—	ppm/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

Device Type	$C_T$ 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

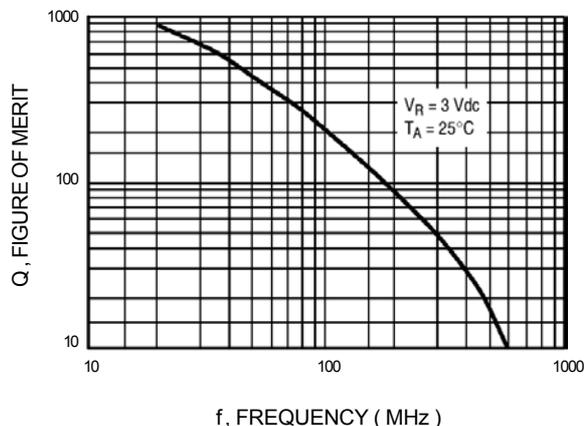
1.  $C_R$  is the ratio of  $C_1$  measured at 3 V dc divided by  $C_1$  measured at 25 Vdc.

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

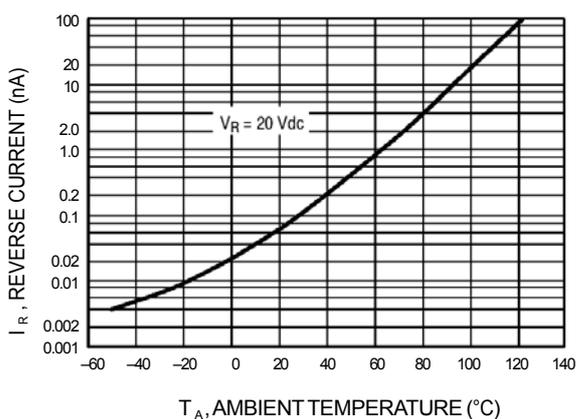
**MBV109T1 MMBV109LT1 MV209**



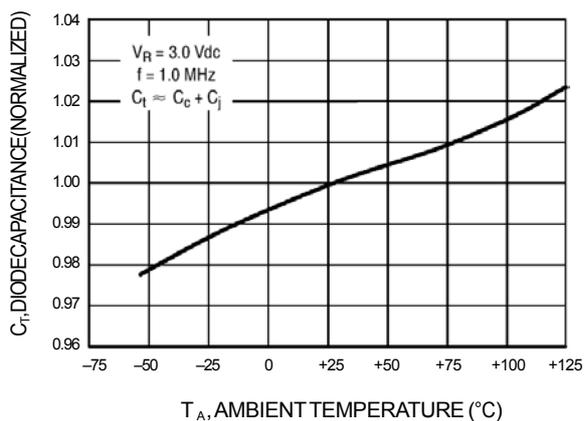
**Figure 1. Diode Capacitance**



**Figure 2. Figure of Merit**



**Figure 3 . Leakage Current**



**Figure 4. Diode Capacitance**

**NOTES ON TESTING AND SPECIFICATIONS**

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