

Silicon Beam Lead Schottky Barrier Diodes

MA40130 Series

V3.00

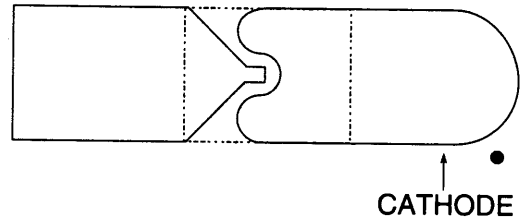
Features

- Planar Construction (Surface Oriented Diode)
- Strong Beam Construction
- Low Noise Figure (Mixer Diodes)
- Low, Medium and High Barrier Diodes Available

Description

The MA40130 series of beam lead Schottky diodes has both the Schottky junction and ohmic contact in the same plane. This makes them convenient for bonding into microstrip circuits. The Schottky junction is passivated with silicon oxide and silicon nitride to give stable reliable performance.

Case Style 965



Absolute Maximum Ratings at 25°C

Parameter	Absolute Maximum
Operating Temperature	-65°C to + 150°C
Storage Temperature	-65°C to + 150°C
Incident CW RF Power	75 mW
Incident RF Pulse Power (3ns pulse width, .001 duty cycle)	1W
Beam Strength	2g

Electrical Specifications at 25°C

Model Number	Barrier Height	Frequency Band	Maximum ¹ Junction Capacitance C_j (pF)	Typical ² Forward Voltage V_F (Volts)	Minimum ⁵ Reverse Voltage V_R	Maximum ³ Resistance R_S (Ohms)	Nominal ⁴ Noise Figure NF (dB)
MA40132	Low	X	0.2	0.28	2	10	6.5
MA40131	Low	Ku	0.1	0.31	2	15	7.5
MA40133	Medium	Ku	0.1	0.41	3	15	7.5
MA40135	High	Ku	0.1	0.61	5	15	7.5

Notes:

- C_j is measured at $V_R = 0V$ and $F = 1.0$ MHz.
- V_F is measured at $I_F = 1.0$ mA.
- Series resistance, R_S , is determined by subtracting the junction resistance, R_j , from the measured value of 10 mA dynamic (slope) resistance, R_T :
 $R_S = R_T - R_j$, Ohms
 Junction resistance is computed from:
 $R_j = 26/I_F$
 $I_F = 10$ mA
 I_F is the forward current in mA.

- Noise figure measurements are performed on single diodes sampled from every wafer lot. The noise figure specified is the maximum limit for lot approval. The test conditions are as follows:
 LO Power = 1.0 mW low and medium barrier, 2.0 mW for high barrier
 LO Frequency — 9.375 GHz (X-Band)
 16 GHz (Ku-Band)
 $I_F = 30$ MHz
 $NF_{IF} = 1.5$ dB
- V_R is measured at $I_R = 10\mu A$

Specifications Subject to Change Without Notice.

M/A-COM, Inc.

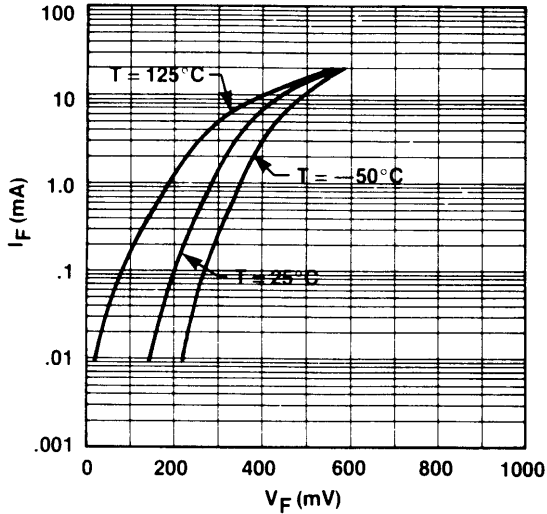
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 Fax (800) 618-8883

Asia/Pacific: Tel. +81 (03) 3226-1671
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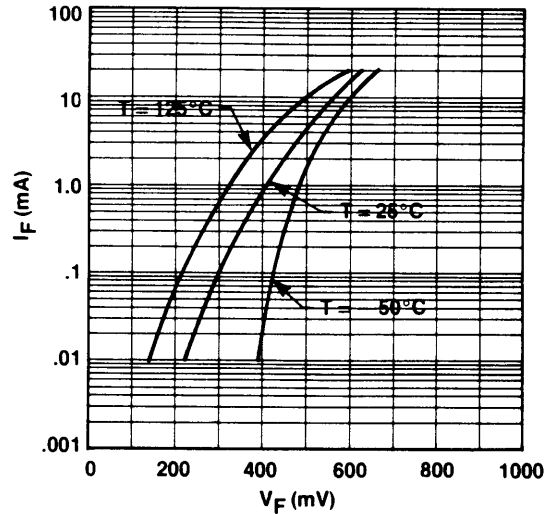
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Typical Performance Curves

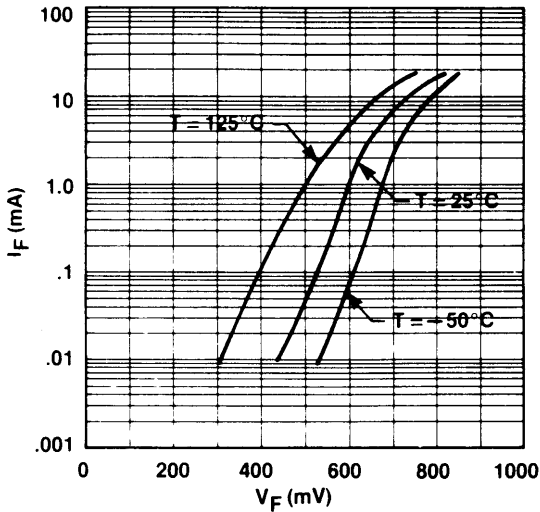
LOW BARRIER SCHOTTKY DIODE FORWARD CHARACTERISTICS vs TEMPERATURE



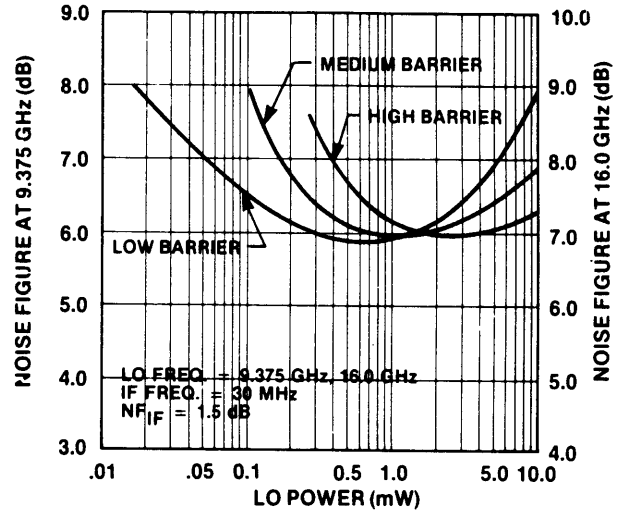
MEDIUM BARRIER SCHOTTKY DIODE FORWARD CHARACTERISTICS vs TEMPERATURE



HIGH BARRIER SCHOTTKY DIODE FORWARD CHARACTERISTICS vs TEMPERATURE



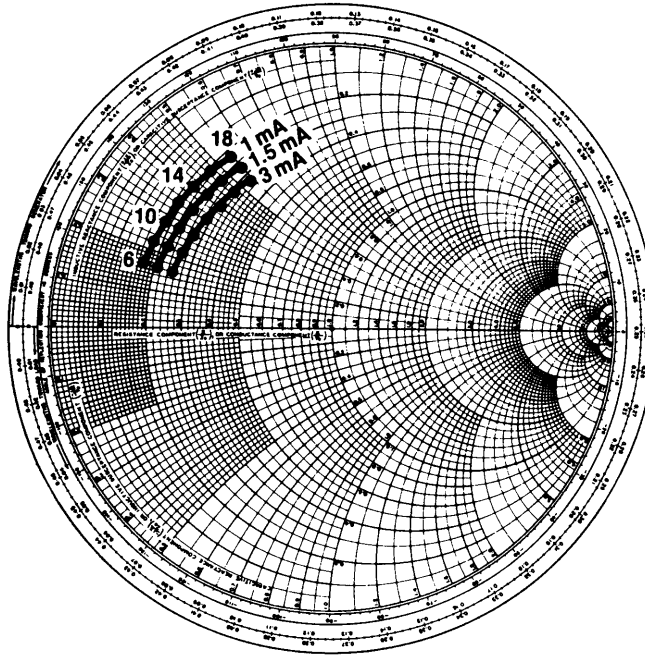
NOISE FIGURE vs LOCAL OSCILLATOR POWER



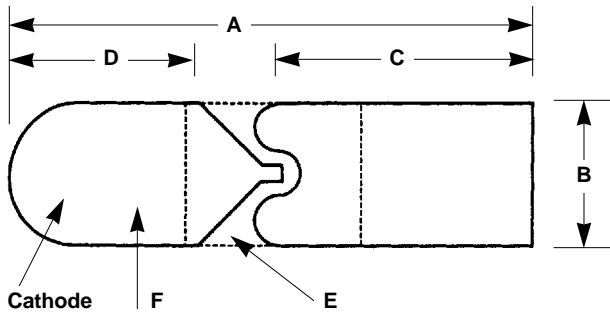
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Typical Admittance Characteristics With Self Bias

MEDIUM BARRIER AND HIGH BARRIER DIODES
MA40133 AND MA40135



Case Style 965



DIM.	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.0270	0.0290	0,686	0,737
B	0.0050	0.0060	0,127	0,152
C	0.0130	0.0140	0,330	0,356
D	0.0122	0.0132	0,310	0,335
E	0.0010	0.0015	0,0254	0,038
F	0.00025	0.0003	0,00635	0,00762

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