MAVR-0447 Series

Surface Mount Low Power Step Recovery Diodes

Rev. V1

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 MAVR-0447 series of Step Recovery diodes is 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. The Step Recovery diode will appear as a low impedance currentsource 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.

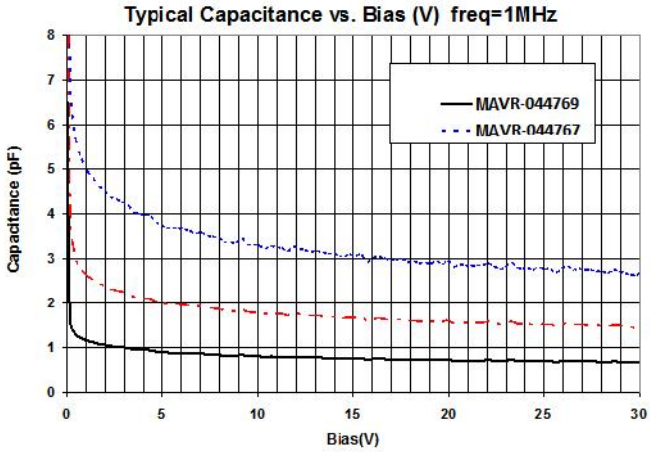
Applications

The MAVR-0447 series step recovery are useful for surface mount low power applications.

Absolute Maximum Ratings [1,2] @ 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	30V
Forward Bias Current	50 mA
Power Dissipation	250 mW

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



RoHS Compliant Part Numbers[1]	C_T[2] (pF) f=1 MHz, V_R=6.0 V		Reverse Voltage (V) Ir =10 uA	Nominal Carrier (nS)	Transition Time (pS)	Nominal Input (GHz)	Nominal Output (GHz)
	Min.	Max.	Min.	Typical	Max		
MAVR-044767-0287AT	3.0	4.5	30	250-500	600	0.05-5	0.5-1.5
MA144769-287T MAVR-044769-12790T	0.8	1.2	30	20-50	150	0.1-1	1-5

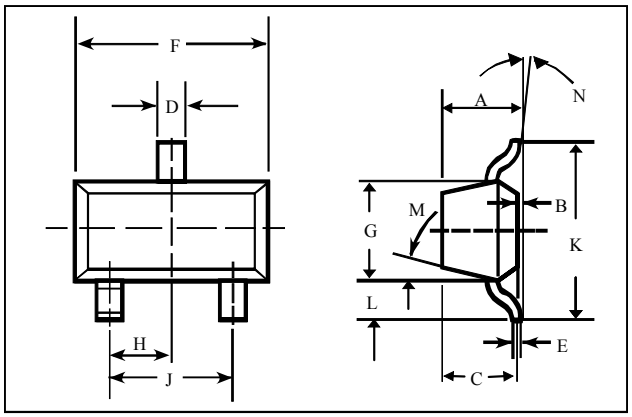
1. The prefix defines package style, configuration and packaging information. Contact representative for complete part identification.
2. Capacitance @ 1 MHz

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Case Styles

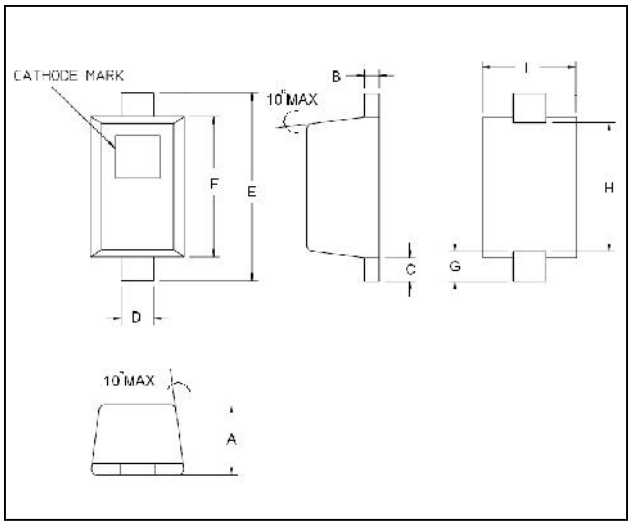
SOT-23 (Case Style 287)



SOT-23 (Case Style 287)

	INCHES		MILLIMETERS	
DIM.	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	.0197	.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	.0098 nominal		0.250 nominal	
H	.0433 nominal		1.10 nominal	
I	.027	.035	0.68	0.89

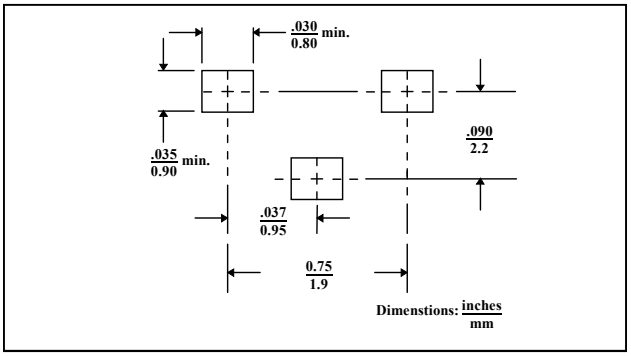
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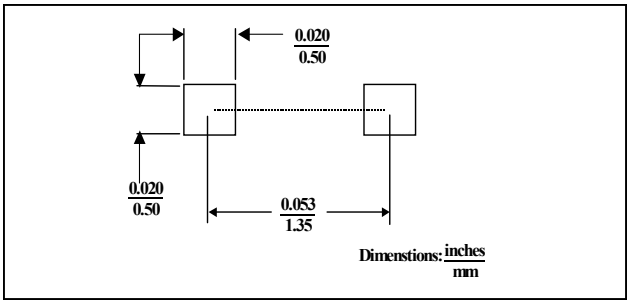
Mounting Information

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

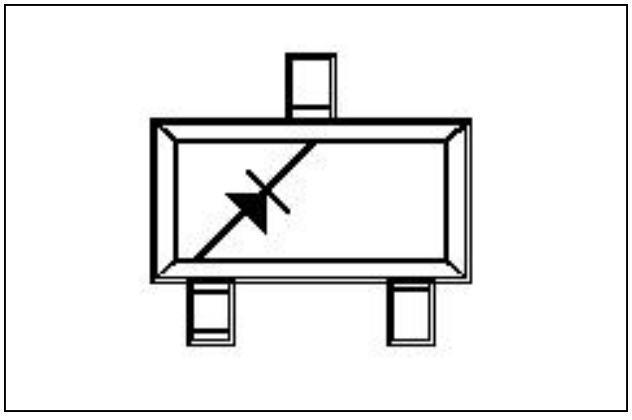


SC-79

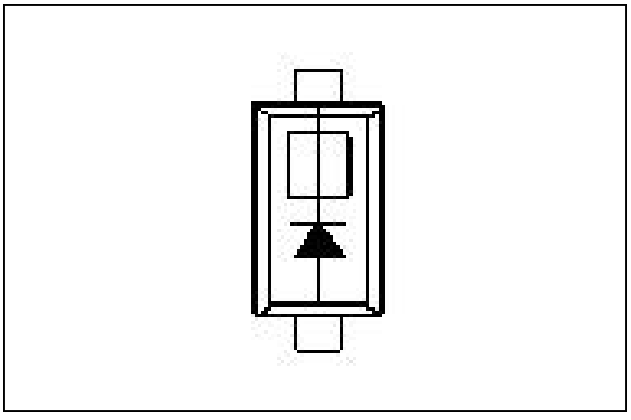


Package Configuration

SOT-23 (Case Style 287)



SC-79 (Case Style 1279)



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