

Silicon Schottky Mixer Diode Chips

V 2.00

Features

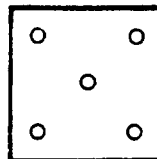
- Multi-Junction Chip for Higher Yield
- Low Noise Figure Through 26 GHz
- Small Junction Capacitance
- Low and Medium Barrier Diodes

Description

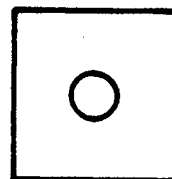
This series of chip silicon Schottky mixer diodes have gold anode and cathode metallization and are designed for easy assembly in microstrip mixer circuits through 26 GHz.

Two chips are offered, a chip with five individual junctions (Case Style 135) and a larger capacitance single junction (Case Style 1009) chip.

Case Styles



135



1009

Maximum Ratings

Temperature Range	
Storage Temperature	- 65°C to + 150°C
Operating Temperature	- 65°C to + 150°C
Power Ratings	
Maximum Peak Incident RF Power	C-X Band 1 Watt for 1 microsecond Ku-K Band 0.5 Watt for 1 microsecond
Maximum CW Incident RF Power	C-X Band 150 mW Ku-X Band 100 mW

Specifications Subject to Change Without Notice.

Specifications @ $T_A = 25^\circ\text{C}$

RF characteristics are tested on a sample basis.

Low Barrier Chip Mixer Diodes

Low barrier diodes are most suitable for applications where the local oscillator drive level is between -3 and +3 dBm per diode.

Model Number	Case Style ⁵	Test Frequency (GHz)	Nominal ¹ Noise Figure (dB)	Maximum ² Junction Capacitance (pF)	Minimum ³ Reverse Voltage V_R	Nominal ⁴ Forward Voltage (V)
MA4E968	1009	3.000	5.5	0.60	2	0.24
MA4E971	1009	6.000	5.5	0.45	2	0.26
MA40137	135	9.375	6.0	0.18	2	0.30
MA40120	135	16.000	6.5	0.15	2	0.30
MA4E915	135	24.000	7.5	0.10	2	0.31

Medium Barrier Chip Mixer Diodes

Medium barrier diodes are most suitable for applications where the local oscillator drive level is between 0 dBm and +10 dBm per diode.

Model Number	Case Style ⁵	Test Frequency (GHz)	Nominal ¹ Noise Figure (dB)	Maximum ² Junction Capacitance (pF)	Minimum ³ Reverse Voltage V_R	Nominal ⁴ Forward Voltage (V)
MA4E969	1009	3.000	5.5	0.60	3	0.34
MA40138	135	9.375	6.0	0.18	3	0.40
MA40170	135	16.000	6.5	0.15	3	0.40
MA4E921	135	24.000	7.5	0.10	3	0.41

Notes:

1. Test Conditions: (Chips are packaged for NF testing). Water lots are approved on a sample basis.

$P_{LO} = 1.0$ mW (for low and medium barrier)

$F_{IF} = 30.0$ MHz

$N_{IF} = 1.5$ dBm

$R_L = 22$ Ohms

2. Measurement frequency = 1 MHz; Voltage = 0 volts

3. Reverse voltage is measured at 10 microamps.

4. Measured at forward current of 10 milliamps.

5. See appendix for complete dimensions.

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M/A-COM, Inc.

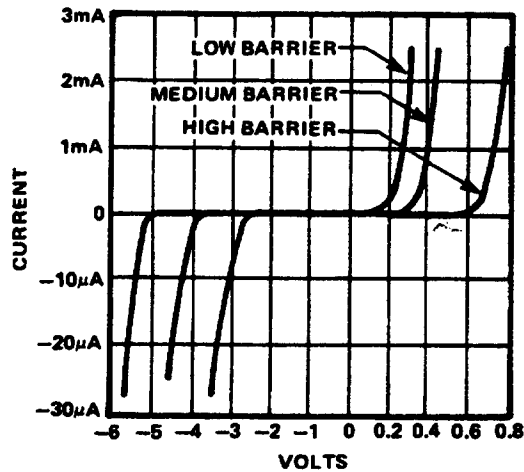
North America: Tel. (800) 366-2266
Fax (800) 618-8883

■ Asia/Pacific: Tel. +81 (03) 3226-1671
Fax +81 (03) 3226-1451

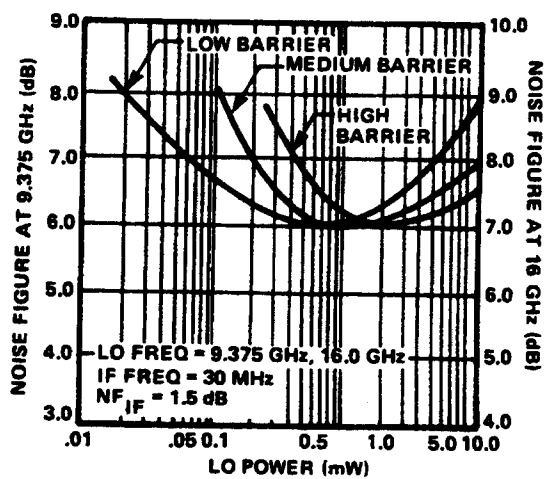
■ Europe: Tel. +44 (1344) 869 5
Fax +44 (1344) 300 0

Typical Performance Curves¹

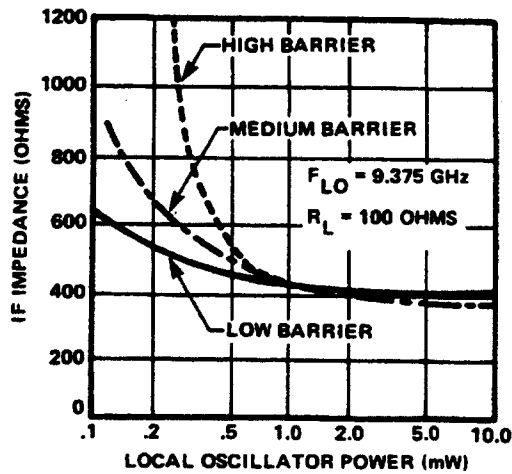
NOMINAL I-V CHARACTERISTICS AND BARRIER HEIGHT FOR SCHOTTKY MIXER DIODES



NOMINAL SCHOTTKY BARRIER NOISE FIGURE vs LO POWER



NOMINAL IF IMPEDANCE vs LOCAL OSCILLATOR DRIVE



Note:
1. High barrier diodes are not offered as chips.

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