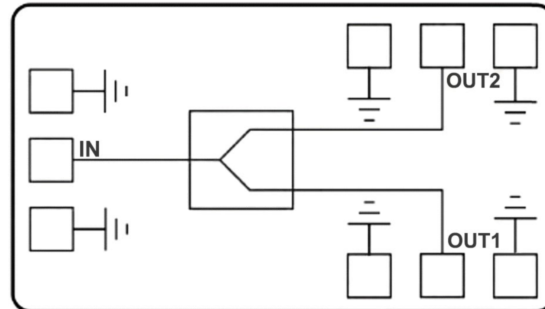
Features

- Frequency: DC-3.5GHz
- Insertion Loss: 0.9dB Typical
- Isolation: 20dB Typical
- Input/Output: 50Ω
- Chip Size: 1.09 x 1.69 x 0.1mm

Functional Block Diagram



Typical Applications

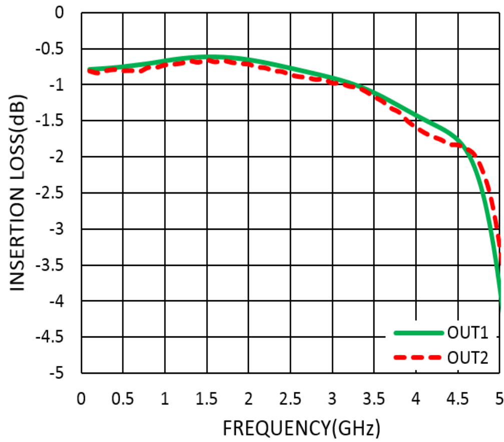
- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

Electrical Specifications

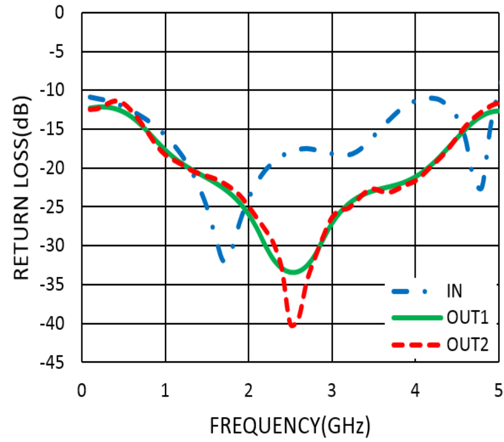
TA = +25°C ,Pin=0dBm

Parameters	Min.	Typ.	Max.	Units
Frequency	DC		3.5	GHz
Nominal Splitter Loss		3		dB
Insertion Loss		0.9	1.1	dB
Insertion Loss Flatness		±0.15		dB
Amplitude Imbalance		±0.1		dB
Phase Imbalance		±0.5		deg
Isolation		20		dB
Input Return Loss		-18		dB
Output Return Loss		-22		dB

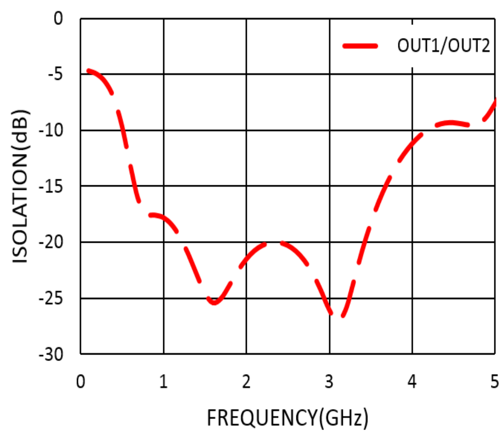
Insertion Loss vs. Frequency



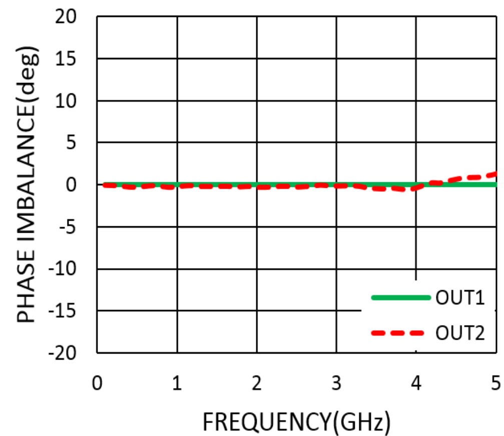
Return Loss vs. Frequency



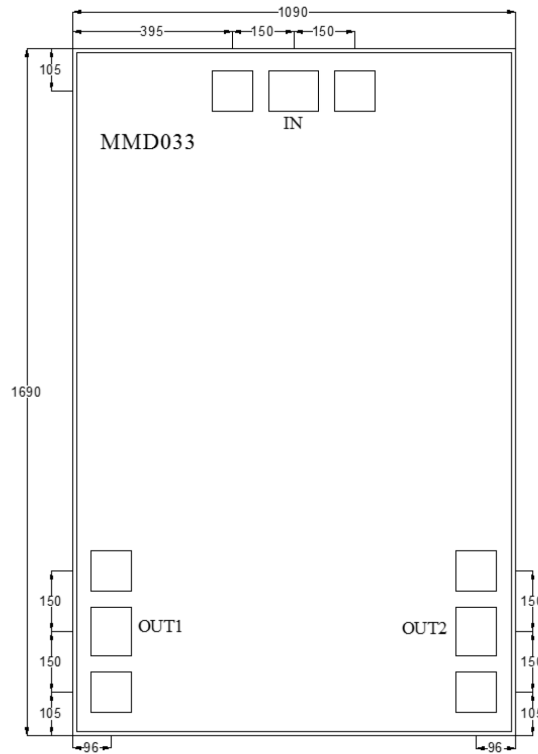
Isolation vs. Frequency



Phase Imbalance vs. Frequency



Outline Drawing: All Dimensions in µm



Absolute Maximum Ratings

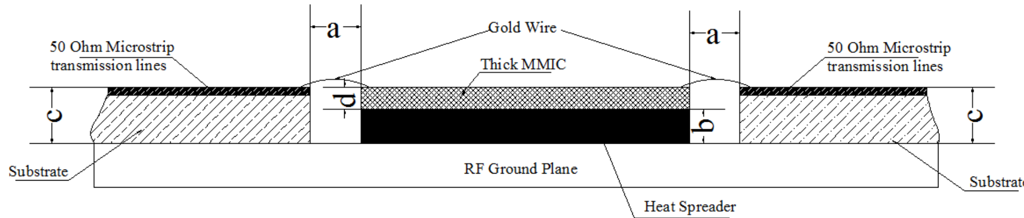
RF Input Power	+30dBm
Operating Temperature	-55°C to +80°C
Storage Temperature	-65°C to +150°C

Notes:

1. **Die thickness: 100µm**
2. **IN bond pad is 120*100µm^2**
3. **OUT bond pad is 100*120µm^2**
4. **Bond pad metalization: Gold**
5. **Backside metalization: Gold**

No.	Function	Description
1	IN	RF Common Port
2	OUT1,OUT2	RF Branch Ports

Mounting & Bonding Techniques for MMICs



Direct Mounting

1.Typically, the die is mounted directly on the ground plane.
2.If the thickness difference between the substrate (thickness c) and the die (thickness d) exceeds 0.05 mm (i.e., c – d > 0.05 mm), it is recommended to first mount the die on a heat spreader, then attach the heat spreader to the ground plane.
3.Heat Spreader Material: Molybdenum-copper (MoCu) alloy is commonly used.
4.Heat Sink Thickness (b): Should be within the range of (c – d – 0.05 mm) to (c – d + 0.05 mm).
5.Spacing (a): The gap between the bare die and the 50Ω transmission line should typically be 0.05 mm to 0.1 mm. If the application frequency is higher than 40GHz, then this gap is recommended to be 0.05mm

Wire Bonding Interconnection

The connection between the die and the 50Ω transmission line is usually made using 25 µm diameter gold (Au) wires, bonded via wedge bonding or ball bonding processes.

Die Attachment Methods

1.Conductive Epoxy:

After adhesive application, cure according to the manufacturer's recommended temperature profile.

2.Au-Sn80/20 Eutectic Bonding:

Use preformed Au-Sn80/20 solder preforms.
Perform bonding in an inert atmosphere (N_2 or forming gas: 90% N_2 + 10% H_2).
Keep the time above 320°C to less than 20 seconds to prevent excessive intermetallic formation.

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