SILICON SCHOTTKY MIXER DIODES

SPECIFICATIONS @ +25°C

LOW BARRIER

Low barrier diodes are required for applications where the local oscillator drive level is between -10dBm and +10dBm.

Type Number	Test Frequency (GHz)	Noise Figure (dB) Max	VSWR Max	Z_{IF} Range (Ohms)	Package Description	Case Style
ML40103	9.375	6.5	1.5	250 - 450	Glass Axial Lead	54
ML40104	9.375	7.0	2.0	250 - 450	Glass Axial Lead	54
ML40121	9.375	6.5	-	250 - 450	LID	81
ML40100	9.375	6.0	1.5	250 - 450	Ceramic MQM	119
ML40101	9.375	6.5	1.5	250 - 450	Ceramic MQM	119
ML40102	9.375	7.0	2.0	250 - 450	Ceramic MQM	119
ML40105	9.375	6.0	1.5	250 - 450	Ceramic Pill	120, 276
ML40106	9.375	6.5	1.5	250 - 450	Ceramic Pill	120, 276
ML40107	9.375	7.0	2.0	250 - 450	Ceramic Pill	120, 276
ML40126	9.375	6.0	1.5	250 - 450	Hermetic Stripline	186
ML40127	9.375	6.5	1.5	250 - 450	Hermetic Stripline	186
ML40128	9.375	7.0	2.0	250 - 450	Hermetic Stripline	186
ML40110	16.0	6.5	1.5	250 - 450	Ceramic MQM	119
ML40111	16.0	7.0	2.0	250 - 450	Ceramic MQM	119
ML40115	16.0	6.5	1.5	250 - 450	Ceramic Pill	120, 276
ML40116	16.0	7.0	2.0	250 - 450	Cermaic Pill	120, 276

MEDIUM BARRIER

Medium barrier diodes are required for applications where local oscillator drive level is between -5dBm and +15dBm.

Type Number	Test Frequency (GHz)	Noise Figure (dB) Max	VSWR Max	Z_{IF} Range (Ohms)	Package Description	Case Style
ML40129	3.0	5.5	1.5	125 - 250	Glass Axial Lead	54
ML40130	3.0	6.5	1.5	125 - 250	Glass Axial Lead	54
ML40131	3.0	7.5	2.0	125 - 250	Glass Axial Lead	54
ML40132	3.0	5.5	1.6	200 - 400	MQM	81
ML40133	3.0	6.0	1.6	200 - 400	MQM	119
ML40134	3.0	6.5	1.8	200 - 400	MQM	119
ML40135	6.0	5.5	1.5	200 - 500	Stripline	120, 276
ML40136	6.0	6.0	1.5	200 - 500	Stripline	120, 276
ML40137	6.0	7.0	2.0	200 - 500	Stripline	120, 276
ML40153	9.375	6.5	1.5	250 - 400	Glass Axial Lead	54
ML40154	9.375	7.0	2.0	200 - 400	Glass Axial Lead	54
ML40138	9.375	7.5	2.0	250 - 500	Glass Axial Lead	54
ML40139	9.375	8.5	1.8	250 - 500	Glass Axial Lead	54
ML40171	9.375	6.5	-	250 - 500	LID	81
ML40151	9.375	6.5	1.5	250 - 400	Ceramic MQM	119
ML40152	9.375	7.0	2.0	250 - 400	Ceramic MQM	119
ML40155	9.375	6.0	1.5	250 - 500	Ceramic Pill	120, 276
ML40156	9.375	6.5	1.5	250 - 500	Ceramic Pill	120, 276
ML40157	9.375	7.0	2.0	250 - 500	Ceramic Pill	120, 276
ML40176	9.375	6.0	-	250 - 450	Hermetic Stripline	186
ML40177	9.375	6.5	-	250 - 450	Hermetic Stripline	186
ML40178	9.375	7.0	-	250 - 450	Hermetic Stripline	186
ML40140	16.0	6.5	2.0	300 - 550	Coaxial	11
ML40141	16.0	7.0	2.0	350 - 550	Coaxial	11
ML40142	16.0	7.5	2.0	300 - 550	Coaxial	11
ML40143	16.0	8.0	2.5	300 - 550	Coaxial	11
ML40160	16.0	6.5	1.5	250 - 450	Ceramic MQM	119
ML40161	16.0	7.0	2.0	250 - 450	Ceramic MQM	119
ML40165	16.0	6.5	1.5	250 - 450	Ceramic Pill	120, 276
ML40166	16.0	7.0	2.0	250 - 450	Ceramic Pill	120,276

HIGH BARRIER

High barrier diodes are required for applications where the local oscillator drive level is between 0dBm and +20dBm.

Type Number	Test Frequency (GHz)	Noise Figure (dB) Max	VSWR Max	Z_{IF} Range (Ohms)	Package Description	Case Style
ML40108	9.375	7.0	2.0	250 - 450	Glass Axial Lead	54
ML40109	9.375	6.5	-	250 - 450	LID	81
ML40117	9.375	6.0	1.5	250 - 450	Ceramic MQM	119
ML40118	9.375	6.5	1.5	250 - 450	Ceramic MQM	119
ML40119	9.375	7.0	2.0	250 - 450	Ceramic MQM	119
ML40167	9.375	6.0	1.5	250 - 450	Ceramic Pill	120, 276
ML40168	9.375	6.5	1.5	250 - 450	Ceramic Pill	120, 276
ML40169	9.375	7.0	2.0	250 - 450	Ceramic Pill	120, 276
ML40186	9.375	6.0	1.5	250 - 450	Hermetic Stripline	186
ML40187	9.375	6.5	1.5	250 - 450	Hermetic Stripline	186
ML40189	9.375	7.0	2.0	250 - 450	Hermetic Stripline	186
ML40196	16.0	6.5	1.5	250 - 450	Ceramic MQM	119
ML40197	16.0	7.0	2.0	250 - 450	Ceramic MQM	119
ML40198	16.0	6.5	1.5	250 - 4.50	Ceramic Pill	120, 276

NOTES

1. All mixer diodes are available as matched pairs and can be ordered by adding the suffix 'M' to the diode model number. Bin matching is available upon request. The matching criteria is as follows:

   Nf = 0.3dB maximum. Zif = 25 ohms maximum.

2. The maximum solder temperature is 230°C for 5 seconds. Case styles other than those indicated are available on request. Consult the factory.

3. Test conditions for noise figure:
   - P_{LO} = 1mW (for low and medium barrier)
   - P_{LO} = 2mW (for high barrier)
   - F_{IF} = 30MHz
   - N_{IF} = 1.5dB (minimum)
   - R_L = 22 ohms

4. VSWR for low and medium barrier diodes is tested at LO power of 1.0mW. High barrier diodes are tested at an LO power level of 2.0mW.
   - R_L = 22 ohms.

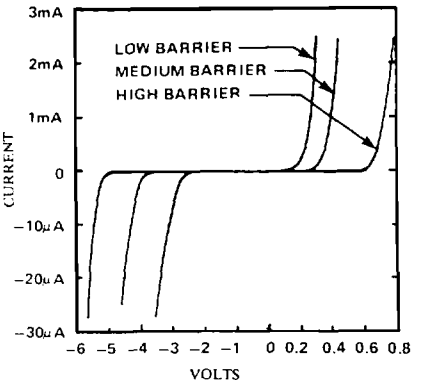
5. IF impedance is measured by modulating the specified test frequency with a 1000Hz signal. R_L = 22 ohms. Low and medium barrier diodes are tested at an incident power level of 1.0mW. High barrier diodes are tested at an incident power level of 2.0mW.

6. Storage/Operating Temperature -65°C to +150°C

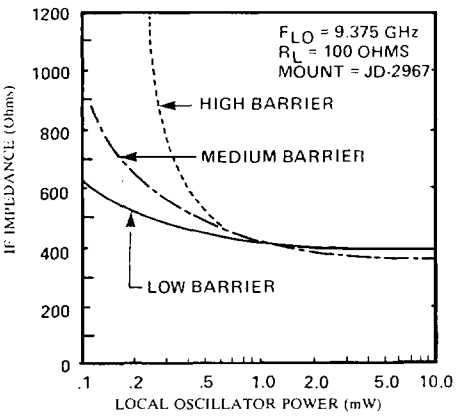
7. Power Ratings at 25°C
   - Maximum Peak RF Incident Power: C-X Band 1 Watt for 1 microsecond maximum; Ku-K Band 0.5 watt for 1 microsecond maximum
   - Maximum CW RF Incident Power: C-X Band 150mW; Ku-K Band 100mW

8. Solder Temperature Rating 200°C for 5 seconds, 1mm from package

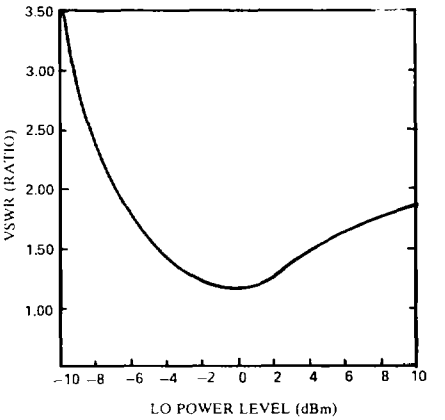
TYPICAL PERFORMANCE



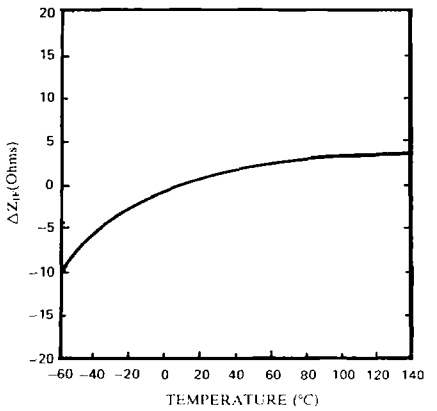
I-V CHARACTERISTICS AND BARRIER HEIGHTS FOR SCHOTTKY MIXER DIODES



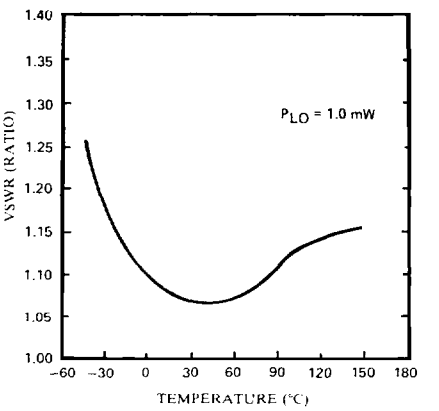
IF IMPEDANCE VS LOCAL OSCILLATOR DRIVE



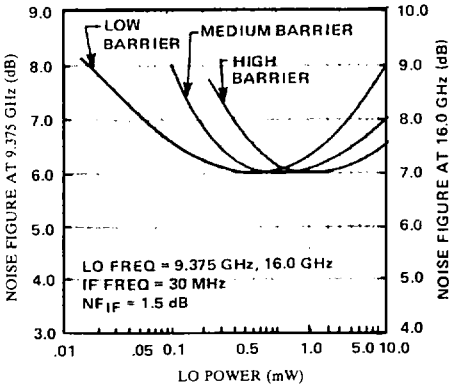
RF IMPEDANCE VS LOCAL OSCILLATOR POWER



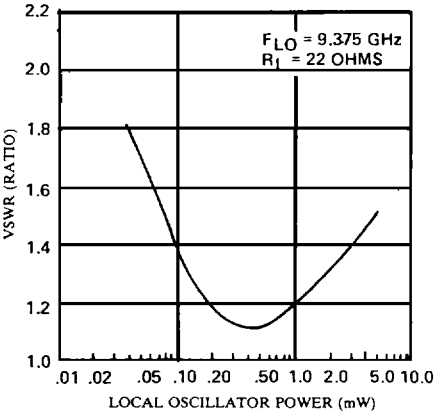
CHANGE IN IF IMPEDANCE VS TEMPERATURE



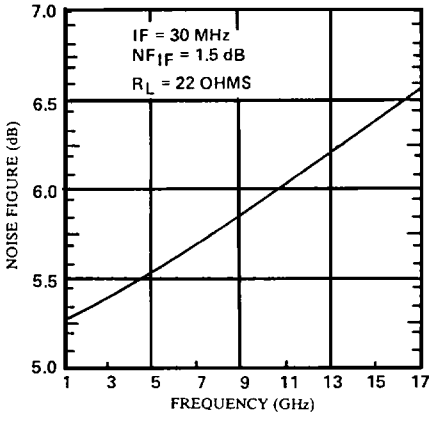
RF IMPEDANCE VS TEMPERATURE



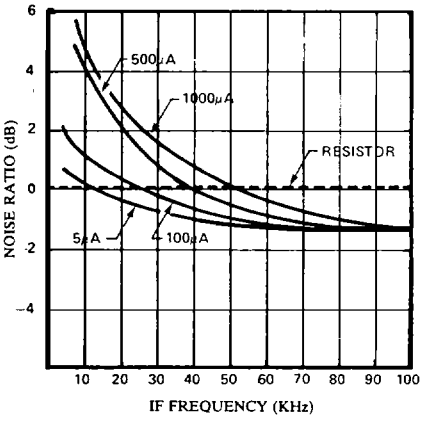
SCHOTTKY BARRIER NOISE FIGURE VS LO POWER



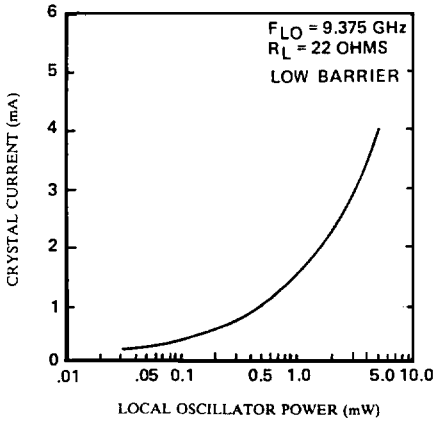
VSWR VS LOCAL OSCILLATOR DRIVE



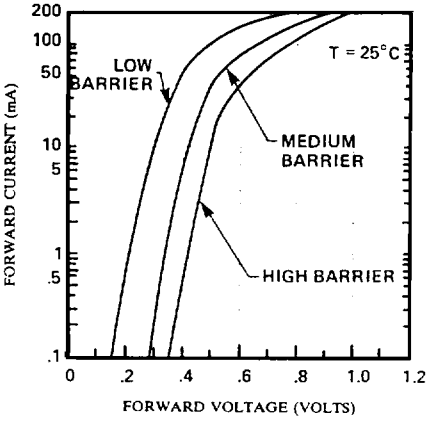
NOISE FIGURE VS FREQUENCY



DIODE NOISE RATIO VS IF FREQUENCY



CRYSTAL CURRENT VS LOCAL OSCILLATOR DRIVE



FORWARD CURRENT VS FORWARD VOLTAGE