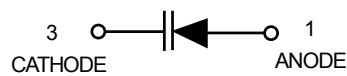


Silicon Epicap Diode

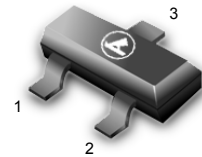
Designed for general frequency control and tuning applications; providing solid-state reliability in replacement of mechanical tuning methods.

- 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°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

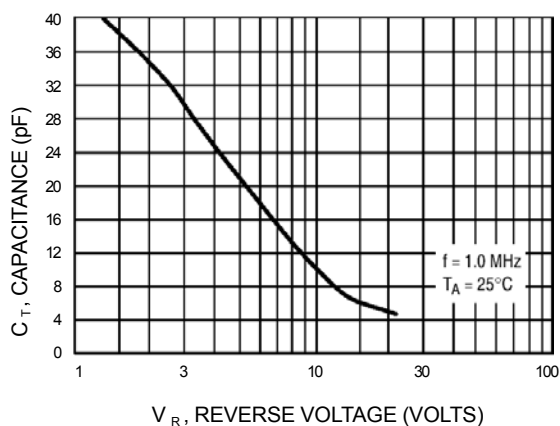


Figure 1. Diode Capacitance

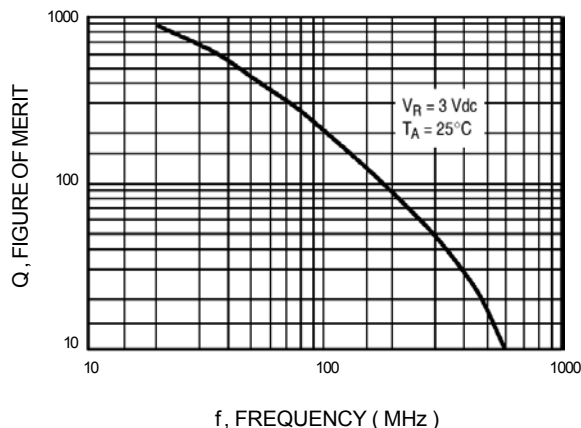


Figure 2. Figure of Merit

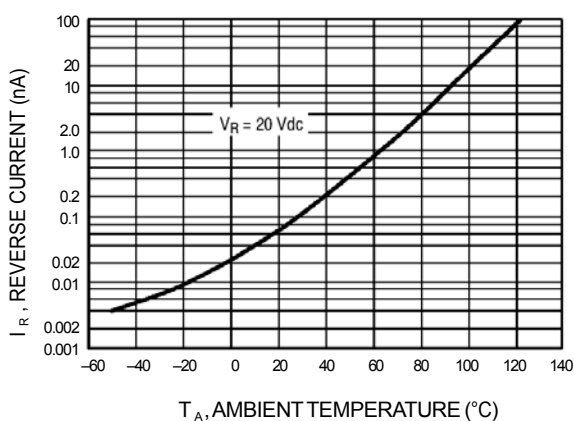


Figure 3 . Leakage Current

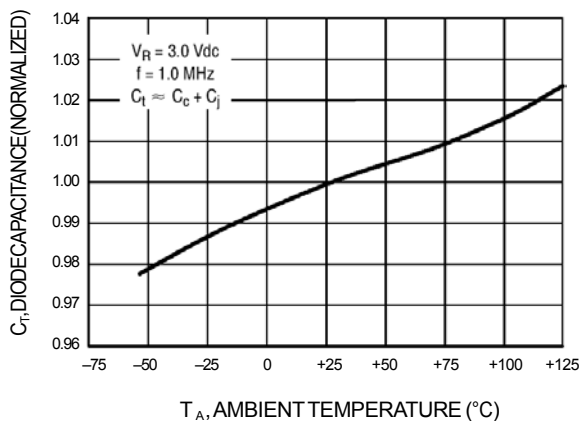


Figure 4. Diode Capacitance

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.