

# 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
- Device Marking: 4C



## MMVL3102T1

22 pF (Nominal) 30 VOLTS  
VOLTAGEVARIABLE  
CAPACITANCEDIODE



PLASTIC, CASE 477  
SOD-323

### ORDERING INFORMATION

Device	Package	Shipping
MMVL3102T1	SOD-323	3000 / Tape & Reel

### MAXIMUM RATINGS

Symbol	Rating	Value	Unit
$V_R$	Continuous Reverse Voltage	30	Vdc
$I_F$	Peak Forward Current	200	mAdc

### THERMAL CHARACTERISTICS

Symbol	Characteristic	Max	Unit
$P_D$	Total Device Dissipation FR-5 Board,* $T_A = 25^\circ\text{C}$	200	mW
	Derate above $25^\circ\text{C}$	1.57	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	635	$^\circ\text{C}/\text{W}$
$T_J, T_{stg}$	Junction and Storage Temperature	150	$^\circ\text{C}$

\*FR-4 Minimum Pad

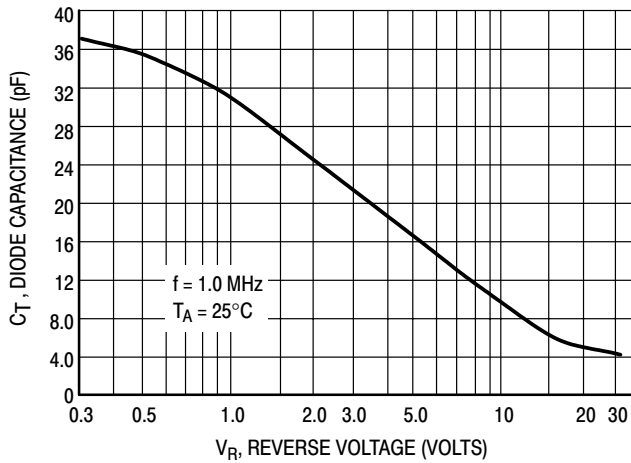
### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage ( $I_R = 10 \mu\text{Adc}$ )	$V_{(BR)R}$	30	—	—	Vdc
Reverse Voltage Leakage Current ( $V_R = 25 \text{ Vdc}, T_A = 25^\circ\text{C}$ )	$I_R$	—	—	0.1	$\mu\text{Adc}$
Diode Capacitance Temperature Coefficient ( $V_R = 4.0 \text{ Vdc}, f = 1.0 \text{ MHz}$ )	$TC_C$	—	300	—	ppm/ $^\circ\text{C}$

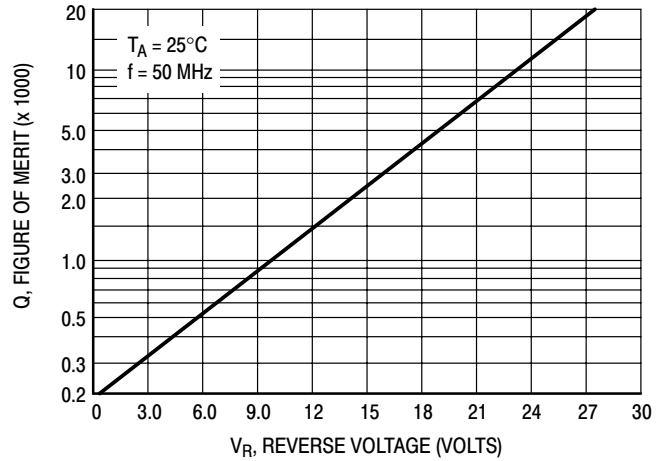
Device	$C_t$ , Diode Capacitance $V_R = 3.0 \text{ Vdc}, f = 1.0 \text{ MHz}$ pF			$Q$ , Figure of Merit $V_R = 3.0 \text{ Vdc}$ $f = 50 \text{ MHz}$	$C_R$ , Capacitance Ratio $C_3/C_{25}$ $f = 1.0 \text{ MHz}$	
	Min	Nom	Max	Min	Min	Max
MMVL3102T1	20	22	25	200	4.5	4.8

**MMVL3102T1**

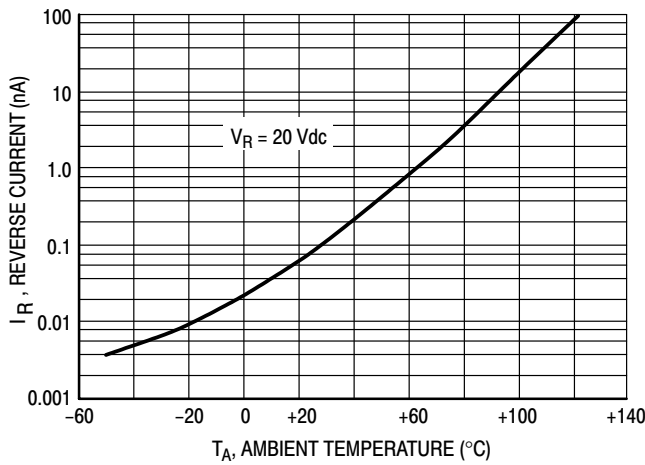
**TYPICAL CHARACTERISTICS**



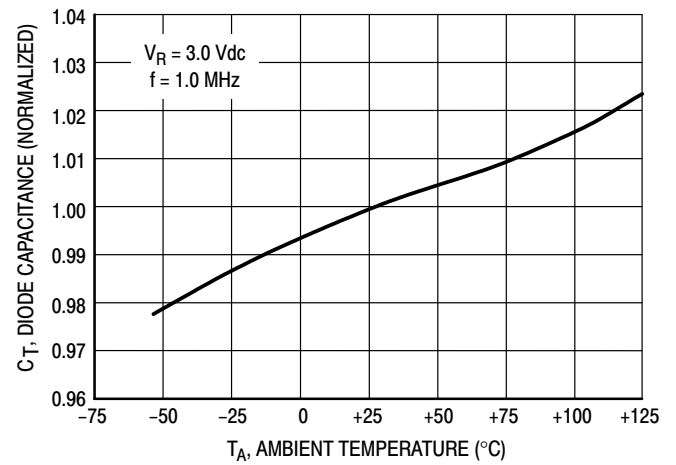
**Figure 1. Diode Capacitance**



**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.