

## Features

- RF & Microwave Medium Barrier Silicon 20 V Schottky Diode
- Available as Single Diode and Series Pairs
- Low Profile Surface Mount Plastic Package
- Lead Free
- RoHS\* Compliant with 260°C Reflow Capability

## Description and Applications

The MA4E1339 series is a silicon medium barrier Schottky diode suitable for use in mixer, detector and limiter circuits. These diodes are also suitable for usage in anti-parallel, shunt power surge protection circuits for 50  $\Omega$  and 75  $\Omega$  systems.

The MA4E1339 Series of Schottky diodes is available in the SOT-23 (case style 287), SOT-323 (case style 1146), SC-79 (case style 1279) and the SOD 323, (case style 1141) plastic package. These packages are supplied on tape and reel for automatic pick and place assembly and for surface mount placement to circuit boards, as indicated by a "T" to the P/N suffix.

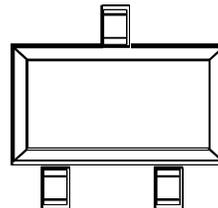
These Silicon Medium Barrier, 20 V Schottky Diodes are useful in detector, limiter, mixer, and surge protection applications for operating frequency bands from DC through 6 GHz.

## Part Numbers

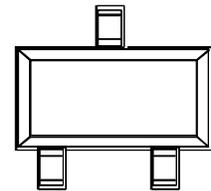
Part Number	Package Style
MA4E1339A1-287T	SOT-23
MA4E1339A1-1146T	SOT-323
MA4E1339B1-287T	SOT-23
MA4E1339B1-1146T	SOT-323
MA4E1339A1-1141T	SOD-323
MADS-001339-12790T	SC-79

## Package Outlines

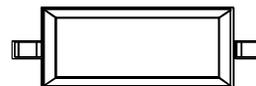
SOT-23 (287)



SOT-323 (1146)



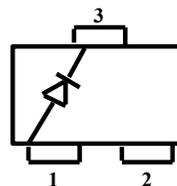
SOD-323 (1141)



SC-79 (1279)

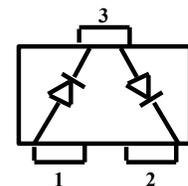


## Configurations (Top View)



Single

MA4E1339A-287T  
MA4E1339A-1146T



Series Pair

MA4E1339B-287T  
MA4E1339B-1146T



Single

MA4E1339A-1141T  
MADS-001339-12790T

\* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

**Electrical Specifications @ +25°C**

Parameter	Condition	Specification
Forward Voltage ( $V_F$ )	$I_F = 1 \text{ mA}$ $I_F = 10 \text{ mA}$	410 mV max. 1 V max.
Delta Forward Voltage ( $\Delta V_F$ )	$I_F = 1 \text{ mA}$	20 mV max. (for series pairs configurations)
Total Capacitance ( $C_T$ )	$V_R = 0 \text{ V}$ , $F = 1 \text{ MHz}$	1.2 pF max.
Reverse Leakage Current ( $I_R$ )	$V_R = 15 \text{ V}$	200 nA max.
Reverse Voltage Breakdown ( $V_B$ )	$I_R = 10 \text{ }\mu\text{A}$	20 V min.

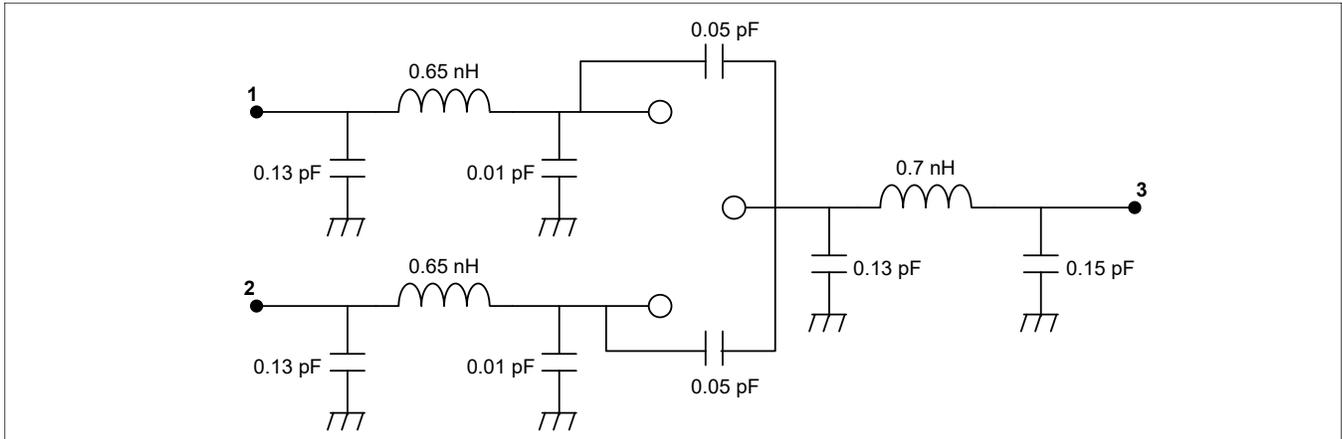
**Maximum Ratings @ 25°C (unless otherwise specified)<sup>1,2</sup>**

Parameter	Values
Operating Temperature	-55°C to +125°C
Storage Temperature	-55 to +125
Total Power Dissipation (RF and DC)	250 mW
Continuous Forward Current	30 mA
Surge Forward Current, @ $t < 10 \text{ ms}$	100 mA
Reverse Voltage	20 V
Soldering Temperature (Standard Part #)	+235°C for 5 sec.
Soldering Temperature (RoHS Compliant Part #)	+260°C for 5 sec.
Electrostatic Discharge ( ESD ) Classification	1A, HBM

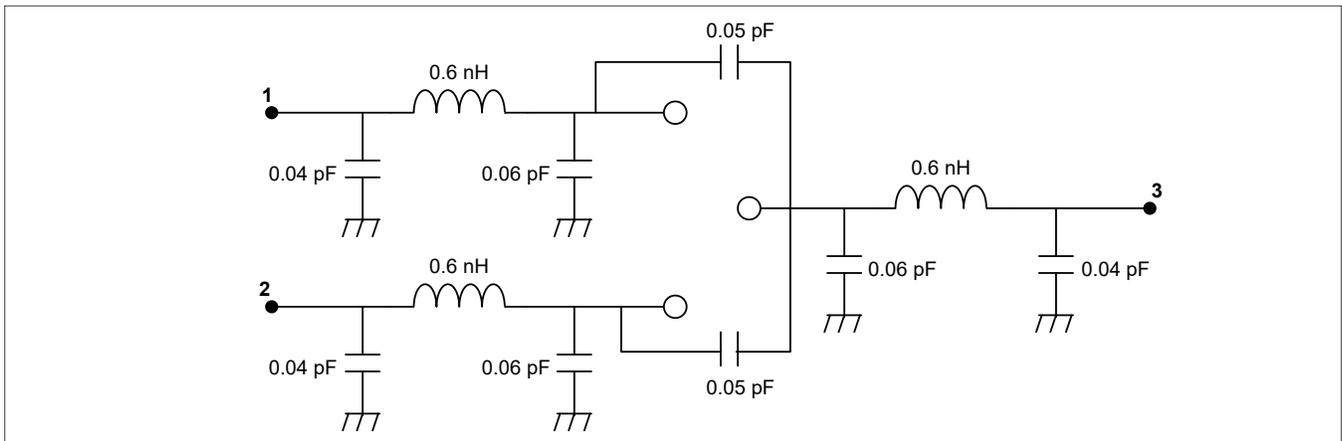
1. Operation of this device above any one of the Maximum Rated parameters may cause permanent damage.
2. Please refer to Application Note M538 for surface mounting instructions.

## Circuit Models

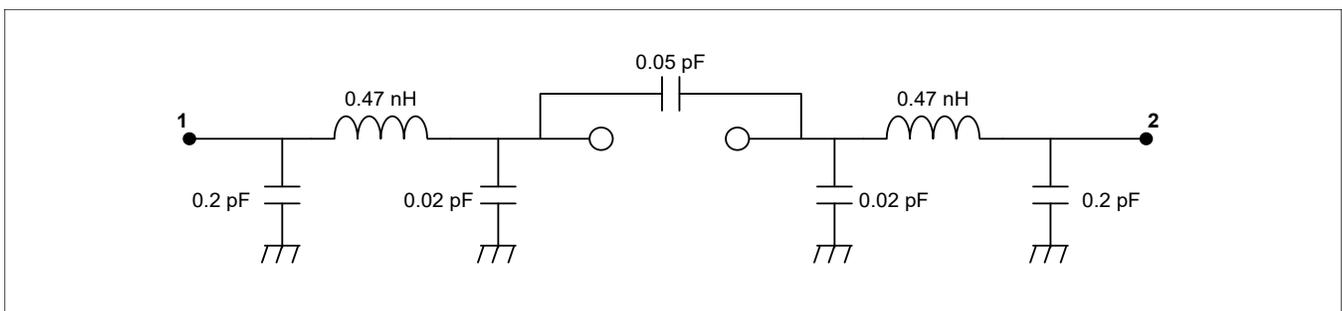
### SOT-23



### SOT-323

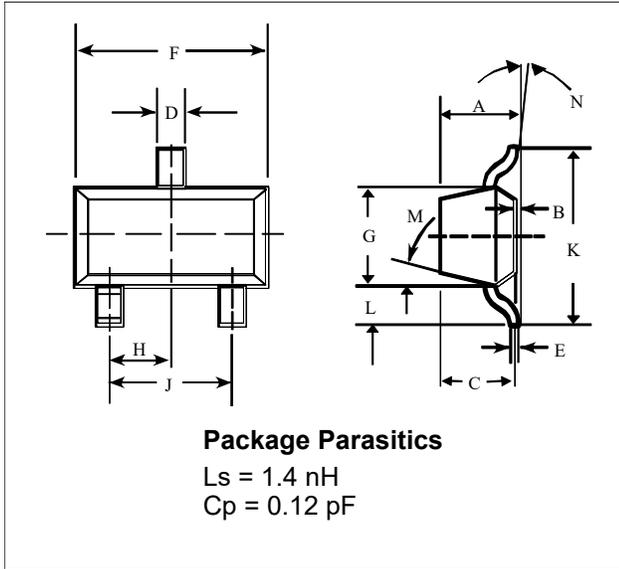


### SOD-323



### Case Styles

#### SOT-23

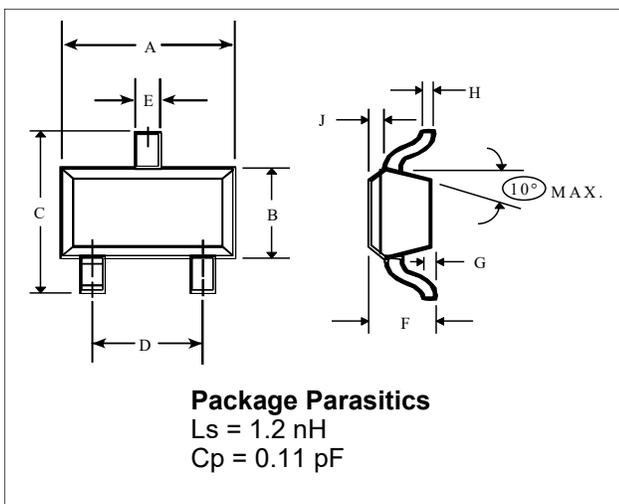


#### SOT-23 (Case Style 287)

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. <sup>3</sup>			
N	2° .. .30°			

3. Applicable on all sides

#### SOT-323

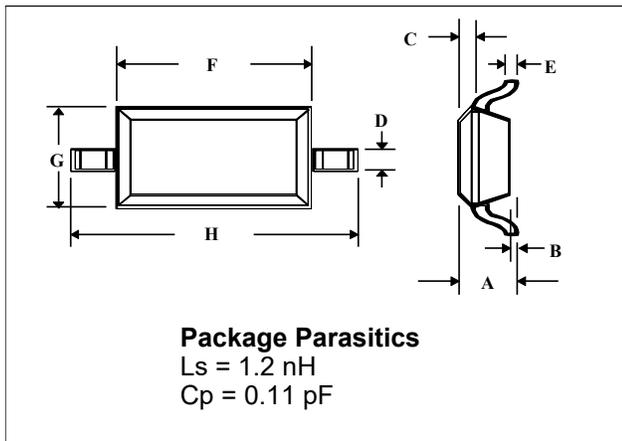


#### SOT-323 (Case Style 1146)

DIM.	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.063	0.087	1.6	2.2
B	0.045	0.053	1.15	1.35
C	0.079	0.087	2.0	2.2
D	0.047	0.055	1.2	1.4
E	0.008	0.016	0.2	0.4
F	0.031	0.039	0.8	1.0
G	—	0.004	—	0.1
H	0.003	0.006	0.08	0.15
J	0.004	0.010	0.1	0.25

### Case Styles (Cont'd)

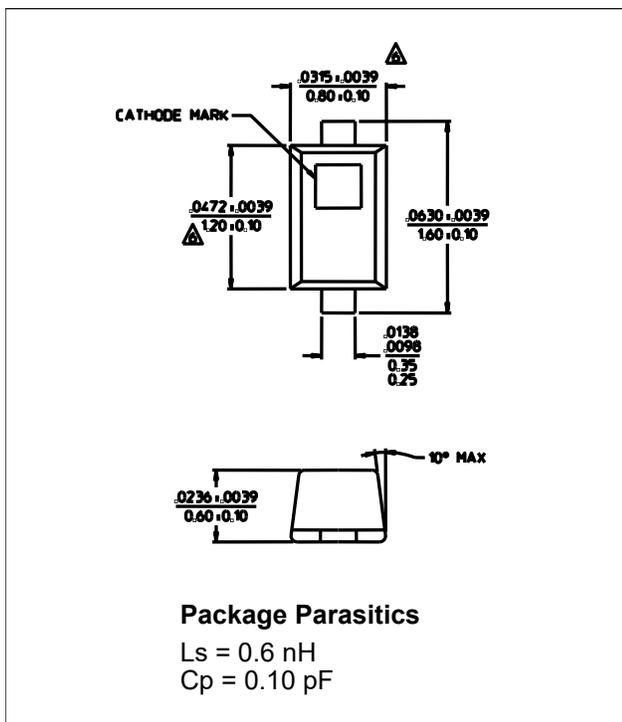
#### SOD-323



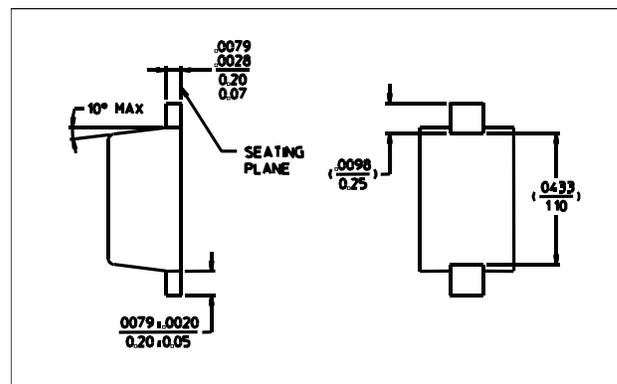
#### SOD-323 (Case Style 1141)

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-79



#### SC-79 (Case Style 1279)



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