

MMVL3102T1

Preferred Device

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



ON Semiconductor™

<http://onsemi.com>

**22 pF (Nominal) 30 VOLTS
VOLTAGE VARIABLE
CAPACITANCE DIODE**

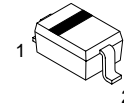
MAXIMUM RATINGS

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,*	200	mW
	$T_A = 25^\circ\text{C}$ Derate above 25°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



**PLASTIC
SOD-323
CASE 477**



ORDERING INFORMATION

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

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

MMVL3102T1

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

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage ($I_R = 10 \mu\text{A}$)	$V_{(BR)R}$	30	—	—	Vdc
Reverse Voltage Leakage Current ($V_R = 25 \text{ Vdc}$, $T_A = 25^\circ\text{C}$)	I_R	—	—	0.1	μA
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	Typ
MMVL3102T1	20	22	25	200	4.5	4.8

TYPICAL CHARACTERISTICS

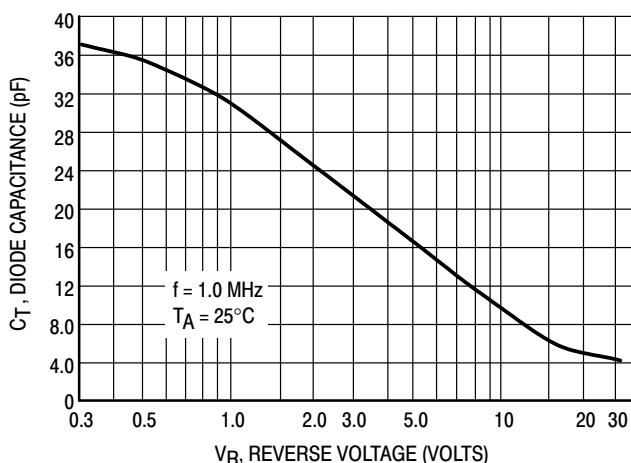


Figure 1. Diode Capacitance

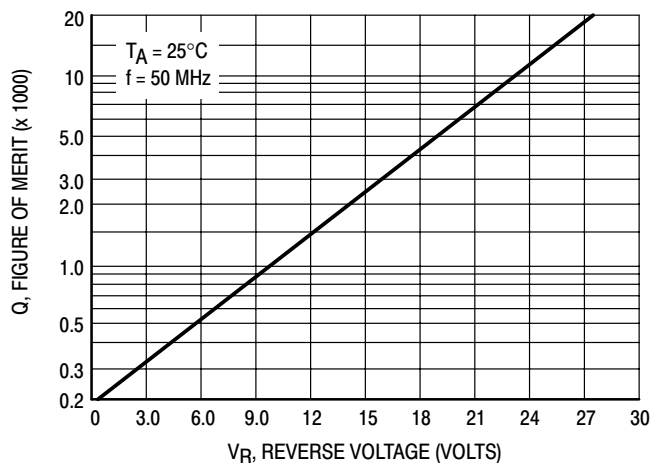


Figure 2. Figure of Merit

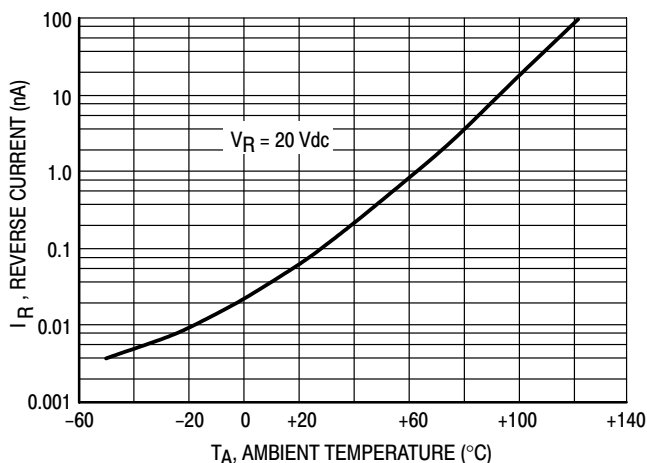


Figure 3. Leakage Current

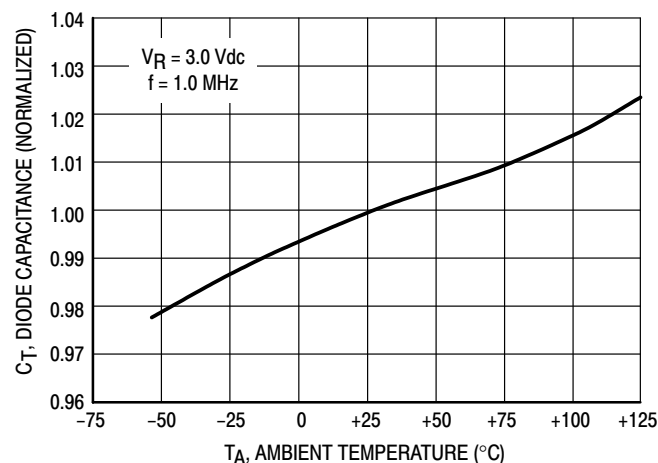


Figure 4. Diode Capacitance

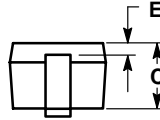
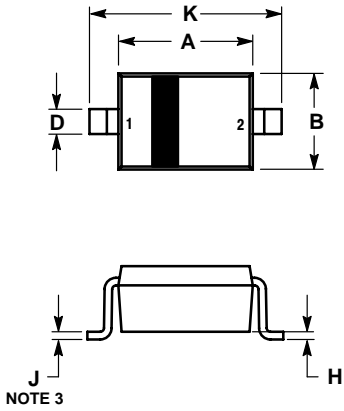
NOTES ON TESTING AND SPECIFICATIONS

- C_R is the ratio of C_T measured at 3.0 Vdc divided by C_T measured at 25 Vdc.

MMVL3102T1

PACKAGE DIMENSIONS

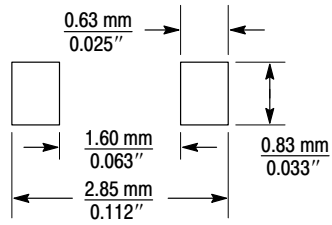
SOD-323
 PLASTIC PACKAGE
 CASE 477-02
 ISSUE A



- NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: MILLIMETERS.
 3. LEAD THICKNESS SPECIFIED PER L/F DRAWING WITH SOLDER PLATING.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.60	1.80	0.063	0.071
B	1.15	1.35	0.045	0.053
C	0.80	1.00	0.031	0.039
D	0.25	0.40	0.010	0.016
E	0.15 REF		0.006 REF	
H	0.00	0.10	0.000	0.004
J	0.089	0.177	0.0035	0.0070
K	2.30	2.70	0.091	0.106


- STYLE 1:
 PIN 1. CATHODE
 2. ANODE



($\frac{\text{mm}}{\text{inches}}$)

SOD-323
 Soldering Footprint

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