1. Description

- The M0001Q is a 2-way 0° splitter/combiner in a 3mm x 3mm DFN package, fabricated on GaAs IPD process. It operates over 5-13GHz, provides insertion loss of 0.8dB.
-



M0001Q-PDS-F01

Figure 1. M0001Q Package Outline

2. Applications

- Phased Array

3. Features[1]

- Frequency Range: 5-13GHz
- Insertion Loss: 0.8dB
- Isolation: 22dB
- Input/Output Return Loss: -15dB
- Input/Output Impedance: 50Ohm
- Package Size: 3.0 x 3.0 x 0.8mm

[1] EVB Test

4. Brief Typical Performance

Table 1. Brief Typical Performance

Parameter	5-13GHz	Units
Insertion Loss	0.8	dB
Isolation	22	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.	5	-	13	GHz
Insertion Loss	IL	-	0.8	-	dB
Passband Ripple	△L	-	±0.25	-	dB
Isolation	ISO	-	22	-	dB
Input Return Loss	RL_RFC	-	-15	-	dB
Output Return Loss	RL_RF1/RL_RF2	-	-15	-	dB

7. Typical Performance Curve

■ Small-signal Characteristics Curve

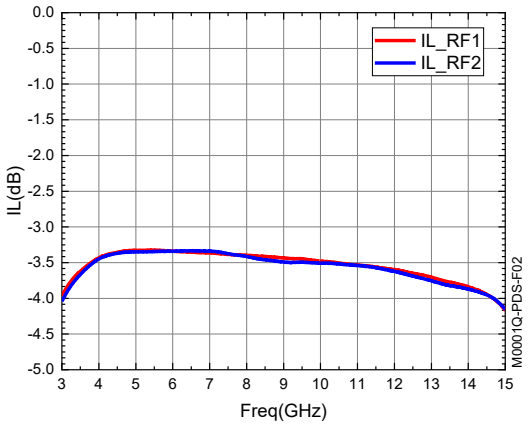


Figure 2. Insertion Loss Characteristics

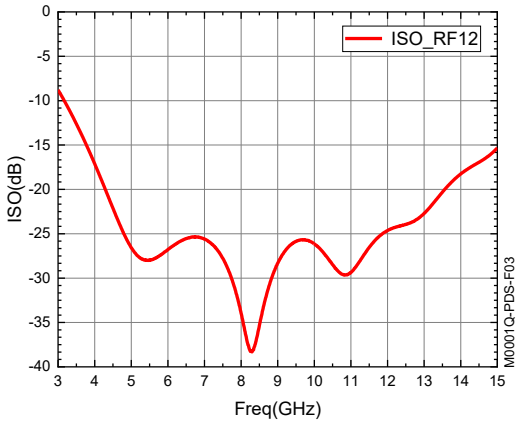


Figure 3. Isolation Characteristics

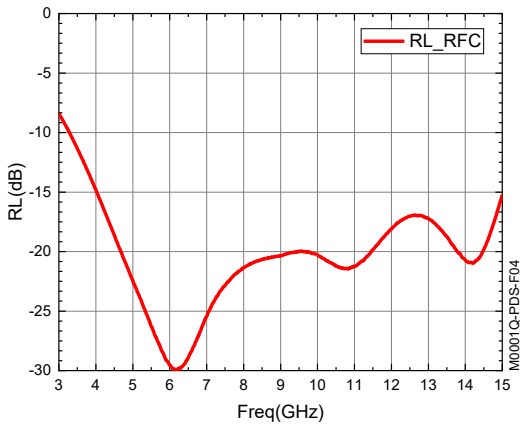


Figure 4. Input Return Loss Characteristics

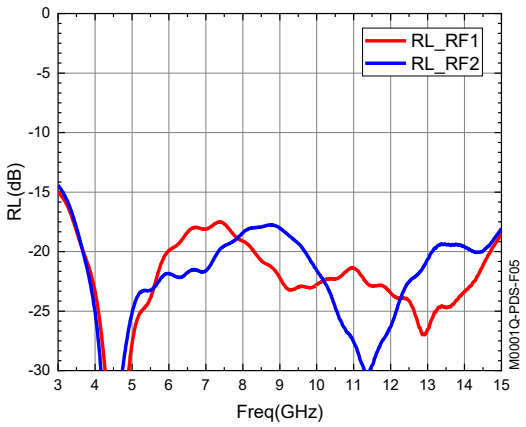


Figure 5. Output Return Loss Characteristics

8. Package Outline

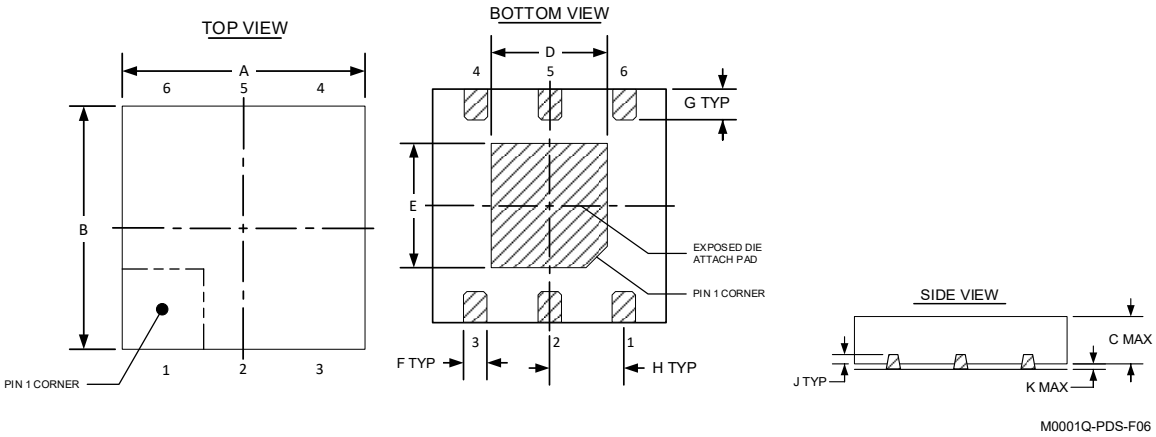


Figure 6. M0001Q Outline Dimensions

Table 4. Package Outline Dimensions (mm)

A	B	C	D	E	F	G	H	J	K
3	3	0.67	1.6	1.5	0.3	0.4	0.95	0.12	0.08

Table 5. Pin Description

Pin	Symbol	Description
1 / 3 / 5	GND	RF Ground Pin
2	RFC	RF Input
4	RF1	RF Output 1
6	RF2	RF Output 2

9. Application Circuit

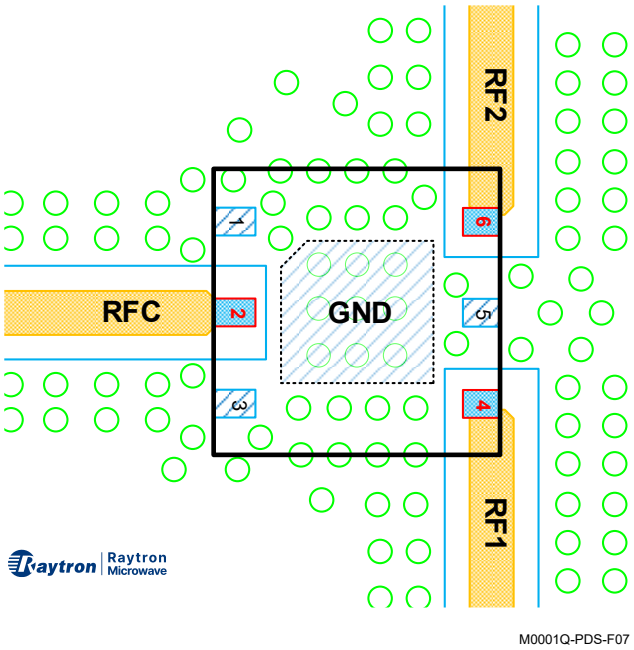


Figure 7. M0001Q Application Diagram

10. Recommended Solder Temperature Profile

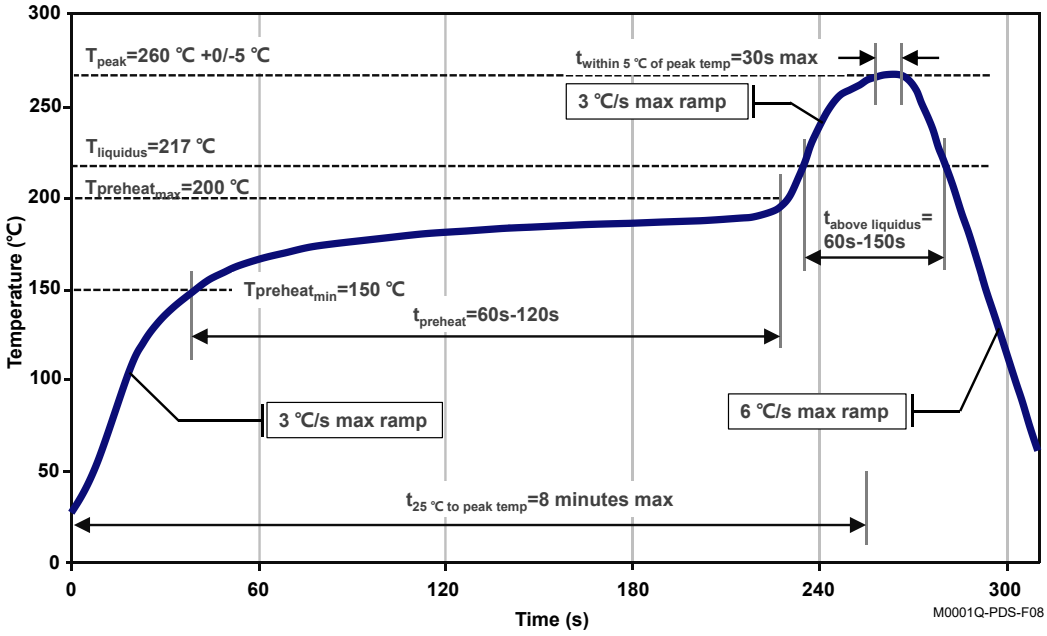


Figure 8. Recommended Solder Temperature Profile

11. Handling Precautions

- **Storage**
  All molding devices are placed in either Waffle or Gel Pak, which is an ESD protective container, then sealed in an ESD protective bag for shipment. Once the sealed ESD protective bag has been opened, all molding devices should be stored in a dry nitrogen environment.
- **Cleanliness**
  Handle the molding devices in a clean environment. Never use liquid cleaning systems to clean the molding devices.
- **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.



12. 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

13. Disclaimer

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