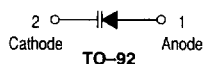
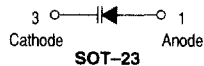


Silicon Tuning Diodes

These devices are designed for general frequency control and tuning applications. They provide solid-state reliability in replacement of mechanical tuning methods.

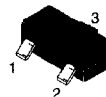
- High Q with Guaranteed Minimum Values at VHF Frequencies
- Controlled and Uniform Tuning Ratio
- Available in Surface Mount Package



MMBV409LT1 MV409

Motorola Preferred Devices

VOLTAGE VARIABLE CAPACITANCE DIODES



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



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

MAXIMUM RATINGS

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

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	μAdc
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_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.

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

TYPICAL CHARACTERISTICS

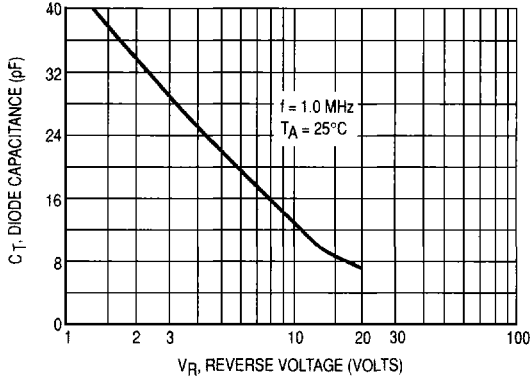


Figure 1. Diode Capacitance

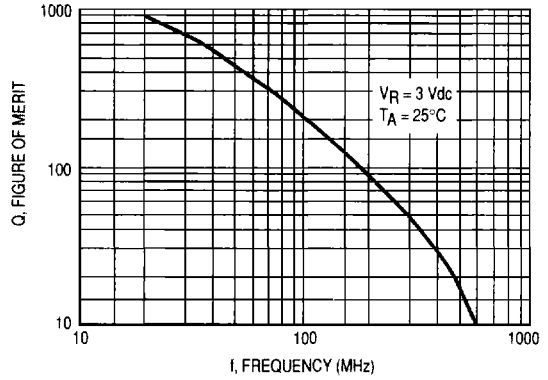


Figure 2. Figure of Merit

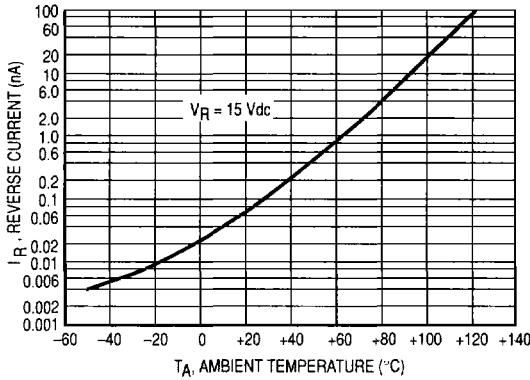


Figure 3. Leakage Current

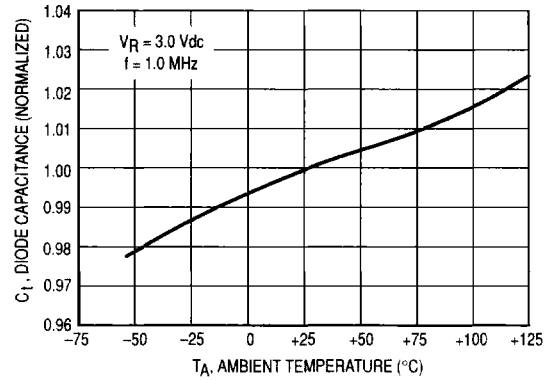


Figure 4. Diode Capacitance