MA4E1340 Series

Silicon Medium Barrier Schottky Diodes

M/A-COM Products
Rev. V8

Features

- RF & Microwave Medium Barrier Silicon 70 V Schottky Diode
- Available as Single Diode, Series Pair or Unconnected Pair Configurations.
- Low Profile Surface Mount Plastic Package
- Lead Free (RoHS Compliant) Equivalents Available With 260 Deg. C Reflow Capability

Description and Applications

The MA4E1340 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 Ω and 75 Ω systems.

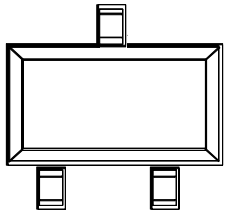
These parts are offered with Sn/Pb plating, as well as with 100 % matte Sn plating on the RoHS compliant part numbers.

The MA4E1340 Series of Schottky diodes is available in the SOT-23 (case style 287), SOT-143 (case style 1068), SOT-323 (case style 1146) 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.

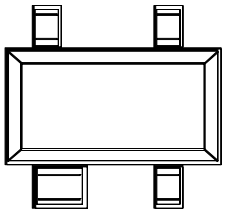
These Silicon Medium Barrier, 70 V Schottky Diodes are Useful in Detector, Limiter, Mixer, and Surge Protection Applications for Operating Frequency Bands from DC through 6 GHz.

Package Outlines

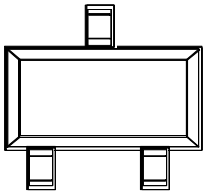
SOT-23 (287)



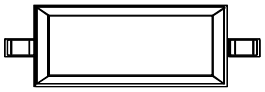
SOT-143 (1068)



SOT-323 (1146)



SOD-323 (1141)



SC-79 (1279)

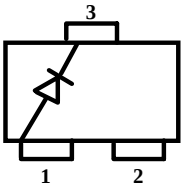


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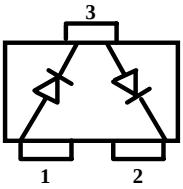
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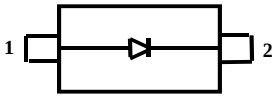
Configurations (Top View)



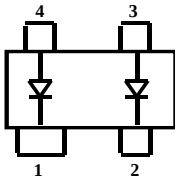
Single
MA4E1340A-287T
MA4E1340A-1146T



Series Pair
MA4E1340B-287T
MA4E1340B-1146T



Single
MA4E1340A1-1141T
MADS-001340-1279OT



Unconnected Pair
MA4E1340E-1068T

Standard Part Numbers and RoHS Equivalents

Standard Part Number	RoHS Compliant Part Number	Package Style
MA4E1340A-287T	MA4E1340A1-287T	SOT-23
MA4E1340A-1146T	MA4E1340A1-1146T	SOT-323
MA4E1340B-287T	MA4E1340B1-287T	SOT-23
MA4E1340B-1146T	MA4E1340B1-1146T	SOT-323
N/A	MA4E1340A1-1141T	SOD-323
N/A	MADS-001340-1279OT	SC-79
MA4E1340E-1068T	MA4E1340E1-1068T	SOT-143

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Maximum Ratings @ 25 °C (unless otherwise specified) [1]

Parameter	Unit	Values
Operating Temperature	°C	-55 to +125
Storage Temperature	°C	-55 to +125
Total Power Dissipation (RF and D.C.)	mW	250
Continuous Forward Current	mA	15
Surge Forward Current, @ t < 10 millisec	mA	100
Reverse Voltage	Vb	70
Soldering Temperature (Standard Part #)	°C	+235
Soldering Temperature (RoHS Compliant Part #)	°C	+260

1. Please refer to Application Note M538 for surface mounting instructions

Electrical Specifications @ T_A = +25 °C

Parameter	Condition	Symbol	Specification
Forward Voltage	I_F = 1 mA	V_F	410 mV max.
Delta Forward Voltage	I_F = 1 mA	ΔV_F	20 mV max. For series pair and unconnected pair configurations
Forward Voltage	I_F = 15 mA	V_F	1.0 V max.
Total Capacitance	V_R = 0 V F = 1 MHz	C_T	1.5 pF max.
Reverse Leakage Current	V_R = 50 V	I_R	200 nA max.
Reverse Voltage Breakdown	I_R = 10 µA	Vb	70 V min.

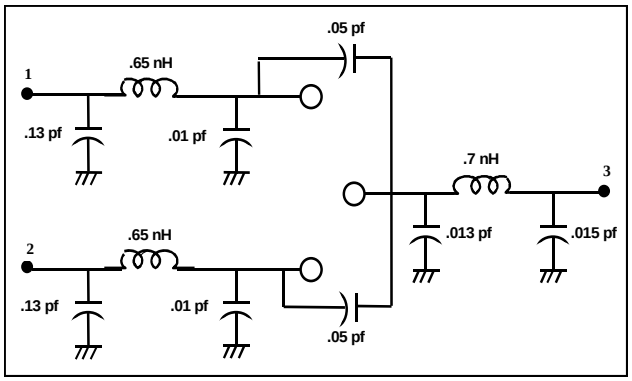
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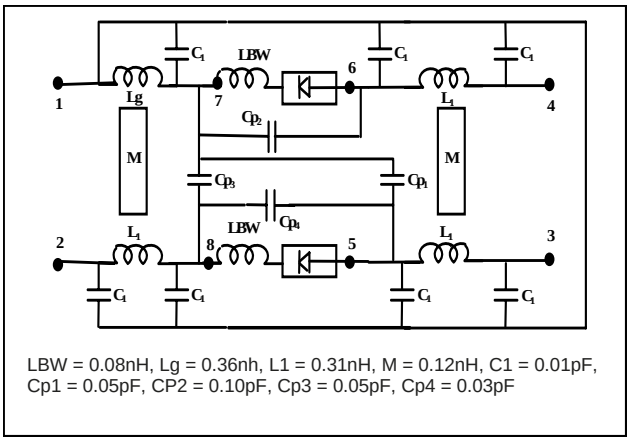
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Circuit Models

SOT-23

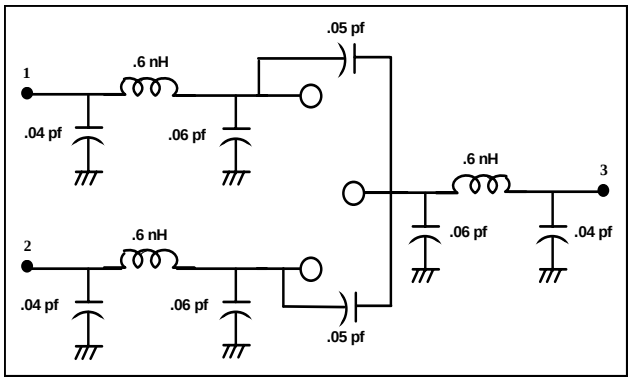


SOT-143

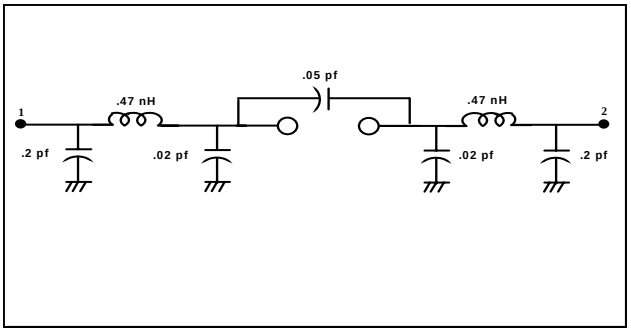


LBW = 0.08nH, Lg = 0.36nh, L1 = 0.31nH, M = 0.12nH, C1 = 0.01pF, Cp1 = 0.05pF, CP2 = 0.10pF, Cp3 = 0.05pF, Cp4 = 0.03pF

SOT-323



SOD-323



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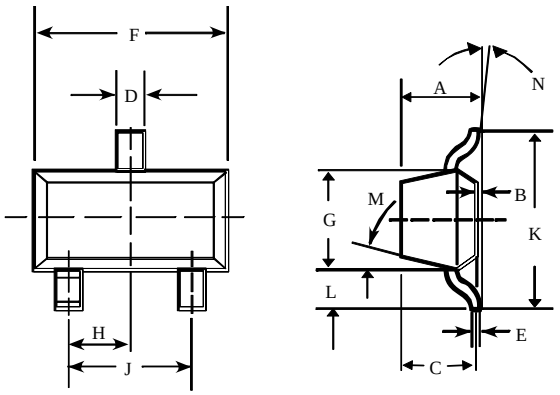
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Case Styles

SOT-23



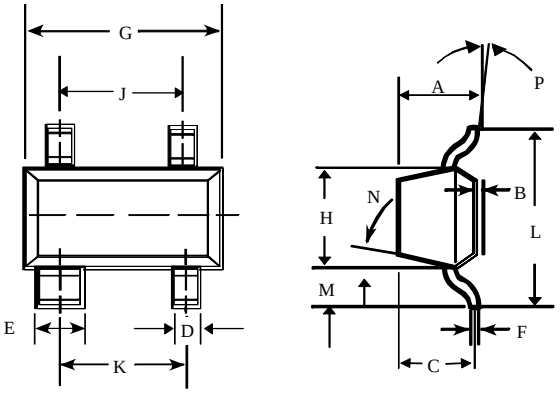
Package Parasitics
Ls = 1.4 nH
Cp = .12 pF

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.[2]			
N	2° . . .30°			

2. Applicable on all sides

SOT-143



Package Parasitics
Ls = 1.2 nH
Cp = .14 pF

SOT-143 (Case Style 1068)

	INCHES		MILLIMETERS	
DIM.	**MIN.**	**MAX.**	**MIN.**	**MAX.**
A	-	0.044	-	1.10
B	-	0.004	-	0.10
C	-	0.040	-	1.00
D	0.013	0.020	0.35	0.50
E	0.030	0.035	0.75	0.90
F	0.003	0.006	0.08	0.15
G	0.110	0.119	2.80	3.00
H	0.047	0.056	1.20	1.40
J	0.075 typical		1.90 typical	
K	0.075 typical		1.90 typical	
L	-	0.103	-	2.6
M	-	0.024	-	0.6
DIM.	**GRADIENT**			
N	10° max. [3]			
P	2° . . . 30°			

3. Applicable on all sides

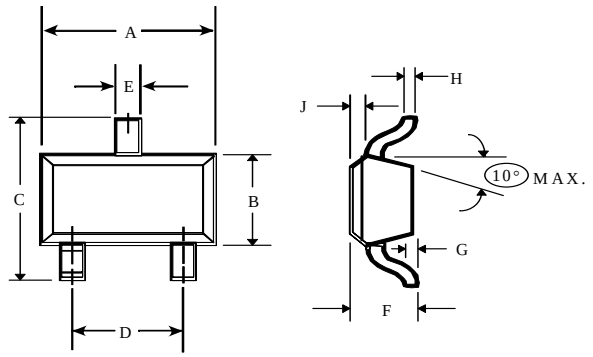
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Case Styles (Cont'd)

SOT-323

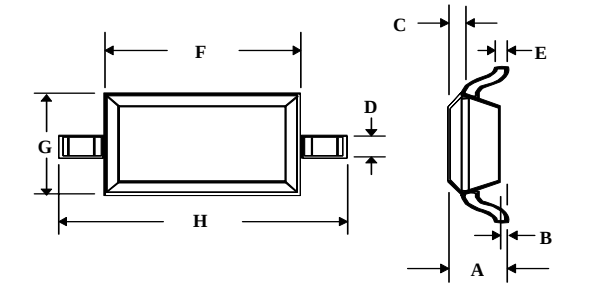


Package Parasitics
Ls = 1.2 nH
Cp = .11 pF

SOT-323 (Case Style 1146)

	INCHES		MILLIMETERS	
DIM.	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

SOD-323



Package Parasitics
Ls = 1.2 nH
Cp = .11 pF

SOD-323 (Case Style 1141)

	INCHES		MILLIMETERS	
DIM.	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

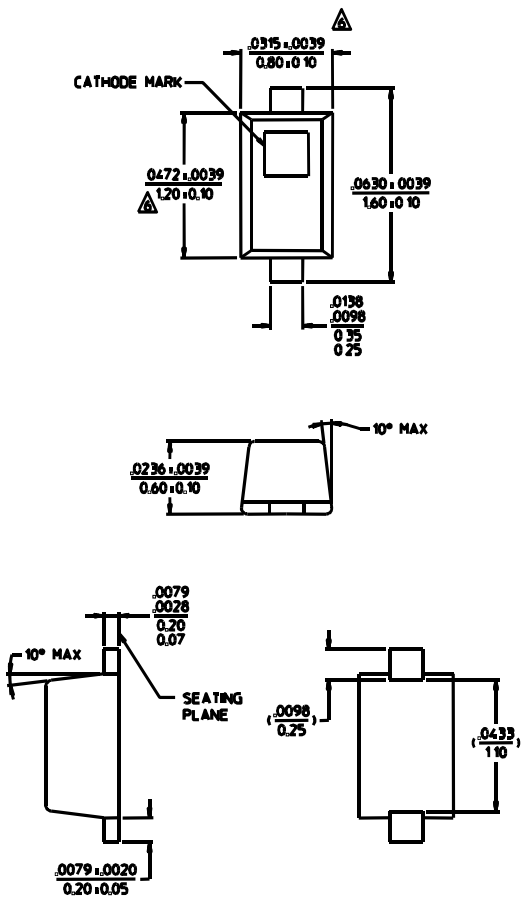
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Case Styles (Cont'd)

ODS-1279



Package Parasitics
Ls = .6 nH
Cp = .10 pF

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