

Silicon Medium Barrier  
Schottky Diodes

MA4E1340 Series  
V6

**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.

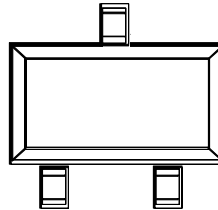
These parts are offered with Sn/Pb plating, as well as with 100 % matte Sn plating on the RoHS compliant part numbers.

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.

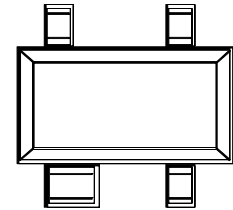
These Silicon Medium Barrier, 70 V Schottky Diodes are Useful in Detector, Limiter, Mixer, and Surge Protection Applications for Operating Frequency Bands from DC through 6 GHz.

**Package Outlines**

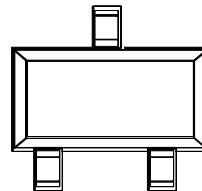
SOT-23 (287)



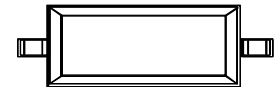
SOT-143 (1068)



SOT-323 (1146)



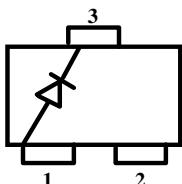
SOD-323 (1141)



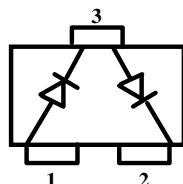
SC-79 (1279)



**Configurations (Top View)**



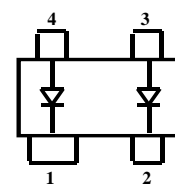
**Single**  
MA4E1340A-287T  
MA4E1340A-1146T



**Series Pair**  
MA4E1340B-287T  
MA4E1340B-1146T



**Single**  
MA4E1340A-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
MA4E1340A-1141T	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)<sup>1</sup>**

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 millisecc	mA	100
Reverse Voltage	Vb	70
Soldering Temperature (Standard Part #)	°C	+235
Soldering Temperature (RoHS Compliant Part #)	°C	+260

<sup>1</sup>Please refer to Application Note M538 for surface mounting instructions

**Electrical Specifications @ T<sub>A</sub> = +25 °C**

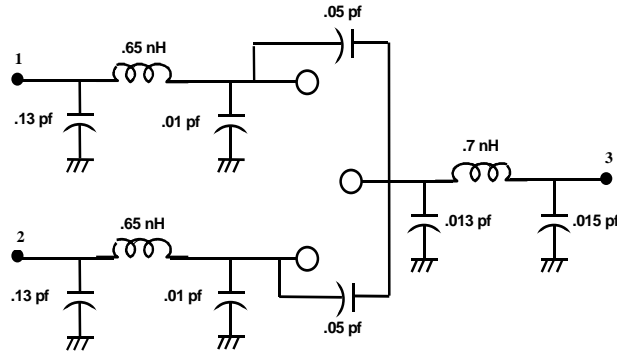
Parameter	Condition	Symbol	Specification
Forward Voltage	I <sub>F</sub> = 1 mA	V <sub>F</sub>	410 mV max.
Delta Forward Voltage	I <sub>F</sub> = 1 mA	Δ V <sub>F</sub>	20 mV max. For series pair and unconnected pair configurations
Forward Voltage	I <sub>F</sub> = 15 mA	V <sub>F</sub>	1.0 V max.
Total Capacitance	V <sub>R</sub> = 0 V F = 1 MHz	C <sub>T</sub>	1.5 pF max.
Reverse Leakage Current	V <sub>R</sub> = 50 V	I <sub>R</sub>	200 nA max.
Reverse Voltage Breakdown	I <sub>R</sub> = 10 μA	Vb	70 V min.

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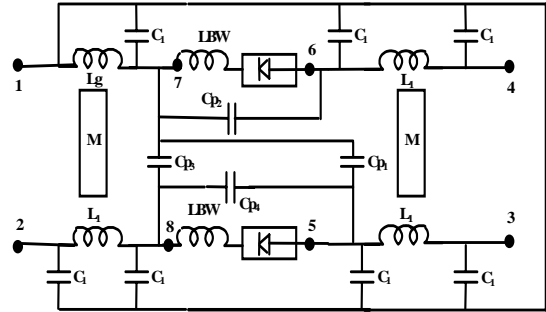
MA4E1340 Series  
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Circuit Models

SOT-23

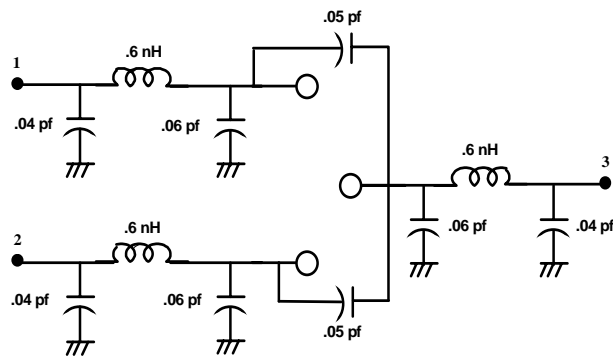


SOT-143

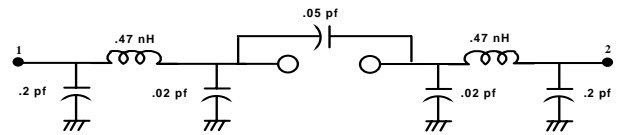


LBW = 0.08nH, Lg = 0.36nH, L1 = 0.31nH, M = 0.12nH, C1 = 0.01pF,  
Cp1 = 0.05pF, Cp2 = 0.10pF, Cp3 = 0.05pF, Cp4 = 0.03pF

SOT-323



SOD-323

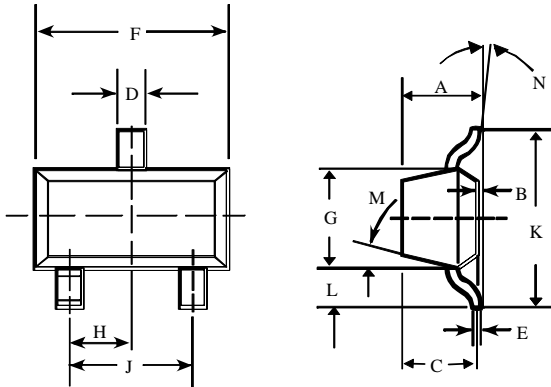


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Case Styles

SOT-23



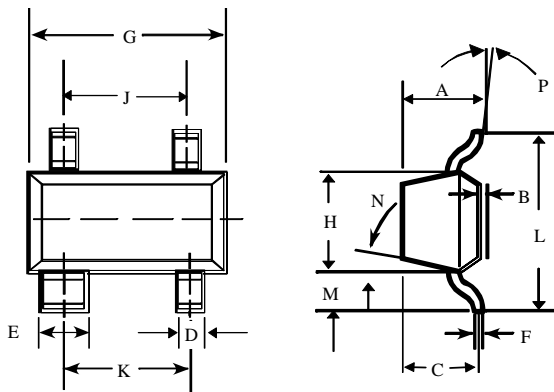
**Package Parasitics**  
Ls = 1.4 nH  
Cp = .12 pF

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
<b>DIM.</b>	<b>GRADIENT</b>			
M	10° max. <sup>1</sup>			
N	2° . . . 30°			

Note: 1. Applicable on all sides

SOT-143



**Package Parasitics**  
Ls = 1.2 nH  
Cp = .14 pF

SOT-143 (Case Style 1068)

DIM.	INCHES		MILLIMETERS	
	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
<b>DIM.</b>	<b>GRADIENT</b>			
N	10° max. <sup>1</sup>			
P	2° . . . 30°			

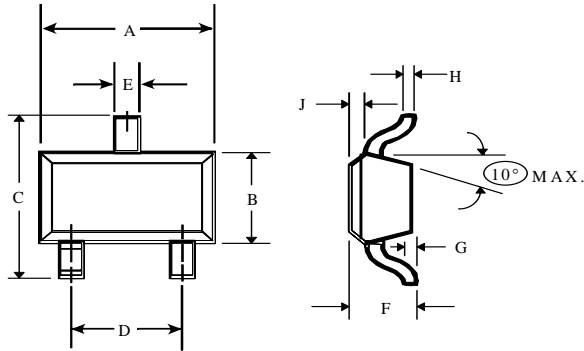
Note: 1. Applicable on all sides

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Case Styles (Cont'd)

SOT-323

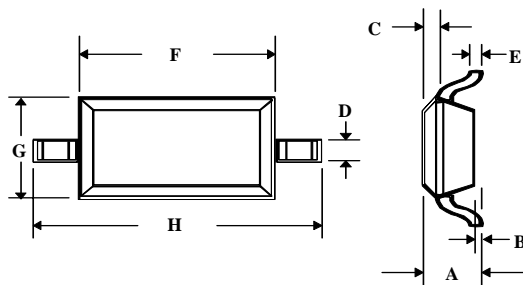


**Package Parasitics**  
Ls = 1.2 nH  
Cp = .11 pF

SOT-323 (Case Style 1146)

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

SOD-323



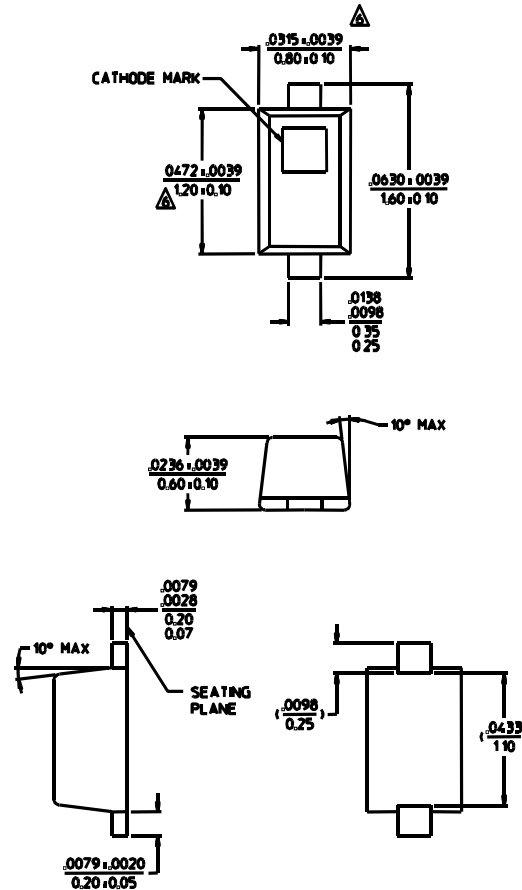
**Package Parasitics**  
Ls = 1.2 nH  
Cp = .11 pF

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

Case Styles (Cont'd)

ODS-1279



**P a c k a g e**

**Parasitics**

Ls = .6 nH

Cp = .10 pF