MMBV809LT1

Preferred Device

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.

Features

- Controlled and Uniform Tuning Ratio
- Available in Surface Mount Package
- Available in 8 mm Tape and Reel
- Pb−Free Packages are Available

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	20	Vdc
Forward Current	I_F	20	mAdc
Total Power Dissipation (Note 1) @ T_A = 25°C Derate above 25°C	P_D	 225 1.8	 mW mW/°C
Junction Temperature	T_J	+125	°C
Storage Temperature Range	T_{stg}	−55 to +125	°C

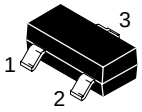
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

1. FR5 Board 1.0 x 0.75 x 0.62 in.

ON Semiconductor®

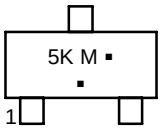
http://onsemi.com

4.5−6.1 pF VOLTAGE VARIABLE CAPACITANCE DIODE



SOT−23 (TO−236)
CASE 318
STYLE 8

MARKING DIAGRAM



5K = Specific Device Code
M = Date Code*
▪ = Pb−Free Package
(Note: Microdot may be in either location)
*Date Code orientation and/or overbar may vary depending upon manufacturing location.

ORDERING INFORMATION

Device	Package	Shipping†
MMBV809LT1	SOT−23	3,000 / Tape & Reel
MMBV809LT1G	SOT−23 (Pb−Free)	3,000 / Tape & Reel
MMBV809LT3	SOT−23	10,000 / Tape & Reel
MMBV809LT3G	SOT−23 (Pb−Free)	10,000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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

© Semiconductor Components Industries, LLC, 2006

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic − All Types	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage (I_R = 10 μAdc)	$V_{(BR)R}$	20	−	−	Vdc
Reverse Voltage Leakage Current (V_R = 15 Vdc)	I_R	−	−	50	nAdc

	C_t, Diode Capacitance V_R = 2.0 Vdc, f = 1.0 MHz pF			Q, Figure of Merit V_R = 3.0 Vdc f = 500 MHz	C_R, Capacitance Ratio C_2/C_8 f = 1.0 MHz (Note 2)	
Device	**Min**	**Typ**	**Max**	**Typ**	**Min**	**Max**
MMBV809LT1	4.5	5.3	6.1	75	1.8	2.6

2. C_R is the ratio of C_t measured at 2.0 Vdc divided by C_t measured at 8.0 Vdc.

TYPICAL CHARACTERISTICS

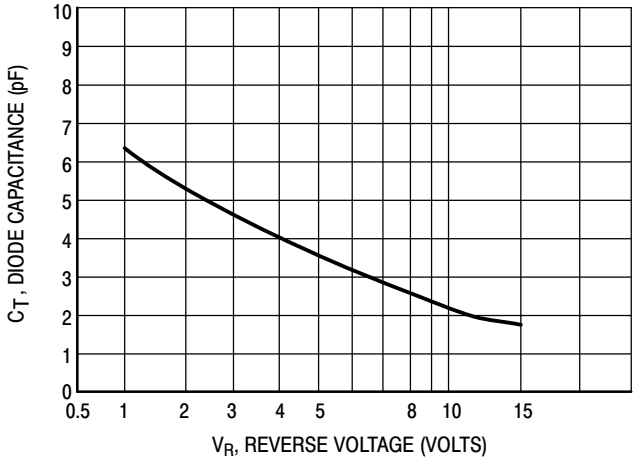


Figure 1. Diode Capacitance

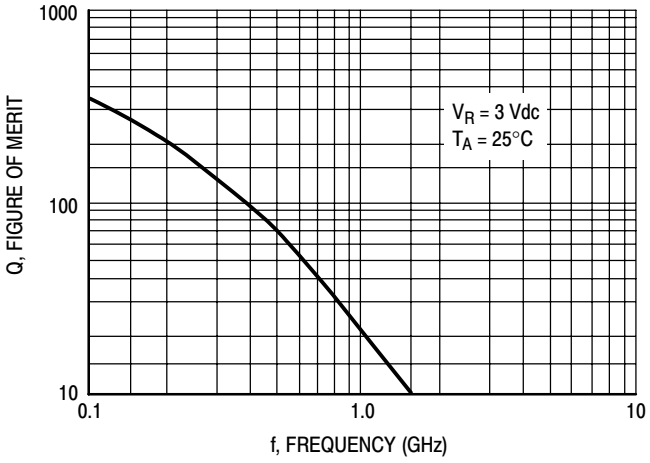


Figure 2. Figure of Merit

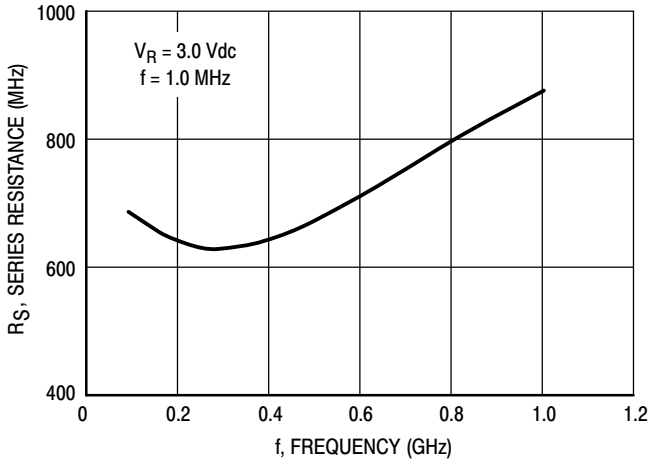


Figure 3. Series Resistance

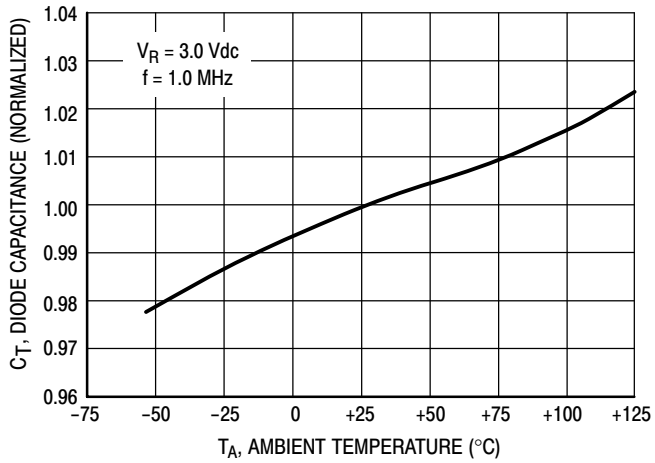


Figure 4. Diode Capacitance

onsemi, ONSEMI , and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent−Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as−is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:
Technical Library: www.onsemi.com/design/resources/technical−documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support
For additional information, please contact your local Sales Representative at
www.onsemi.com/support/sales