
Axial Lead Glass Packaged Schottky Mixer Diodes

V3.00

Features

- High Reliability
- Screening to Jantxv Level Available
- Low and Medium Barrier Diodes Available
- Low Noise Figure Through 10 GHz

Description

Two families of axial lead Schottky diodes are offered with diodes optimized for 100 MHz through 10 GHz.

Low barrier diodes require the smallest local oscillator drive.

Medium barrier diodes give good noise figure with normal local oscillator drive.

Case Style 54

(See appendix for complete dimensions)



Specifications Subject to Change Without Notice.

M/A-COM, Inc.

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Electrical Specifications at 25°C

This series of axial lead Schottky mixer diodes is designed for use in stripline or lumped element mixers from VHF through X-band. Each diode is listed by barrier height, test frequency and noise figure.

Low Barrier Mixer Diodes

Model Number	Case Style	Test Frequency (GHz)	Maximum ¹ Noise Figure (dB)	Z _{IF} Range ² Min./Max. (Ohms)
MA40103	54	9.375	6.5	250/450

Medium Barrier Mixer Diodes

Model Number	Case Style	Test Frequency (GHz)	Maximum ¹ Noise Figure (dB)	Z _{IF} Range ² Min./Max. (Ohms)
MA4882	54	1.000	5.5	125/250
MA4853	54	3.000	5.5	125/250
MA40153	54	9.375	6.5	250/450

Notes:

1. Test conditions for noise figure:

$P_{LO} = 1$ mW (for low and medium barrier)

$F_{IF} = 30$ MHz

$N_{IF} = 1.5$ dB

$R_L = 22$ Ohms

2. I_F impedance is measured by modulating the specified test frequency with a 1000 Hz signal. $R_L = 22$ Ohms. Low and medium barrier diodes are tested at an incident power level of 1 mW.

Absolute Maximum Ratings at 25°C

Parameter	Absolute Maximum
Temperature Ratings	
Storage Temperature	-65°C to +150°C
Operating Temperature	-65°C to +150°C
Maximum CW RF Power	150mW
Solder Temperature Ratings	
Soldering Temperature	230°C for 5 seconds within 1 mm of package

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Screened Diodes MIL-STD19500

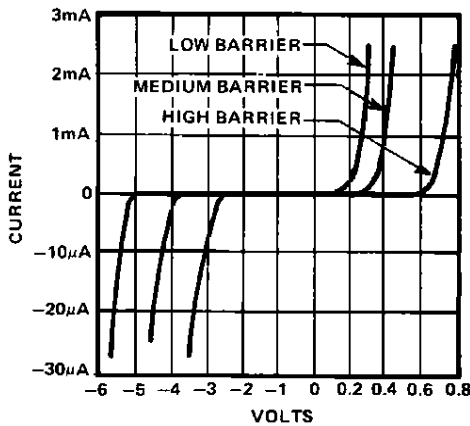
All Glass Axial Leaded Silicon Schottky mixer diodes can be screened to TX or TXV levels.

Inspection	Method	Condition
Internal Visual	2074	See Note 1
High Temperature Life (Stabilization Bake)	1032	T = 24 Hours, T _A = +150 °C
Thermal Shock	1056	20 cycles -65 °C to +125 °C, T extreme > 10 minutes
Constant Acceleration	2006	20,000 g's, Y1 direction
Fine Leak	1071	H
Gross Leak	1071	C or E
Electrical		See Note
HTRB	1038	T _A = +150 °C V _R = 80% V _B T = 48 Hours Minimum
Pre-Burn-In Electrical		See Note
Burn-In	1038	Condition B T _A = +25 °C I _{pk} = 10 mA T = 96 Hours Minimum
Final Electricals and Delta		See Note

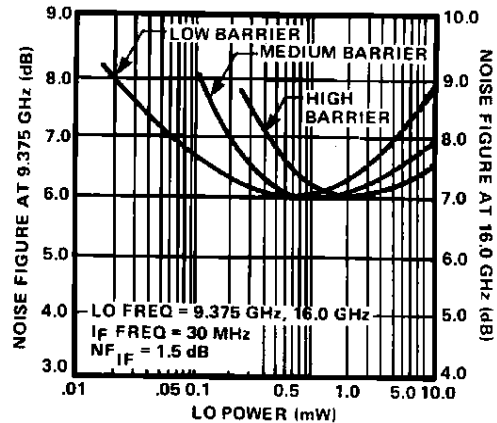
Note:
Conditions and details of test depend on the specific model number. Information is available from the factory upon request.

Typical Performance Curves

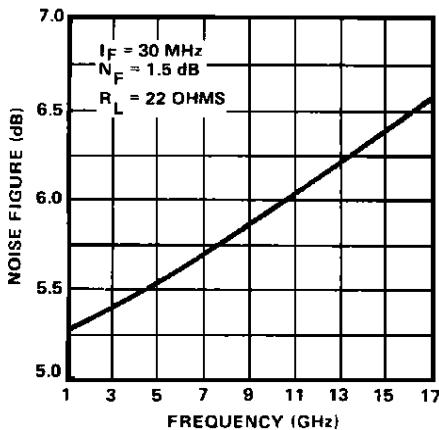
1-V CHARACTERISTICS AND BARRIER HEIGHTS FOR SCHOTTKY MIXER DIODES



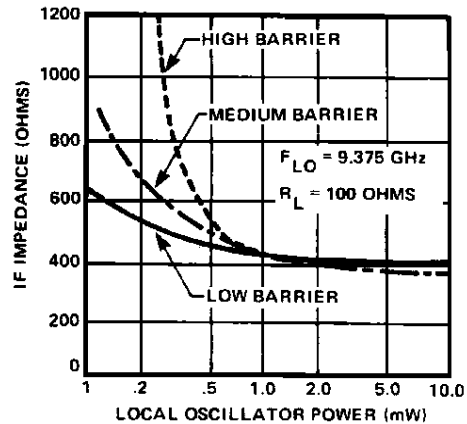
SCHOTTKY BARRIER NOISE FIGURE vs LO POWER



NOMINAL NOISE FIGURE vs FREQUENCY



NOMINAL IF IMPEDANCE vs LOCAL OSCILLATOR DRIVE



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