

Surface Mount Low Power Step Recovery Diodes

MA44700 Series
V2

Features

- Surface Mount Packages (SOT-23, SOT-323, SOD-323.SC-79)
- Low transition times
- SPC Process for Superior C-V Repeatability
- Tape and Reel Packaging
- Designed for Commercial Wireless Applications

Description

The MA44700 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 MA44700 series step recovery are useful for surface mount low power applications.

Absolute Maximum Ratings

@ T_A=+25 °C (Unless Otherwise Noted) ¹

Parameter	Absolute Maximum
Operating Temperature	-65 °C to +125 °C
Storage Temperature	-65 °C to +125 °C

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

Part Number	RoHs Compliant Part Number
MA44767-287	MA144767-287
MA44768-287	MA144768-287
MA44769-287	MA144769-287

Part Number Base	RoHs Compliant Part Number Base	C _T ²		Reverse Voltage	Nominal Carrier Lifetime T _L	Transition Time T _s	Nominal Input Frequency	Nominal Output Frequency
		(pF)		(V)	(nS)	(pS)	(GHz)	(GHz)
		f=1 MHz, V _R =6.0V		I _r =10 uA				
		Min.	Max.	Min.	Typical	Max		
MA44767	MA144767-287 MAVR-044767-XXXXXX	3.0	4.5	30	250-500	600	0.05-5	0.5-1.5
MA44768	MA144768-287 MAVR-044768-XXXXXX	1.6	2.4	30	75-225	250	0.1-1	0.5-2.5
MA44769	MA144769-287 MAVR-044769-XXXXXX	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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Visit www.macom.com for additional data sheets and product information.

**Surface Mount Low Power
Step Recovery Diodes**

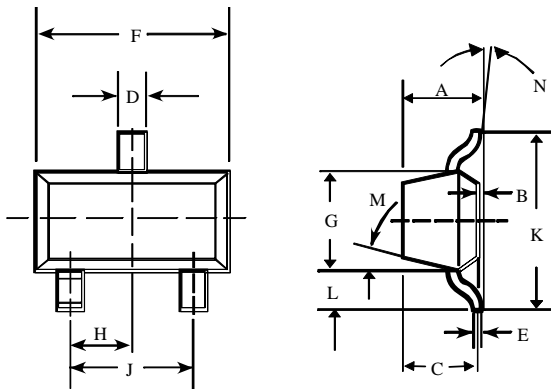
MA44700 Series
V2

Case Styles

Case Styles

SOT-23

Case Style 287

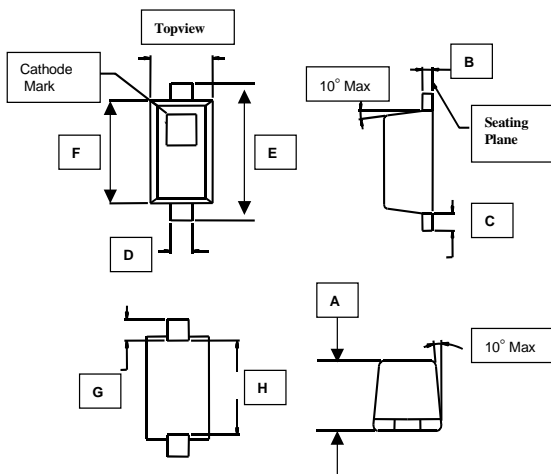


SOT-23 (Case Style 287)

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. ¹			
N	2° . . .30°			

SC-79

Case Style 1279



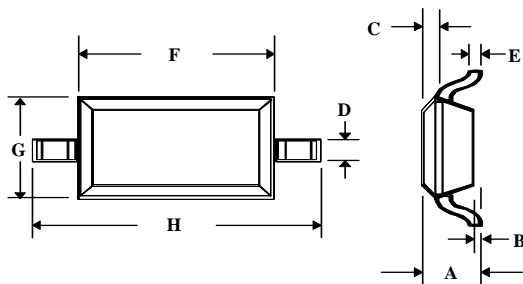
DIM.	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.020	0.028	0.50	0.71
B	0.003	0.008	0.08	0.20
C	0.006	0.010	0.15	0.25
D	0.010	0.014	0.25	0.36
E	0.059	0.067	0.08	0.15
F	0.043	0.051	1.50	1.30
G	0.011	0.012	0.28	0.30
H	0.037 typical	0.043	0.94	1.09

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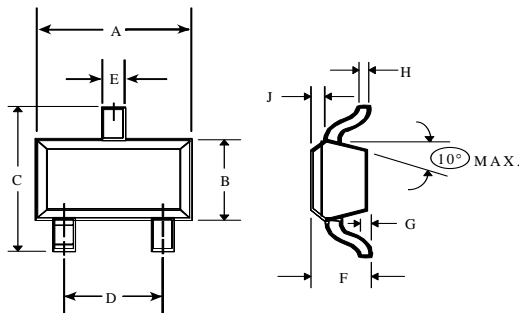
Case Styles

**SOD-323
Case Style 1141**



DIM.	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	—	0.043	—	1.1
B	—	0.004	—	0.1
C	—	0.008	—	0.2
D	0.010	0.016	0.25	0.4
E	0.003	0.006	0.08	0.15
F	0.063	0.075	1.6	1.9
G	0.045	0.057	1.15	1.45
H	0.091	0.106	2.3	2.7

**SC-70, 3 Lead
Case Style 1146**



DIM.	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.071	0.087	1.80	2.20
B	0.045	0.053	1.15	1.35
C	0.071	0.094	1.80	2.40
D	0.047	0.057	1.19	1.45
E	0.010	0.016	0.25	0.41
F	0.031	0.039	0.80	1.00
G	0.000	0.004	0.00	0.10
H	0.004	0.007	0.10	0.18
J	0.004	0.010	0.10	0.25

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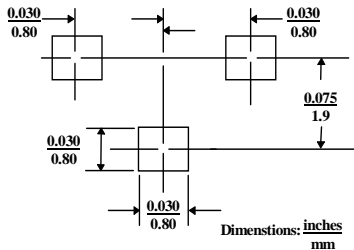
Mounting Information

The illustration indicates the recommended mounting pad configuration for the SC-79, SOT-323 and SOD-323 packages. Solder paste containing flux should be screened onto the pads to a thickness of 0.005- 0.007 inches. The plastic package is placed in position, firmly adhering to the solder paste.

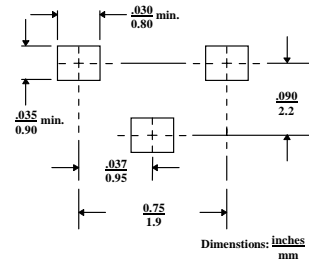
Permanent attachment is performed by a reflow soldering procedure during which the tab temperature does not exceed +275 °C and the body temperature does not exceed +250 °C, for standard models and +260 °C for the RoHS compliant devices.

Please refer to Application Note M538 for surface mounting instructions.

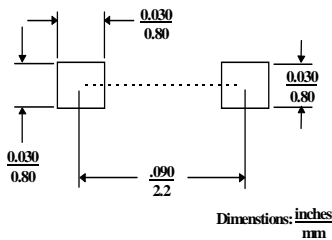
SOT-323



SOT-23



SOD-323



SC-79

