

Surface Mount Plastic PIN Diodes

Rev. V25

Electrical Specifications @ +25°C

	Reverse Voltage ¹ (V)	Total Capacitance ² Maximum (pF)	RS @ 10 mA ³ Maximum (Ohms)	Nominal Characteristics	
Part #				Carrier Lifetime⁴ (μs)	I-Region Thickness (mils)
MA4P7436 MADP-007436 Series	75	1.00 @ 20 V	0.5	0.2	0.4
MA4P7433 MADP-007433 Series	75	0.35 @ 20 V	1.5	0.2	0.4
MA4P7447 MADP-007155 Series	100	1.20 @ 20 V	0.6	1.0	0.8
MADP-007448 Series	100	0.25 @ 50 V	2.0	0.4	0.6
MA4P7455 MADP-007455 Series	100	0.35 @ 50 V	3.0	1.0	2.0
MA4P7437 MADP-007437 Series	200	0.35 @ 50 V	6.0	2.0	4.0
MA4P7438 MADP-007438 Series	200	0.35 @ 50 V	10.0	3.0	5.0
MADP-007167	200	0.30 @ 50 V	16.0	3.0	7.0

- 1. The reverse current will not exceed 10 μ A at the reverse voltage rating.
- 2. Total capacitance is measured at 1 MHz at the indicated voltage.
- 3. Series resistance is measured at the specified current and a frequency of 100 MHz.
- 4. Nominal minority carrier lifetime is measured at $I_F = 10$ mA, $I_R = 6$ mA, 90% recovery.

Absolute Maximum Ratings @ +25°C⁵ (Unless Otherwise Noted)

Parameter	Rating	
Operating Temperature		
Storage Temperature		
Junction Temperature	+175°C	
RF CW Incident Power: MA4P7447, MADP-007155 Series (θ die = 15°C/W), RF & DC Incident De-rating Coefficient = -21.3 mW/°C MA4P7436, MADP-007436 Series (θ die = 25°C/W), RF & DC Incident De-rating Coefficient = -16.8 mW/°C MA4P7438, MADP-007438Series (θ die = 30°C/W), RF & DC Incident De-rating Coefficient = -13.3 mW/°C MA4P7455, MADP-007455 Series (θ die = 35°C/W), RF & DC Incident De-rating Coefficient = -13.3 mW/°C MA4P7437, MADP-007437 Series (θ die = 45°C/W), RF & DC Incident De-rating Coefficient = -13.3 mW/°C MADP-007167 Series (θ die = 55°C/W), RF & DC Incident De-rating Coefficient = -13.3 mW/°C MA4P7433, MADP-007433 Series (θ die = 80°C/W), RF & DC Incident De-rating Coefficient = -10.7 mW/°C MADP-007448 Series (θ die = 80°C/W), RF & DC Incident De-rating Coefficient = -10.7 mW/°C	+31 dBm +30 dBm +30 dBm +30 dBm +30 dBm	
Total (RF + DC) Power Dissipation: (SOT-23,): RF & DC Dissipated De-rating Coefficient = -33.3 mW/°C (SOT-323, SOD-323, SC-79): RF & DC Dissipated De-rating Coefficient = -26.7 mW/°C	250 mW 200 mW	
Reverse Voltage	Voltage Rating	
Forward Current	150 mA DC	

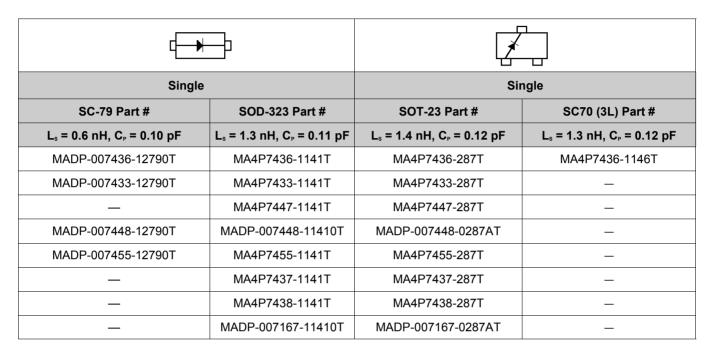
^{5.} Operation of these devices above any one of these parameters may cause permanent damage.



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Packaging and Configurations



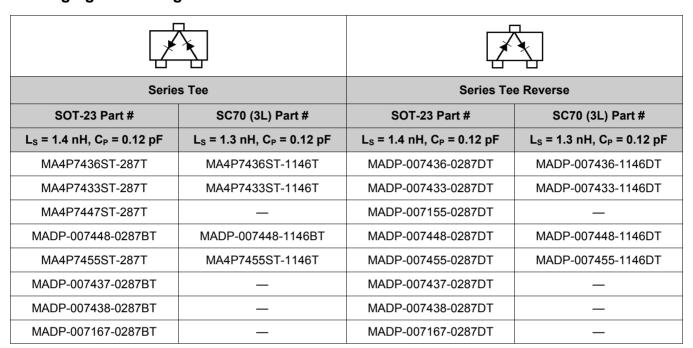
Common Cathode		Common Anode		
SOT-23 Part # SC70 (3L) Part #		SOT-23 Part #	SC70 (3L) Part #	
L _S = 1.4 nH, C _P = 0.12 pF	L _S = 1.3 nH, C _P = 0.12 pF	L _S = 1.4 nH, C _P = 0.12 pF	L _S = 1.3 nH, C _P = 0.12 pF	
MA4P7436CK-287T	MA4P7436CK-1146T	MA4P7436CA-287T	MA4P7436CA-1146T	
MA4P7433CK-287T	MA4P7433CK-1146T	MA4P7433CA-287T	MA4P7433CA-1146T	
MA4P7447CK-287T	_	MA4P7447CA-287T	_	
MADP-007448-0287FT	_	MADP-007448-0287GT	MADP-007448-1146GT	
MA4P7455CK-287T	MA4P7455CK-1146T	MA4P7455CA-287T	MA4P7455CA-1146T	
MADP-007437-0287FT	_	MA4P7437CA-287T	_	
MADP-007438-0287FT	_	MA4P7438CA-287T	_	
MADP-007167-0287FT	_	MADP-007167-0287GT	_	

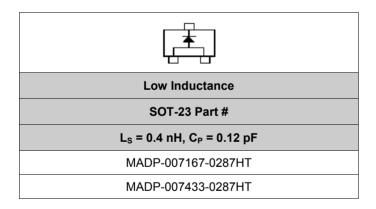


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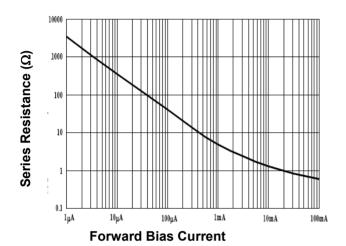


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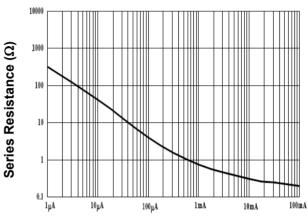
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Typical Forward Resistance vs. DC Bias Current Curves @ 100 MHz

Resistance vs. Forward Current (MA4P7455 /MADP-007155 Series)

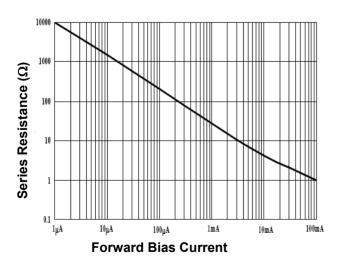


Resistance vs. Forward Current (MA4P7436 /MADP-007436 Series)

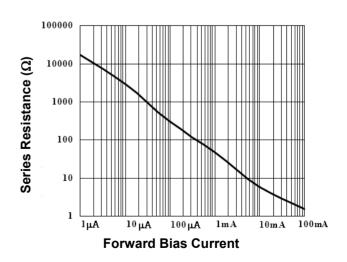


Forward Bias Current

Resistance vs. Forward Current (MA4P7437 /MADP-007437 Series)



Resistance vs. Forward Current (MA4P7438 /MADP-007438 Series)



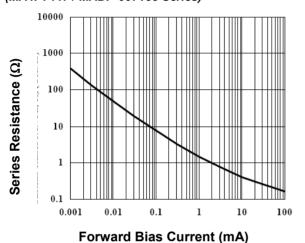


Surface Mount Plastic PIN Diodes

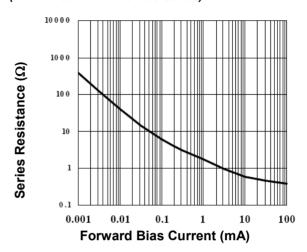
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Typical Forward Resistance vs. DC Bias Current Curves @ 100 MHz

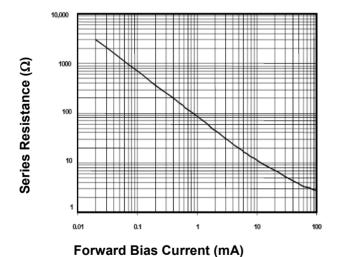
Resistance vs. Forward Current (MA4P7447 / MADP-007155 Series)



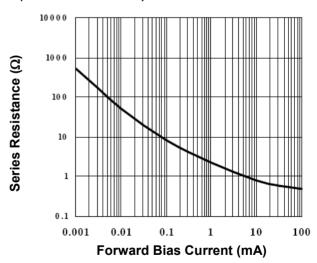
Resistance vs. Forward Current (MA4P7433/ MADP-007433 Series)



Resistance vs. Forward Current (MADP-007167 Series)



Resistance vs. Forward Current (MADP-007448 Series)



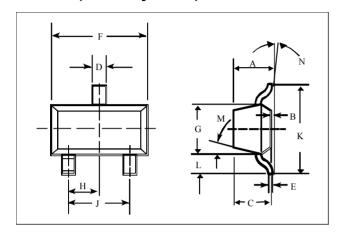


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Case Styles

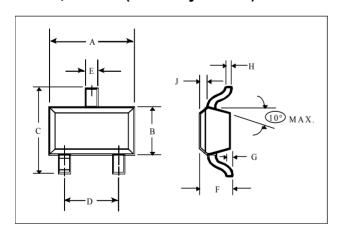
SOT-23 (Case Style 287)



DIM.	INCHES		MILLIMETERS	
DIIVI.	MIN.	MAX.	MIN.	MAX.
Α		0.048		1.22
В		0.008		0.20
С		0.040	_	1.00
D	0.013	0.020	0.35	0.50
Е	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
Н	0.037 typical		0.95 typical	
J	0.075 typical		1.90 t	ypical
K	_	0.103	_	2.60
L		0.024		0.60
DIM.	GRADIENT			
М	10° max. ⁶			
N	2°30°			

^{6.} Applicable on all sides

SC-70, 3 Lead (Case Style 1146)



DIM.	INCHES		MILLIMETERS	
DIIVI.	MIN.	MAX.	MIN.	MAX.
Α	0.071	0.087	1.80	2.21
В	0.045	0.053	1.14	1.35
С	0.071	0.094	1.80	2.39
D	0.047	0.057	1.19	1.45
E	0.010	0.016	0.25	0.41
F	0.031	0.039	0.79	1.00
G	0.000	0.004	0.00	0.10
Н	0.004	0.007	0.10	0.18
J	0.004	0.010	0.10	0.25

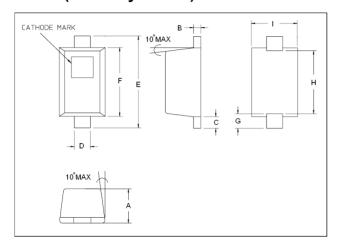


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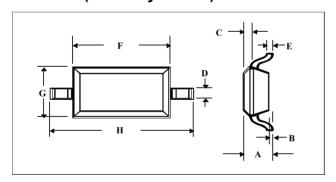
Case Styles (Cont'd)

SC-79 (Case Style 1279)



DIM.	INCHES		MILLIMETERS	
Dilvi.	MIN.	MAX.	MIN.	MAX.
Α	0.0197	0.0276	0.50	0.70
В	0.003	0.008	0.07	0.20
С	0.006	0.010	0.15	0.25
D	0.010	0.014	0.25	0.35
Е	0.059	0.067	1.50	1.70
F	0.043	0.051	1.09	1.30
G	0.0098 nominal		0.250 r	nominal
Н	0.0433 nominal		1.10 n	ominal
I	0.027	0.035	0.68	0.89

SOD-323 (Case Style 1141)



DIM.	INCHES		MILLIMETERS	
DIIVI.	MIN.	MAX.	MIN.	MAX.
Α	_	0.043		1.1
В	_	0.004		0.1
С	_	0.008		0.2
D	0.010	0.016	0.25	0.41
E	0.003	0.006	0.07	0.15
F	0.063	0.075	1.6	1.9
G	0.045	0.057	1.14	1.45
Н	0.091	0.106	2.3	2.7



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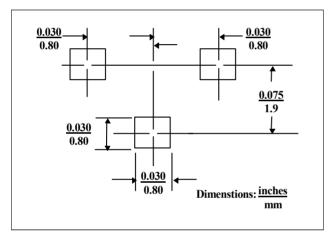
Mounting Information

The illustration indicates the recommended mounting pad configuration for the SOT-23, SOT-323, SOD-323, and SC-79 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.

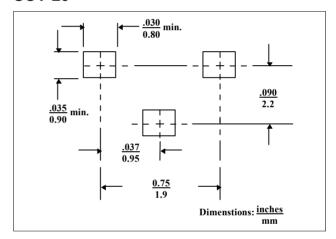
Permanent attachment is performed by a reflow soldering procedure during which the tab temperature does not exceed +275°C and the body temperature does not exceed +250°C, for standard models and +260°C for the RoHS compliant devices.

Please refer to Application Note M538 for surface mounting instructions.

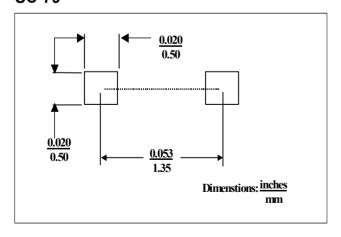
SOT-323



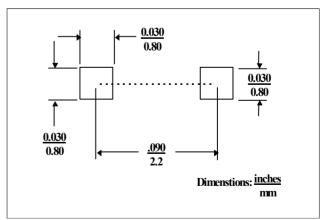
SOT-23



SC-79



SOD-323





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