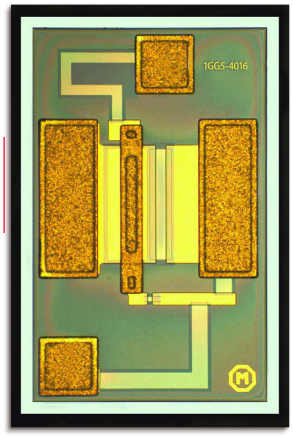
Keysight 1GG5-4016
0.2 to 20 GHz Integrated Directional Detector

Data Sheet



Features

- Frequency range: 0.2 to 20 GHz
- Coupling flatness: ±1 dB
- Directivity: >15 dB
- Return loss: >15 dB
- Insertion loss: <1.5 dB
- Sensitivity: 18 mV/mW
- Max input power: 25 dBm @ 70 °C, 2:1 source VSWR, output open circuit (see graph of max power vs. source and load)
- Detector polarity: Negative

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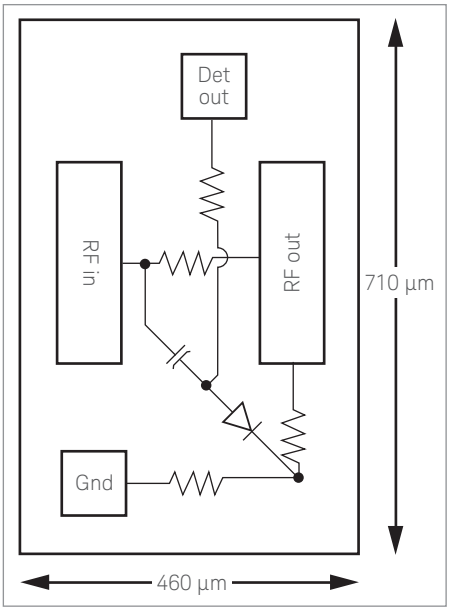
Description

The 1GG5-4016 is a low-loss, directional detector with an integrated diode, capacitor, and resistors on chip. It is fabricated using Keysight Technologies, Inc.'s Modified Barrier Schottky Diode process and is packaged in a compact and easy to mount QFN package. No external resists are required for low cost operation. The device has bond pads (not beam leaded) and is designed for low cost applications. No external resistors are required.



1GG5-4016 GaAs integrated directional detector

Absolute maximum ratings[1,2]

Symbol	Parameters/conditions	Min.	Max.	Units
P_{max}	Max instantaneous input power (burn-out damage limit)		25	dBm
T_{stg}	Storage temperature		150	°C
T_{bs}	Package backside temperature	–40	+85	°C
T_{stg}	Storage temperature	–65	+150	°C
T_{assy}[3]	Maximum solder reflow temp. (max. 3 cycles @ 30 sec./cycle)		+260	°C

1. Parameters specified for continuous operation at T_{bs} ≤85 °C.
2. Operation in excess of any one of these conditions may result in permanent damage to this component.
3. Refer to JEDEC J-STD-020D for detailed reflow profile, 3 reflows max.

Applications

The 1GG5-4016 is commonly used in ALC (Automatic Leveling Control) loops and power detection at device input and output ports while providing minimum insertion loss.

RoHS Compliance

This device is RoHS Compliant. This means the component meets the requirements of the European Parliament and the Council of the European Union Restriction of Hazardous Substances Directive 2011/65/EU, commonly known as RoHS. The six regulated substances are lead, mercury, cadmium, chromium VI (hexavalent), polybrominated biphenyls (PBB) and polybrominated biphenyl ethers (PBDE). RoHS compliance implies that any residual concentration of these substances is below the RoHS Directive's maximum concentration values (MVC); being less than 1000 ppm by weight for all substances except for cadmium which is less than 100 ppm by weight.

ESD and Handling Precautions

GaAs MMICs in either chip or SMT packages are ESD sensitive. ESD preventive measures must be employed in all aspects of storage, handling, and assembly.

MMIC ESD precautions, handling considerations, die attach and bonding methods are critical factors in successful GaAs MMIC performance and reliability.

The Keysight Technologies, Inc., *GaAs MMIC ESD, Die Attach and Bonding Guidelines - Application Note* (5991-3484EN) provides basic information on these subjects.

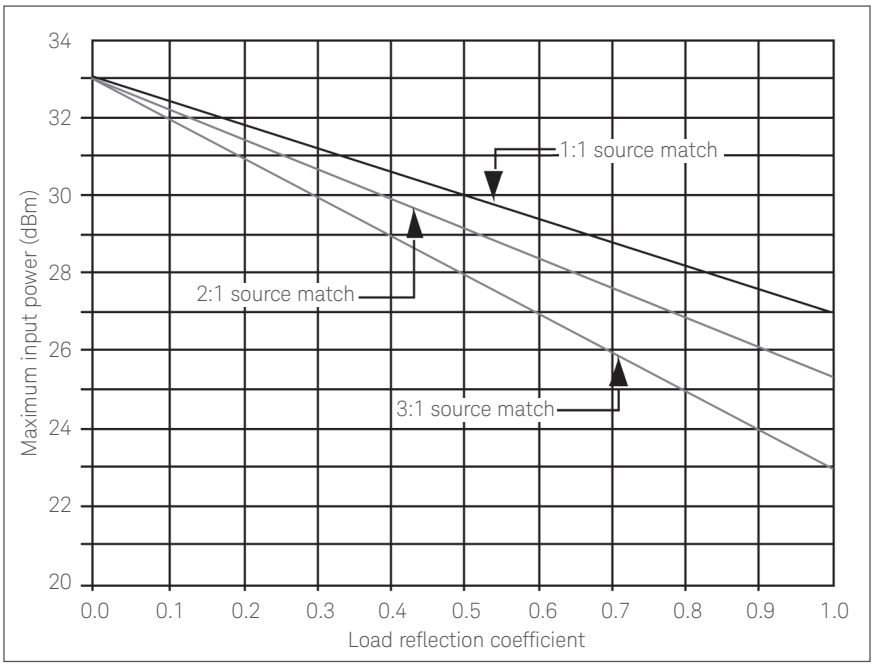


Figure 1. 1GG5-4016 safe operating region T_{case}: +70 °C

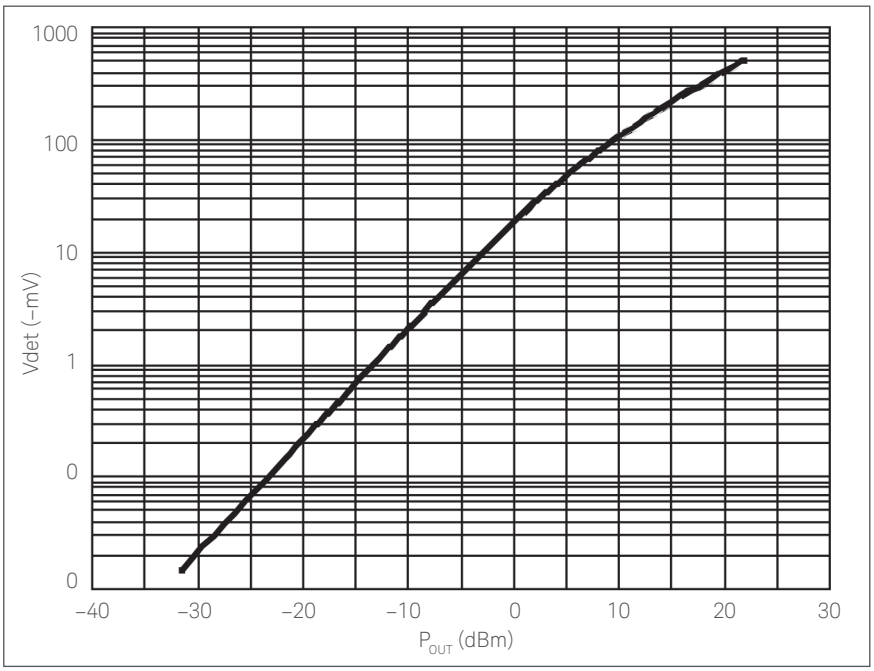


Figure 2. 1GG5-4016 typical transfer characteristic temperature = +25 °C

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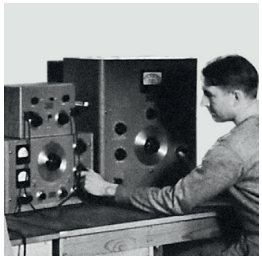

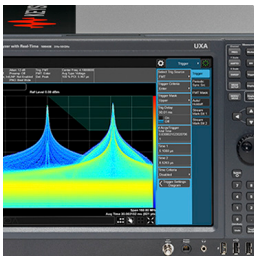

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This data sheet contains a variety of typical and guaranteed performance data. The information supplied should not be interpreted as a complete list of circuit specifications. Customers considering the use of this, or other Keysight Technologies GaAs ICs, for their design should obtain the current production specifications from Keysight. In this data sheet the term typical refers to the 50th percentile performance. For additional information contact Keysight at MMIC_Helpline@keysight.com.

The product described in this data sheet is RoHS Compliant. See RoHS Compliance section for more details.

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