

# 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	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 $25^\circ\text{C}$	$P_D$	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

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/ $^\circ\text{C}$

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	Min	Max
MMBV109LT1, MV209	26	29	32	200	5.0	6.5

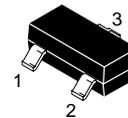
1.  $C_R$  is the ratio of  $C_t$  measured at 3 Vdc divided by  $C_t$  measured at 25 Vdc.

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

# MMBV109LT1, MV209

MMBV109LT1 and MV209 are Preferred Devices

26–32 pF  
VOLTAGE VARIABLE  
CAPACITANCE DIODES



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



CASE 182-06, STYLE 1  
TO-92 (TO-226AC)



# MMBV109LT1, MV209

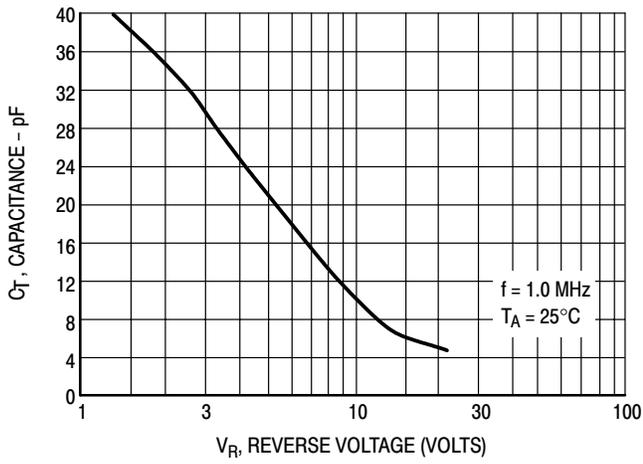


Figure 1. DIODE CAPACITANCE

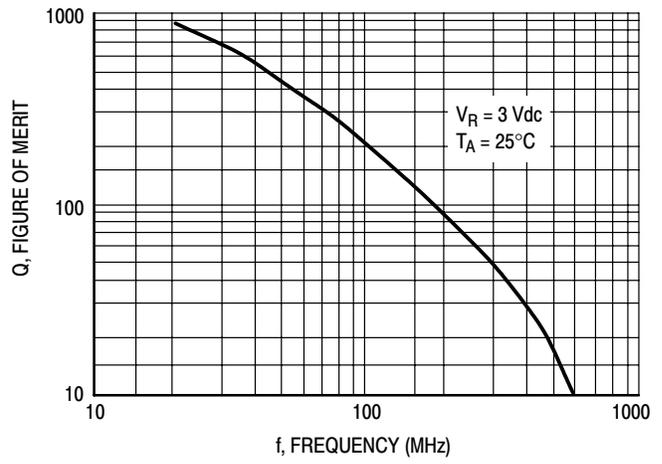


Figure 2. FIGURE OF MERIT

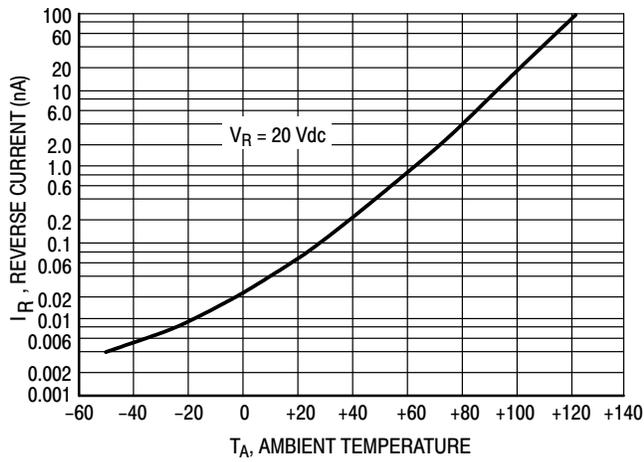


Figure 3. LEAKAGE CURRENT

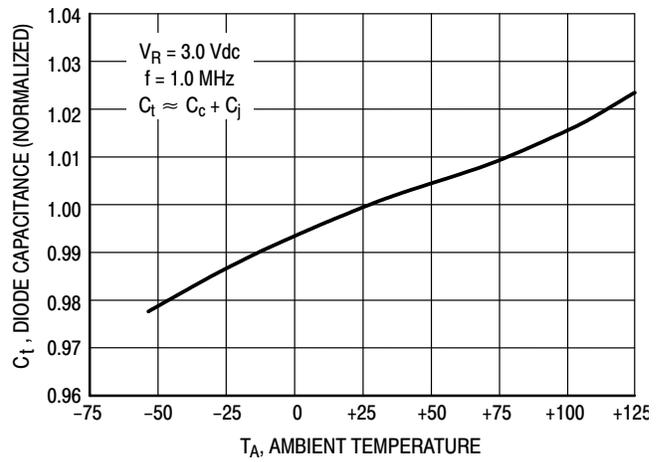


Figure 4. DIODE CAPACITANCE

## 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.