

Surface Mount Low Power Step Recovery Diodes

Rev. V3

Features

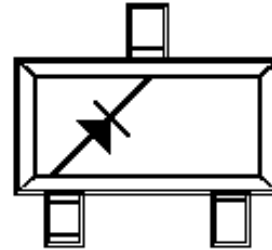
- Surface Mount Packages (SOT-23,SC-79)
- Low Transition Times
- SPC Process for Superior C-V Repeatability
- Tape and Reel Packaging
- Designed for Commercial Wireless Applications
- RoHS Compliant

Description

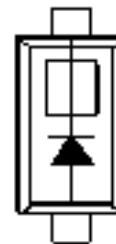
The MA144769-287 and the MAVR-044769-1279 step recovery diodes are designed for use in low power multipliers with output frequencies of up to 5 GHz. These step recovery diodes generate harmonics by storing a charge as the diode is driven to forward conductance by the positive voltage of the input signal. When the signal reverses polarity, this charge is extracted. These diodes will appear as a low impedance current source until all the charge is extracted, then it will “snap” to a higher impedance. This causes a voltage pulse to form in the impulse circuit of the multiplier. Step recovery diodes make excellent high order multipliers such as comb generators. They are also useful as efficient moderate power x2 - x4 multipliers.

These step recovery diodes are useful for surface mount low power applications.

SOT-23 (Case Style 287)



SC-79 (Case Style 1279)



Electrical Specifications

RoHS Compliant Part Numbers ¹	Total Capacitance @ 1 MHz, 6 V		Reverse Voltage @ 10 μ A	Nominal Carrier Lifetime	Transition Time	Nominal Input Frequency	Nominal Output Frequency
	(pF)		(V)	(ns)	(ps)	(GHz)	
	Min.	Max.	Min.	Typical	Max.		
MA144769-287T MAVR-044769-12790T	0.8	1.2	30	20 - 50	150	0.1 - 1.0	1 - 5

1. The prefix defines package style, configuration and packaging information. Contact representative for complete part identification.

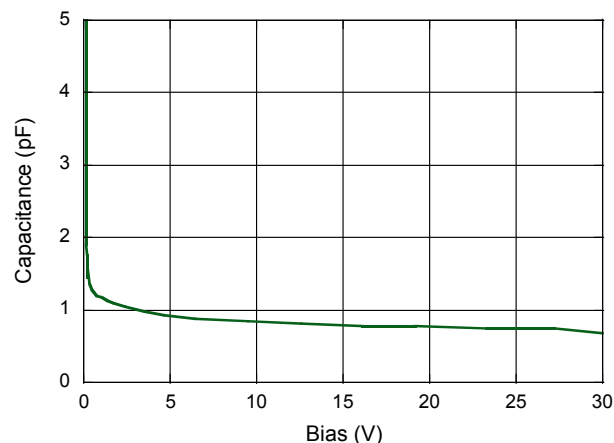
Absolute Maximum Ratings^{2,3}

@ T_A = +25°C (Unless Otherwise Noted)

Parameter	Absolute Maximum
Operating Temperature	-65°C to +125°C
Storage Temperature	-65°C to +125°C
Reverse Voltage	30 V
Forward Bias Current	50 mA
Power Dissipation	250 mW

2. Operation of this device above any one of these parameters may cause permanent damage.
3. Please refer to application note M538 for surface mounting instructions.

Capacitance vs. Bias, @ 1 MHz



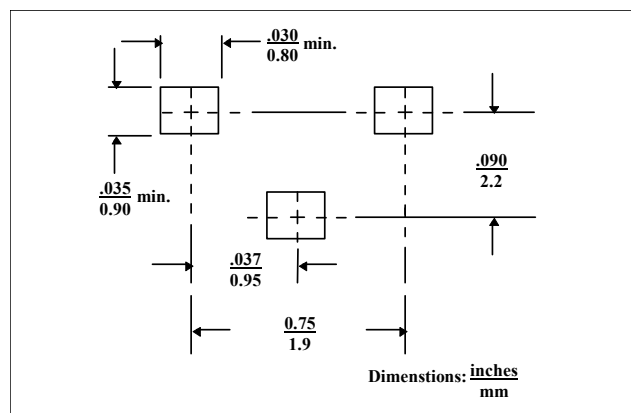
Mounting Information

The illustration indicates the recommended mounting pad configuration for the SOT-23 and SC-79 packages.

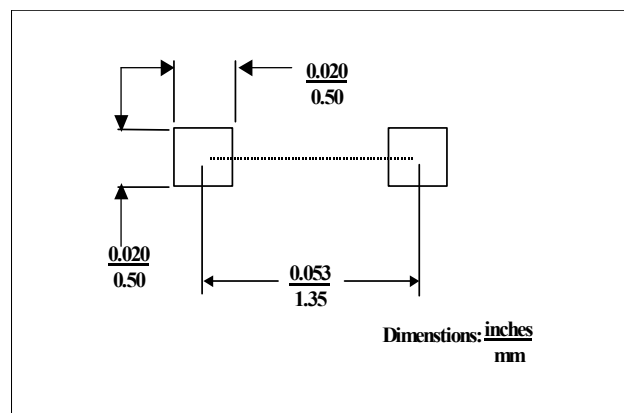
Permanent attachment is performed by a reflow soldering procedure during which the tab temperature does not exceed +275°C and the body temperature does not exceed +260°C.

Please refer to Application Note M538 for surface mounting instructions.

SOT-23



SC-79

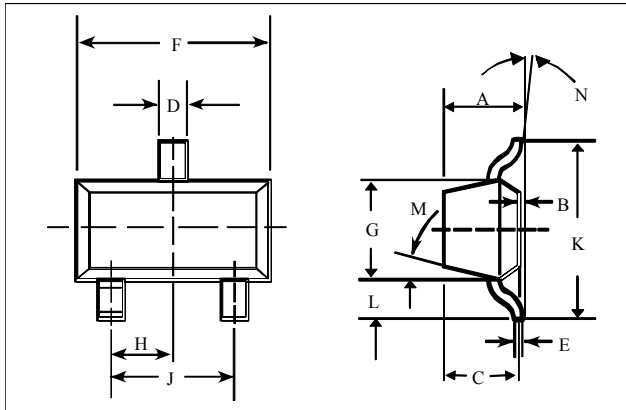


Surface Mount Low Power Step Recovery Diodes

Rev. V3

Case Styles

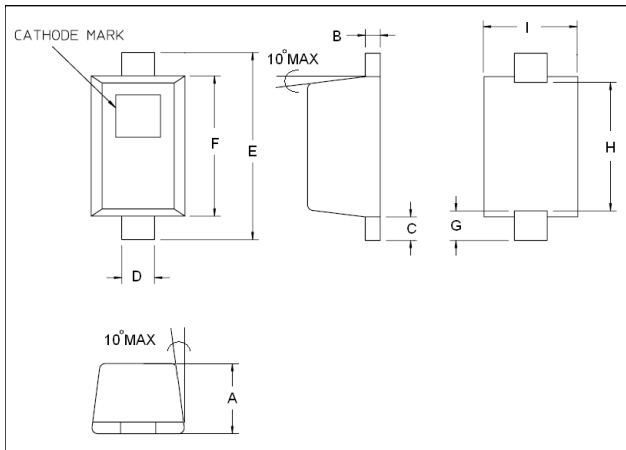
SOT-23 (Case Style 287)



SOT-23 (Case Style 287)

Dim.	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	—	0.048	—	1.22
B	—	0.008	—	0.20
C	—	0.040	—	1.00
D	0.013	0.020	0.35	0.50
E	0.003	0.006	0.08	0.15
F	0.110	0.119	2.80	3.00
G	0.047	0.056	1.20	1.40
H	0.037 typical		0.95 typical	
J	0.075 typical		1.90 typical	
K	—	0.103	—	2.60
L	—	0.024	—	0.60
Dim.	Gradient			
M	10° max.			
N	2° . . .30°			

SC-79 (Case Style 1279)



SC-79 (Case Style 1279)

Dim.	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	0.0197	0.0276	0.50	0.70
B	0.003	0.008	0.07	0.20
C	0.006	0.010	0.15	0.25
D	0.010	0.014	0.25	0.35
E	0.059	0.067	1.50	1.70
F	0.043	0.051	1.09	1.30
G	0.0098 nominal		0.250 nominal	
H	0.0433 nominal		1.10 nominal	
I	0.027	0.035	0.68	0.89

MACOM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with MACOM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.