MA4E2200 Series

Surface Mount Zero Bias Schottky Diodes

Rev. V8

Features

- Designed for High Volume, Low Cost Detector Applications
- Available in Single and Series Pair Configurations
- Small Profile Surface Mount Packages
- Tape and Reel Deliverable
- RoHS* Compliant with 260°C Reflow Capability

Description and Applications

The MA4E2200 series are silicon zero bias P-type detector diodes assembled in low cost surface mount plastic packages. They are designed for usage in a wide variety of detector applications.

The MA4E2200 series of zero bias detector diodes are available in series pair configurations in the SOT-23 (case style 287) and are also available in a single configuration in the SOD-323 (case style 1141) and the SC-79 (1279).

The part number consists of the base number MA4E2200, followed by the wiring configuration (A, B, D), the package style (287, 1141) and a "T" for tape and reel. The SC-79 part number is MADS-002200-12790T.

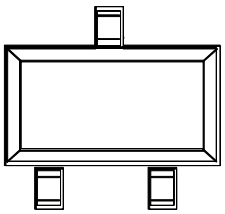
The small diode package size and moderate parasitics make these parts ideal for low leakage limiters and RF temperature compensated envelope detectors for RF ID tags applications up to 4 GHz.

Ordering Information

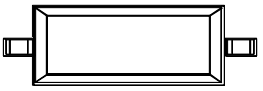
Part Number	Package Style
MA4E2200A1-1141T	SOD-323
MA4E2200B1-287T	SOT-23
MA4E2200D1-287T	SOT-23
MADS-002200-12790T	SC-79

Package Outlines

SOT-23 (287)

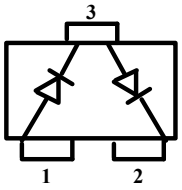


SOD-323 (1141)

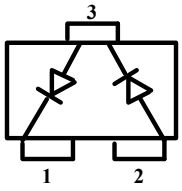


SC-79 (1279)

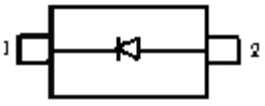
Configurations (Top View)



Series Pair
MA4E2200B1-287T



Reverse Series Pair
MA4E2200D1-287T



Single
MA4E2200A1-1141T
MADS-002200-12790T

* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

Electrical Specifications @ +25°C

Parameter	Condition	Specification
Reverse Voltage Breakdown (V_B)	I_R = 100 µA	1.5 V min.
Forward Voltage (V_F)	I_F = 1 mA I_F = 10 mA	60 - 120 mV max. 150 - 220 mV max.
Delta Forward Voltage(D V_F)	I_F = 1 mA	10 mV max.
Total Capacitance (C_T)	V_R = 0.15 V	0.25 pF typ.
Video Resistance (R_V)	—	7000 Ω typ.

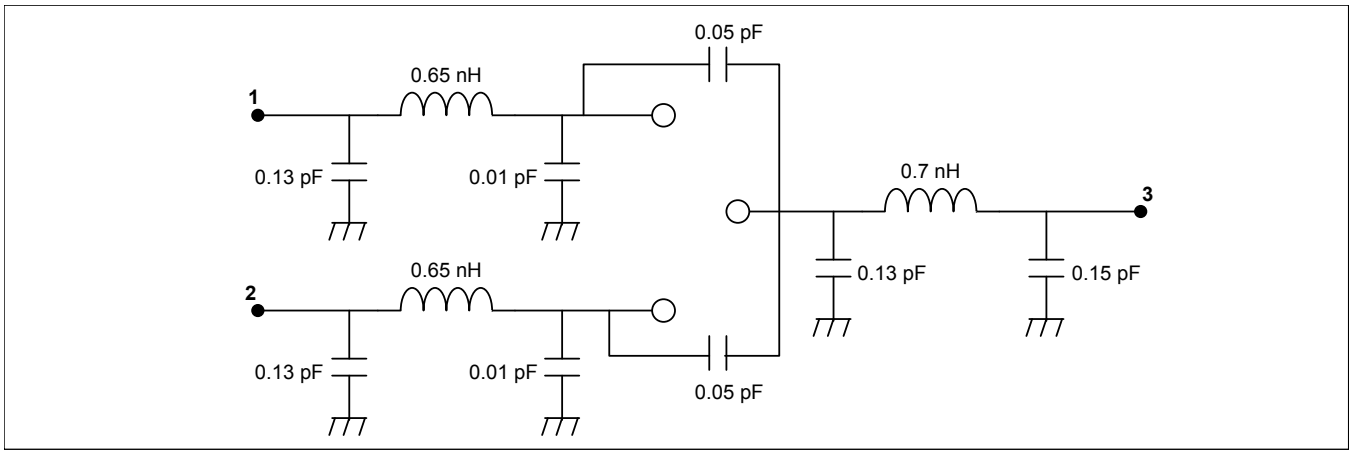
Maximum Ratings @ 25°C (unless otherwise specified)[1,2]

Parameter	Values
CW RF Incident Power	75 mW
Reverse Voltage	1.5 V
Junction Temperature	+175°C
Operating Temperature	-65°C to +125°C
Storage Temperature	-65°C to +150°C

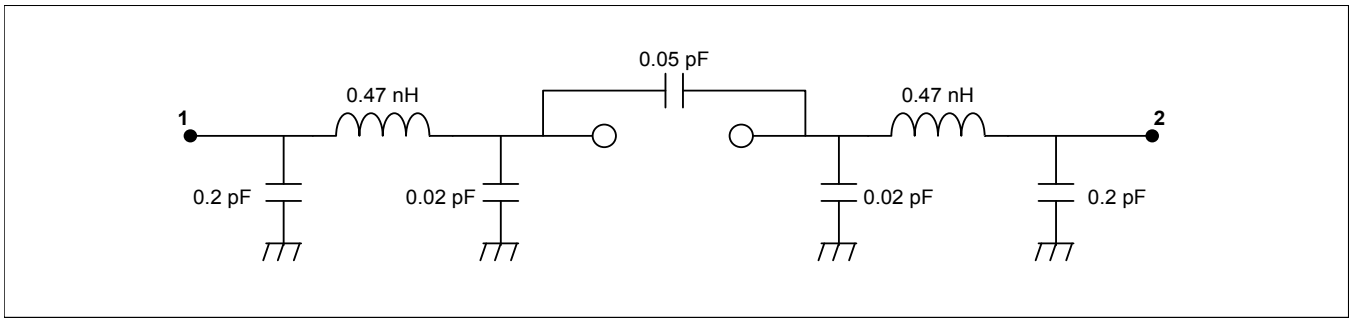
1. Operation of this device above any one of the Maximum Rated parameters may cause permanent damage.
2. Please refer to Application Note M538 for surface mounting instructions.

Circuit Models

SOT-23

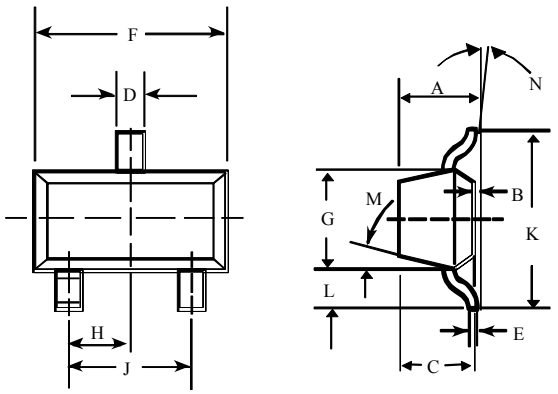


SOD-323



Case Styles

SOT-23



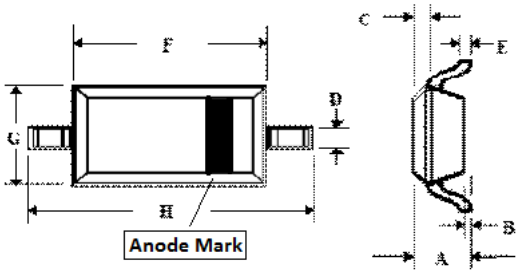
Package Parasitics
Ls = 1.4 nH
Cp = .12 pF

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
DIM.	**GRADIENT**			
M	10° max.[3]			
N	2° . . .30°			

3. Applicable on all sides

SOD-323



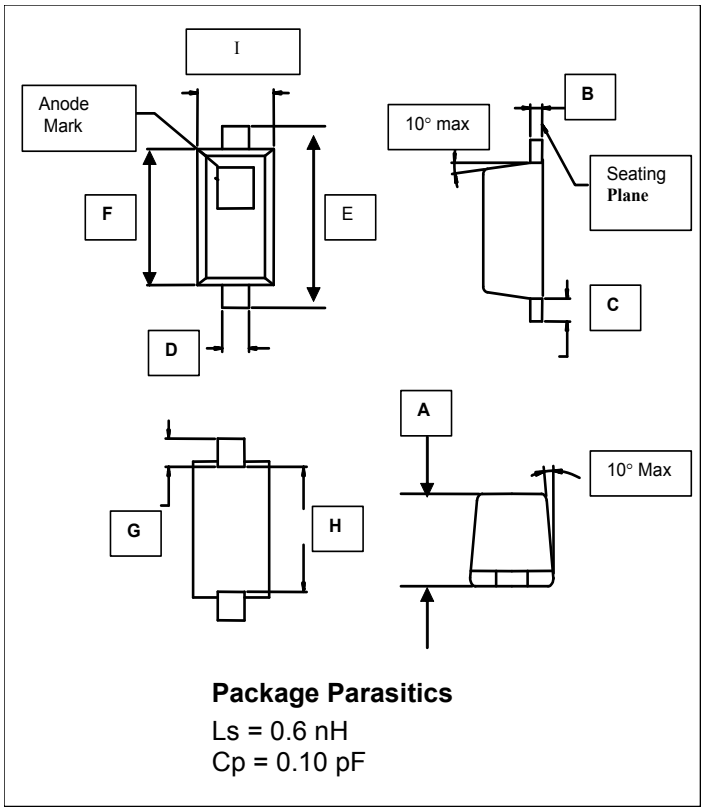
Package Parasitics
Ls = 1.2 nH
Cp = 0.11 pF

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)

SC-79



Package Parasitics

Ls = 0.6 nH

Cp = 0.10 pF

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	1.10	1.30
G	0.011	0.012	0.28	0.30
H	0.037	0.043	0.94	1.09
I	0.027	0.035	0.68	0.96