1. Description

- The M0050 is a 2-way 0° splitter/combiner fabricated on GaAs IPD Cu-Pillar process. It operates over 12-26GHz, provides insertion loss of 0.8dB.

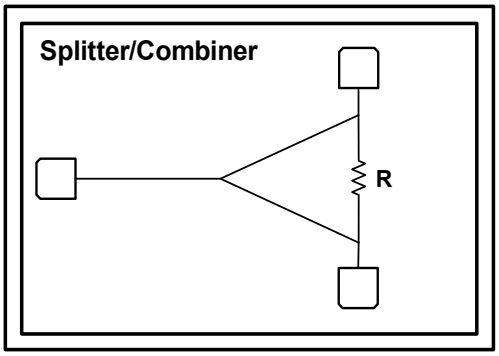


Figure 1. M0050 Functional Block Diagram

2. Applications

- Phased Array

3. Features[1]

- Frequency Range: 12-26GHz
- Insertion Loss: 0.8dB
- Isolation: 20dB
- Input/Output Return Loss: -15dB
- Input/Output Impedance: 50Ohm
- Die Size: 1.200 x 1.350 x 0.26mm

[1] EVB Test

4. Brief Typical Performance

Table 1. Brief Typical Performance

Parameter	12-26GHz	Units
Insertion Loss	0.8	dB
Isolation	20	dB
Passband Ripple	±0.25	dB
Input Return Loss	-15	dB
Output Return Loss	-15	dB

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5. Recommended Operating Conditions

Table 2. Recommended Operating Conditions

Parameter	Min.	Typ.	Max.	Units
Operating Temperature Range	-55	25	125	°C

6. RF Characteristics (T_C = 25˚C)

Table 3. RF Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Units
Frequency Range	Freq.	12	-	26	GHz
Insertion Loss	IL	-	-0.5	-0.8	dB
Passband Ripple	△L	-	±0.25	-	dB
Isolation	ISO	20	25	-	dB
Input Return Loss	RL_RFC	-	-20	-15	dB
Output Return Loss	RL_RF1/RL_RF2	-	-20	-15	dB

7. Typical Performance Curve

■ Small-signal Characteristics Curve

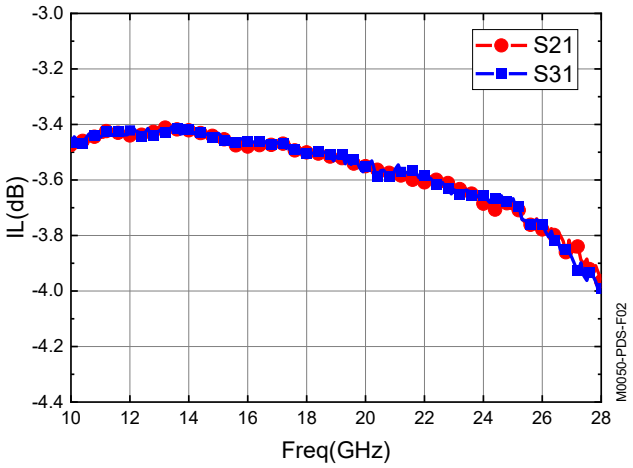


Figure 2. Insertion Loss Characteristics

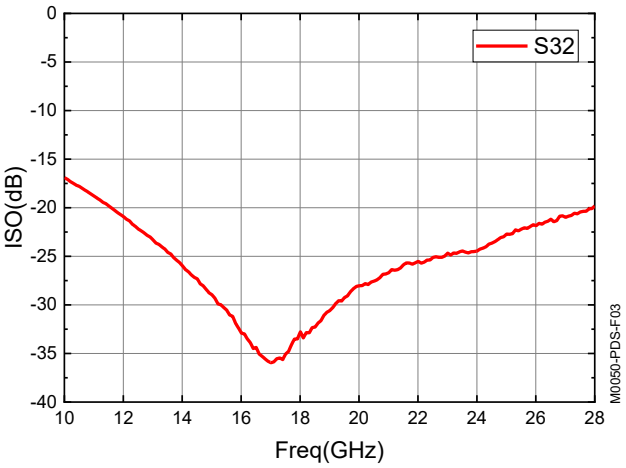


Figure 3. Isolation Characteristics

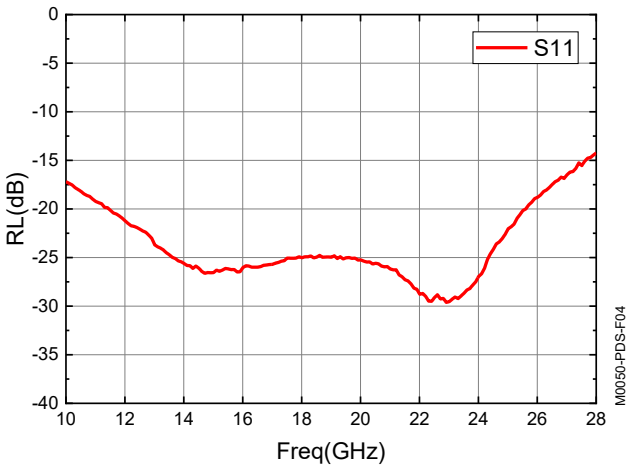


Figure 4. Input Return Loss Characteristics

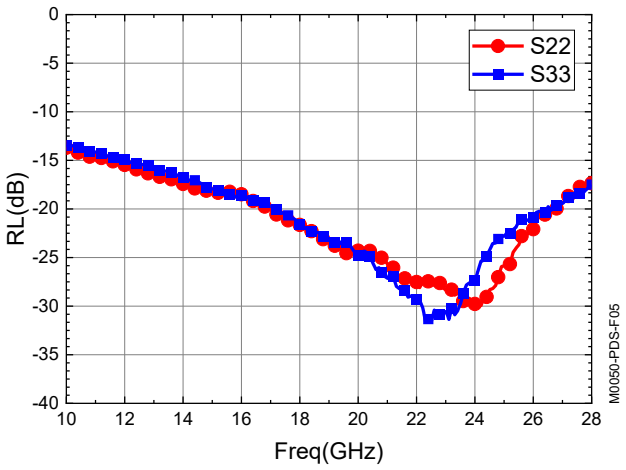
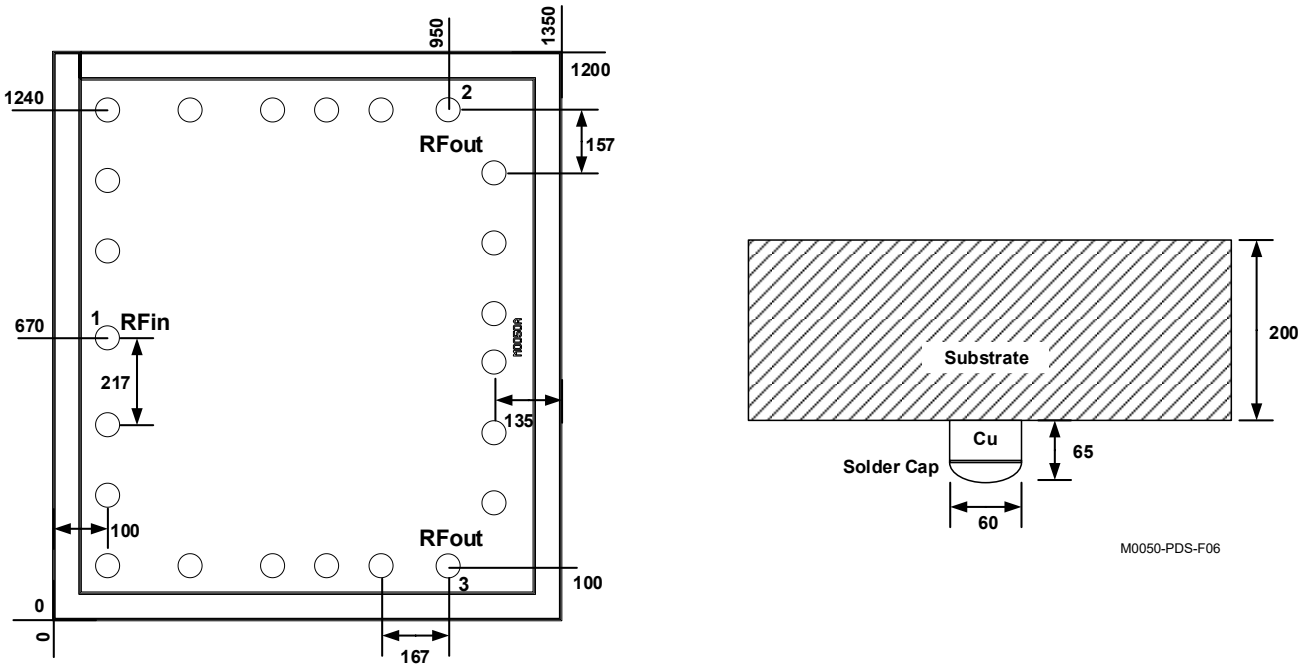


Figure 5. Output Return Loss Characteristics

8. Outline Dimensions



- Dimensions shown in micrometre

Figure 6. M0050 Outline Dimensions

Table 4. Pad Description

Pad	Symbol	Description
1	RFin	RF Input
2	RFout	RF Output 1
3	RFout	RF Output 2
Other Pillar	GND	GND

9. Assembly Information

■ Assembly Diagram

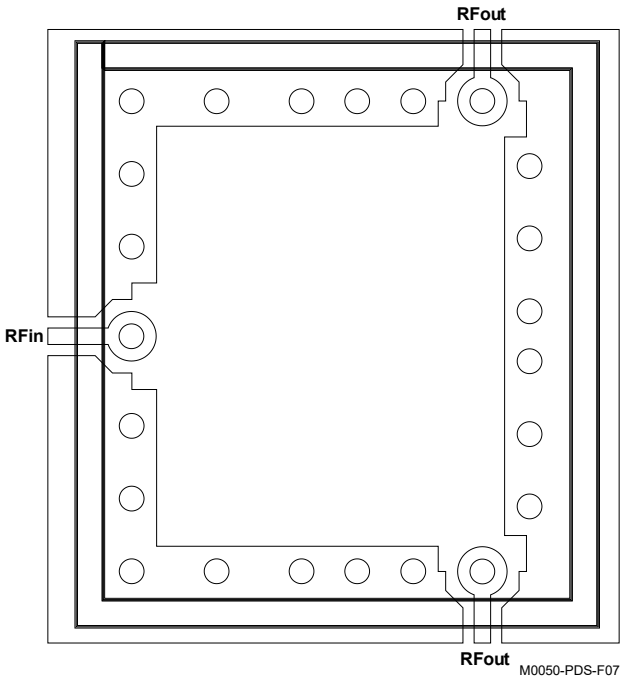


Figure 7. M0050 Assembly Diagram

- **Eutectic Die Attach:** It is best to use an 80% Au/20% Sn preform. Do not expose the chip to a temperature greater than 300°C for more than 30sec.

10. Handling Precautions

■ Storage

All bare dies ship in either Waffle or Gel Pak, which is an ESD protective container, and then sealed in an ESD protective bag. After opening the sealed ESD protective bag, all dies must be stored in a dry nitrogen environment.

■ Cleanliness

Handle the dies in a clean environment. Never use liquid cleaning systems to clean the dies.

■ ESD Caution

ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore proper ESD precautions should be taken to avoid performance degradation or loss of functionality.



11. Contact Information

For the latest specifications, additional product information, technical support and sales support, please contact:

- **Email:** RF.support@raytrontek.com
- **Web:** www.raytrontek.com

12. Disclaimer

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