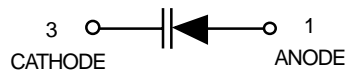


# Silicon Tuning Diode

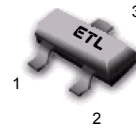
This device is designed in the surface Mount package for general frequency control and tuning applications. It provides solid-state reliability in replacement of mechanical tuning methods.

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



**MMBV409LT1**  
**MV409**

VOLTAGE VARIABLE  
CAPACITANCE DIODES



CASE 318-08, STYLE 8  
SOT- 23 (TO-236AB)

## MAXIMUM RATINGS(EACH DIODE)

Rating	Symbol	MBV409	MMBV409LT1	Unit
Reverse Voltage	$V_R$	20	20	Vdc
Forward Current	$I_F$	200	200	mAdc
Device Dissipation @ $T_A = 25^\circ\text{C}$	$P_D$	280	225	mW
Derate above $25^\circ\text{C}$		2.8	1.8	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

MMBV409LT1=X5, MV409=MV409

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

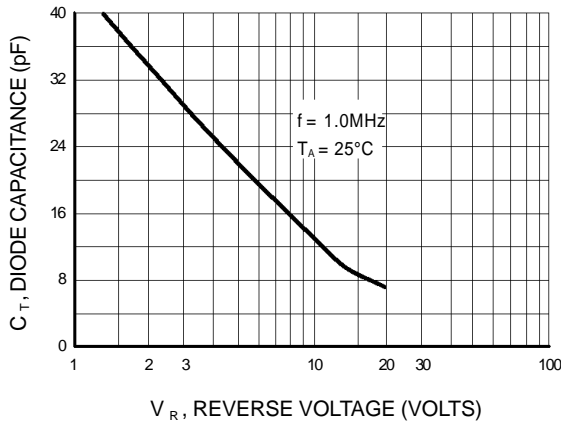
Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage ( $I_R=10\mu\text{Adc}$ )	$V_{(BR)R}$	20	—	—	Vdc
Reverse Voltage Leakage Current ( $V_R=15\text{Vdc}$ )	$I_R$	—	—	0.1	$\mu\text{Adc}$
Diode Capacitance Temperature Coefficient	$T_{CC}$	—	300	—	ppm/ $^\circ\text{C}$

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 $C_3/C_8$ $f=1.0\text{MHz}(1)$	
	Min	Nom	Max	Min	Min	Max
MMBV409LT1, MV409	26	29	32	200	1.5	1.9

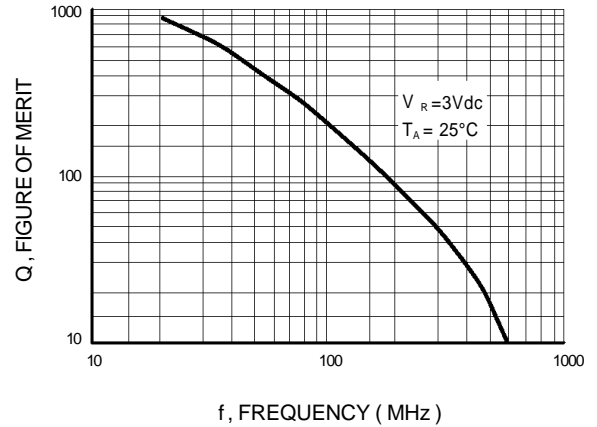
1.  $C_R$  is the ratio of  $C_T$  measured at 3 Vdc divided by  $C_T$  measured at 8 vdc

## MMBV409LT1 MV409

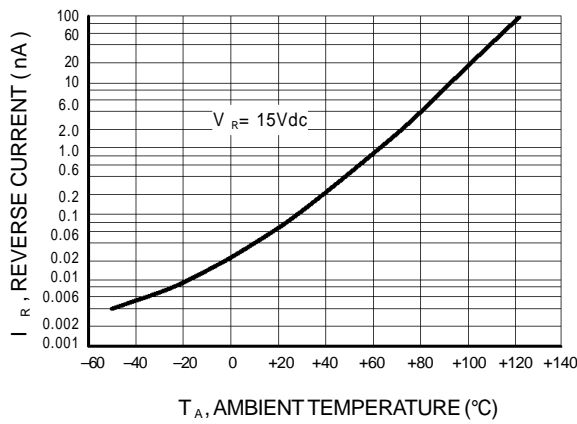
### TYPICAL CHARACTERISTICS



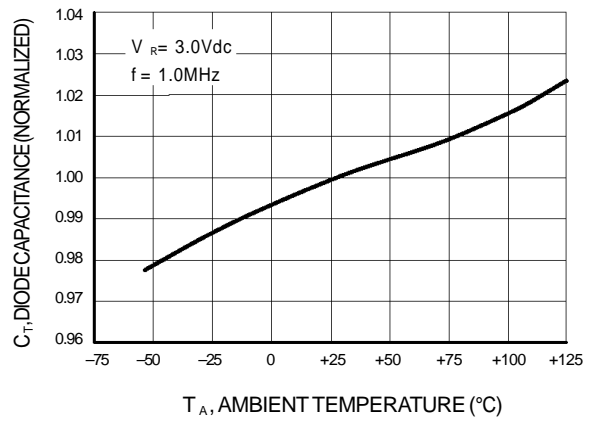
**Figure 1. Diode Capacitance**



**Figure 2. Figure of Merit**



**Figure 3. Leakage Current**



**Figure 4. Diode Capacitance**