

Schottky Detector Diodes

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Rev. V4

Features

- Wide Selection of Packages for Stripline, Coaxial, and Waveguide Detectors
- Chip Diodes Available
- N Type Diodes
- Low 1/F Noise

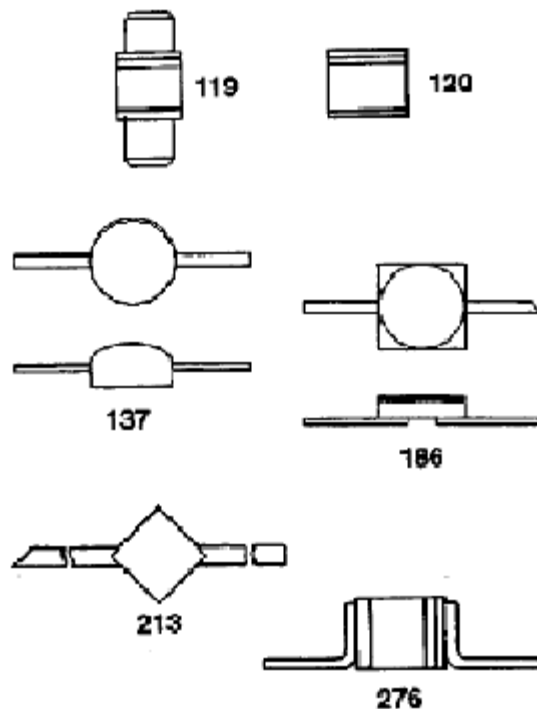
Description

This family of low capacitance Schottky diodes is designed to give superior performance in video detectors and power monitors from 100 MHz through 16 GHz. They have low junction capacitance and repeatable video impedance. These diodes are available in a wide range of ceramic, stripline and axial lead packages and as bondable chips.

Applications

Detectors and power monitors in stripline, coaxial and waveguide circuits through 16GHz.

Case Styles



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Maximum Ratings

Temperature Ratings Storage Operating Temperature	-65°C to +150°C (Case Styles 54, 119, 120, 135, 135A, 186, 276) -65°C to +125°C (Case Styles 137, 213)
Power Ratings @ 25°C Maximum Peak Incident RF Power Maximum CW RF Power Derate Linearity to Zero at 150°C	S-X Band 1 Watt - 1 microsecond maximum pulse length Ku-K Band 0.5 W - 1 microsecond maximum pulse length S-X Band 150 mW (maximum) Ku-K Band 100 mW (maximum)
Solder Temperature For case styles 54, 119, 186, 276 For case style 120 For case styles 137 and 213	230°C for 5 seconds, 1 mm from package 200°C for 5 seconds 150°C for 5 seconds, 1 mm from package

Packaged N Type Silicon Schottky Detector Diodes

These low barrier packaged detector diodes are suitable for use in waveguide and coaxial detectors. They feature high sensitivity and low 1/f noise. These diodes are listed by increasing test frequency, grouped by packages style and decreasing T_{ss}. Other case styles than those specified may be available.

Specifications @ T_A = +25°C

Model Number ¹	Case Style	Test Frequency (GHz)	Maximum ^{2,3} Tang. Signal Sensitivity T _{ss} (dBm)	Video Impedance ^{3,4} Range Min./Max. (k Ohms)
MA40201	119	10	-55	1/2
MA40205	119	16	-52	1/2
MA40215	120	16	-52	1/2

Notes:

- Schottky barrier junction diodes are thermocompression bonded in case style 119 and 120. The standard case style is given for each model number. Other case styles may be available.
- The video amplifier bandwidth is 1 MHz and the nominal amplifier noise figure is 3 dB. DC Impedance is 10 k ohms.
- The DC bias is 20 µA.
- RF Power = 30 dBm. The DC forward bias is +20 µA.
- Measured at the indicated test frequency and at -30 dBm RF power.

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N Type Silicon Schottky Detector Diodes

These low barrier packaged detector diodes are suitable for use in stripline applications. They feature high sensitivity, and low 1/f noise. These diodes are listed by increasing frequency, and grouped by package style and T_{SS}. Case styles other than those specified may be available. For additional information, contact the factory.

Model Number	Case Style	Test Frequency (GHz)	Minimum ¹ Tang. Signal Sensitivity T _{SS} (dBm)	Video Impedance ² Range Min./Max. (K Ohms)
MA40261	186	3	-55	1/2
MA40143	213	3	-50	1/2
MA40264	186	10	-55	1/2
MA40147	213	10	-55	1/2
MA40208-276	276	10	-52	1/2
MA40215-276	276	16	-52	1/2

Notes:

1. The video amplifier bandwidth is 1 MHz and the noise figure is 3 dB. The Input Impedance is 10 k Ohms and DC Bias is 20 µA.
2. P_{inc} = -30 dBm. The DC forward bias is +20 µA.

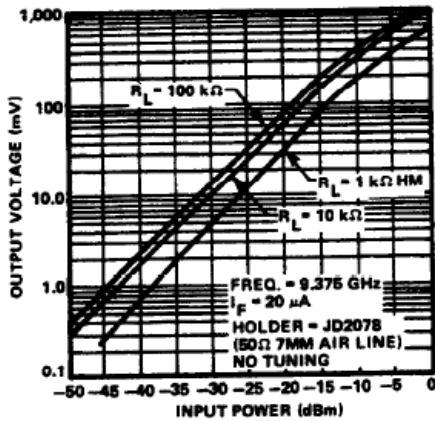
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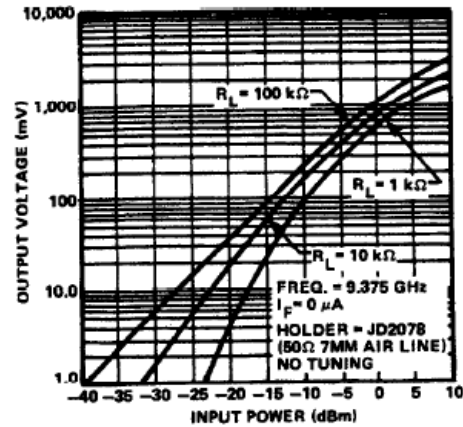
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Typical Performance Curves

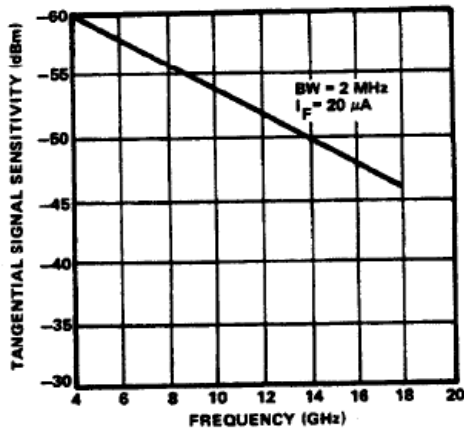
Nominal Output Voltage at X-Band (With Forward Bias)



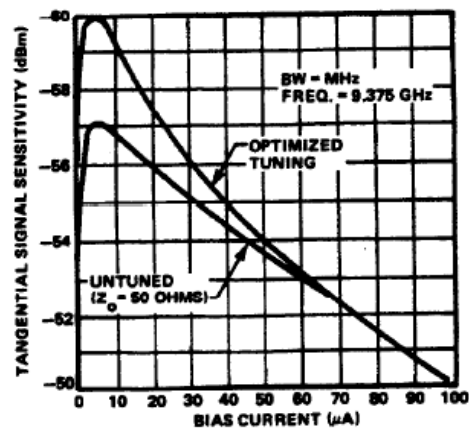
Nominal Output Voltage at X-Band (With Zero Bias)



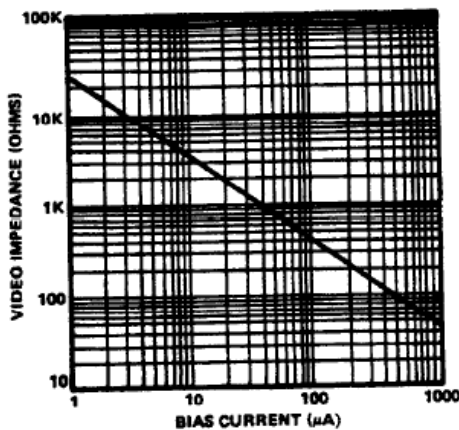
Nominal Tangential Signal Sensitivity vs. Frequency



Nominal Tangential Signal Sensitivity vs. Bias Current at X-Band



Nominal Video Impedance vs. Bias Current



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