

# MMVL809T1

## Silicon Tuning Diode

This device is designed for 900 MHz frequency control and tuning applications. It provides solid-state reliability in replacement of mechanical tuning methods.

- Controlled and Uniform Tuning Ratio
- Surface Mount Package
- Available in 8 mm Tape and Reel
- Device Marking: 5K



**ON Semiconductor**

*Formerly a Division of Motorola*

<http://onsemi.com>

**4.5 – 6.1 pF  
VOLTAGE VARIABLE  
CAPACITANCE DIODE**

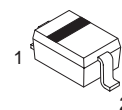
### MAXIMUM RATINGS

Symbol	Rating	Value	Unit
$V_R$	Continuous Reverse Voltage	20	Vdc
$I_F$	Peak Forward Current	20	mA <sub>dc</sub>

### THERMAL CHARACTERISTICS

Symbol	Characteristic	Max	Unit
$P_D$	Total Device Dissipation FR–5 Board,*	200	mW
	$T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	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



**PLASTIC  
SOD–323  
CASE 477**



### ORDERING INFORMATION

Device	Package	Shipping
MMVL809T1	SOD–323	3000 / Tape & Reel

# MMVL809T1

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

Characteristic – All Types	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage (I <sub>R</sub> = 10 µA <sub>dc</sub> )	V <sub>(BR)R</sub>	20	—	—	V <sub>dc</sub>
Reverse Voltage Leakage Current (V <sub>R</sub> = 15 V <sub>dc</sub> )	I <sub>R</sub>	—	—	50	nA <sub>dc</sub>

	C <sub>T</sub> , Diode Capacitance V <sub>R</sub> = 2.0 V <sub>dc</sub> , f = 1.0 MHz pF			Q, Figure of Merit V <sub>R</sub> = 3.0 V <sub>dc</sub> f = 500 MHz	C <sub>R</sub> , Capacitance Ratio C <sub>2</sub> /C <sub>8</sub> f = 1.0 MHz(1)	
Device	Min	Typ	Max	Typ	Min	Max
MMVL809T1	4.5	5.3	6.1	75	1.8	2.6

1. C<sub>R</sub> is the ratio of C<sub>T</sub> measured at 2.0 V<sub>dc</sub> divided by C<sub>T</sub> measured at 8.0 V<sub>dc</sub>.

## TYPICAL CHARACTERISTICS

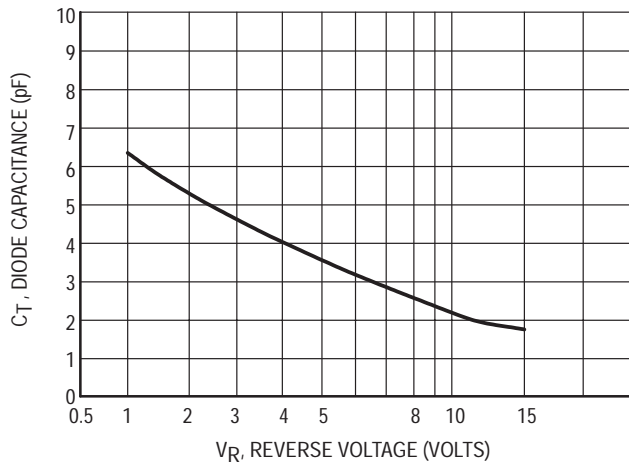


Figure 1. Diode Capacitance

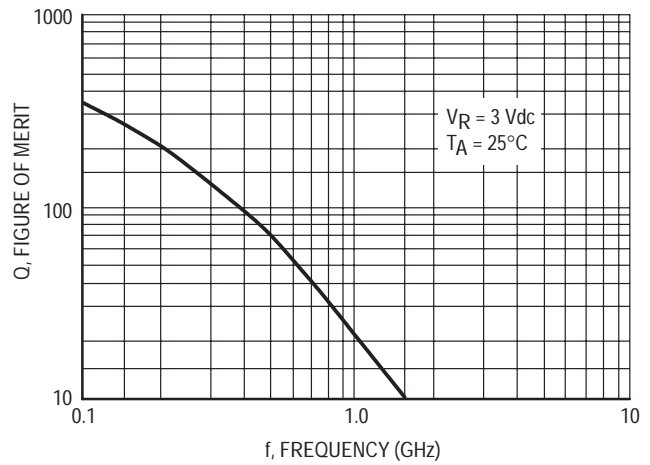


Figure 2. Figure of Merit

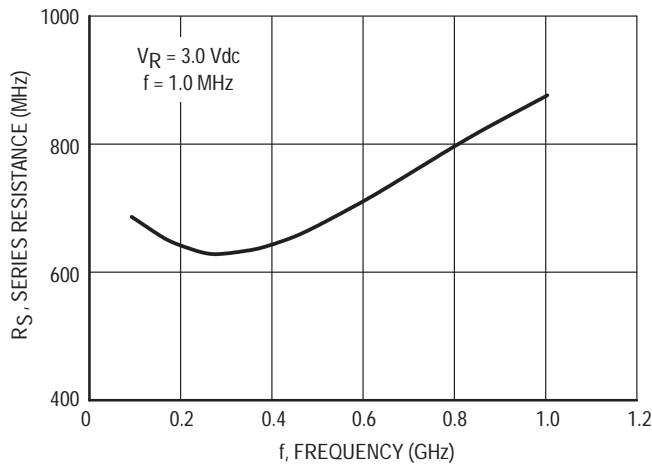


Figure 3. Series Resistance

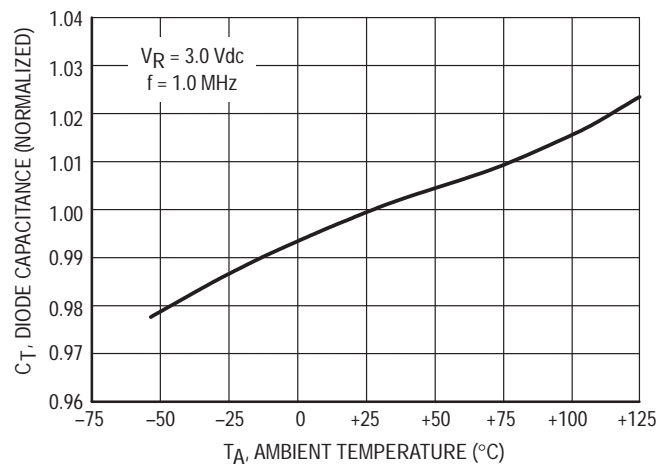
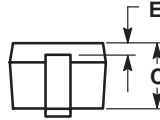
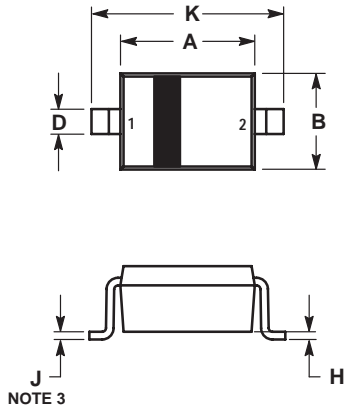


Figure 4. Diode Capacitance

# MMVL809T1

## PACKAGE DIMENSIONS

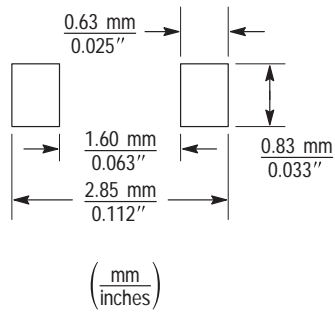
### SOD-323 PLASTIC PACKAGE CASE 477-02 ISSUE A




- 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



### SOD-323 Soldering Footprint

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