1. Description

- The M0071Q1 is a 4-way 0° splitter/combiner in a 4mm x 4mm QFN package, fabricated on GaAs IPD process. It operates over 10.7-14.5GHz, provides insertion loss of 1.8dB.



M0071Q1-PDS-F01

Figure 1. M0071Q1 Package Outline

2. Applications

- Phased Array

3. Features[1]

- Frequency Range: 10.7-14.5GHz
- Insertion Loss: 1.8dB
- Isolation: 22dB
- Input/Output Return Loss: -15dB
- Input/Output Impedance: 50Ohm
- Package Size: 4.0 x 4.0 x 0.8mm

[1] EVB Test, all measurement results are de-embedded to the DUT reference plane.

4. Brief Typical Performance

Table 1. Brief Typical Performance

Parameter	10.7-14.5GHz	Units
Insertion Loss	1.8	dB
Isolation	22	dB
Passband Ripple	±0.3	dB
Input Return Loss	-15	dB
Output Return Loss	-15	dB

• EVB Test, all measurement results are de-embedded to the DUT reference plane.

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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.	10.7	-	14.5	GHz
Insertion Loss	IL	-	1.8	-	dB
Passband Ripple	△L	-	±0.3	-	dB
Isolation	ISO	-	22	-	dB
Input Return Loss	RL_RFC	-	-15	-	dB
Output Return Loss	RL_RF1/RL_RF2 RL_RF3/RL_RF4	-	-15	-	dB

• EVB Test, all measurement results are de-embedded to the DUT reference plane.

7. Typical Performance Curve

■ Small-signal Characteristics Curve

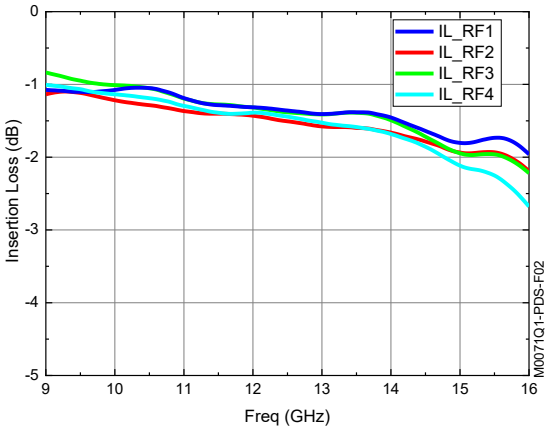


Figure 2. Insertion Loss Characteristics

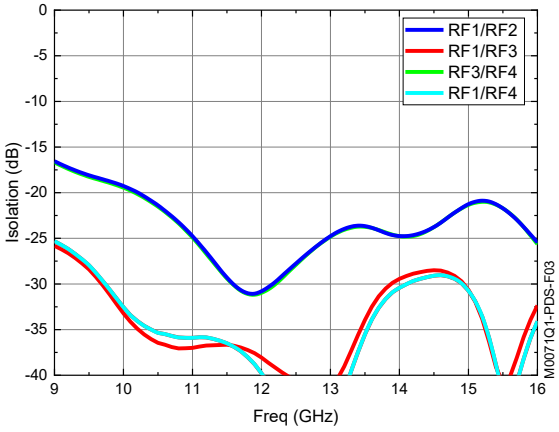


Figure 3. Isolation Characteristics

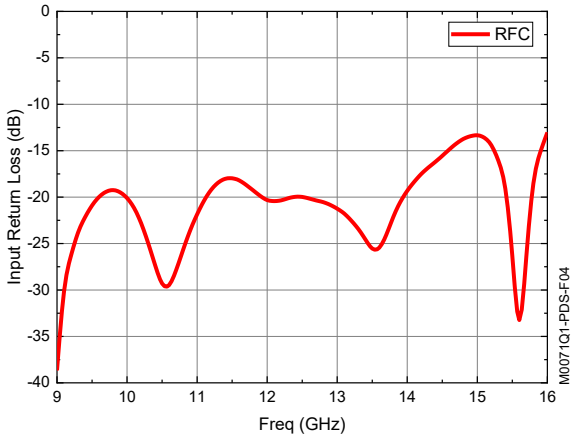


Figure 4. Input Return Loss Characteristics

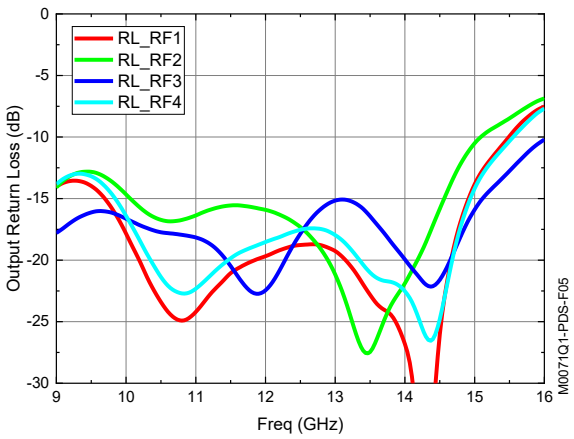
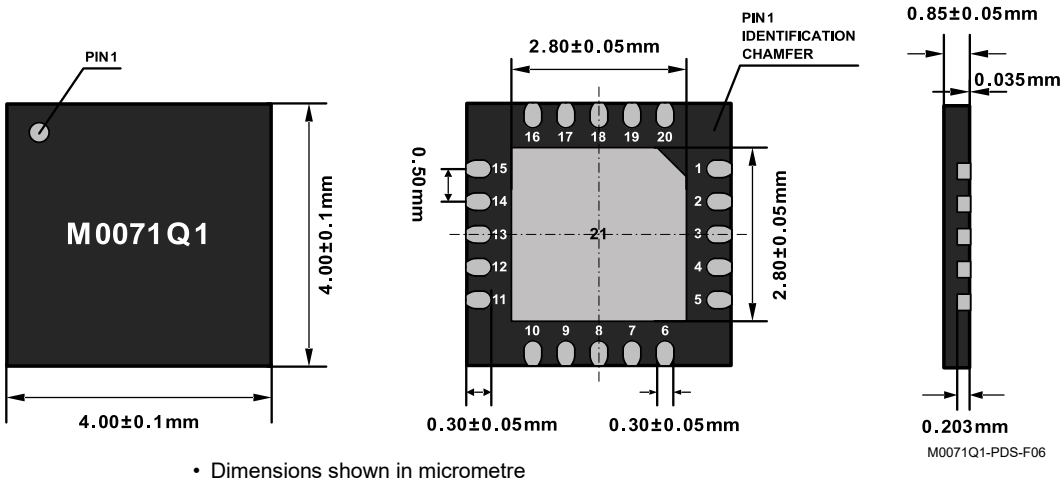


Figure 5. Output Return Loss Characteristics

8. Package Outline



• Dimensions shown in micrometre

Figure 6. M0071Q1 Outline Dimensions

Table 4. Pin Description

Pin	Symbol	Description
2 / 4 / 6 / 8 / 10 / 16 / 18 / 20 /21	GND	RF Ground Pin
3	RFC	RF Input
7	RF1	RF Output 1
9	RF2	RF Output 2
19	RF3	RF Output 3
17	RF4	RF Output 4

9. Application Circuit

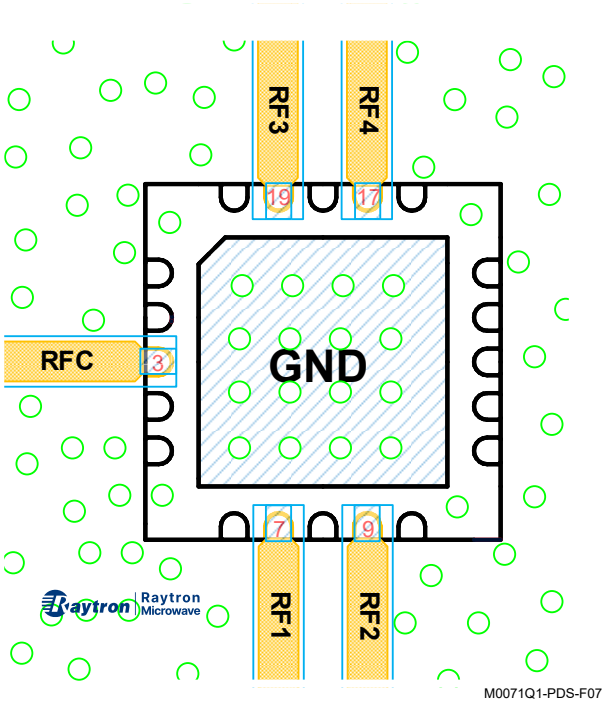


Figure 7. M0071Q1 Application Diagram

10. Recommended Solder Temperature Profile

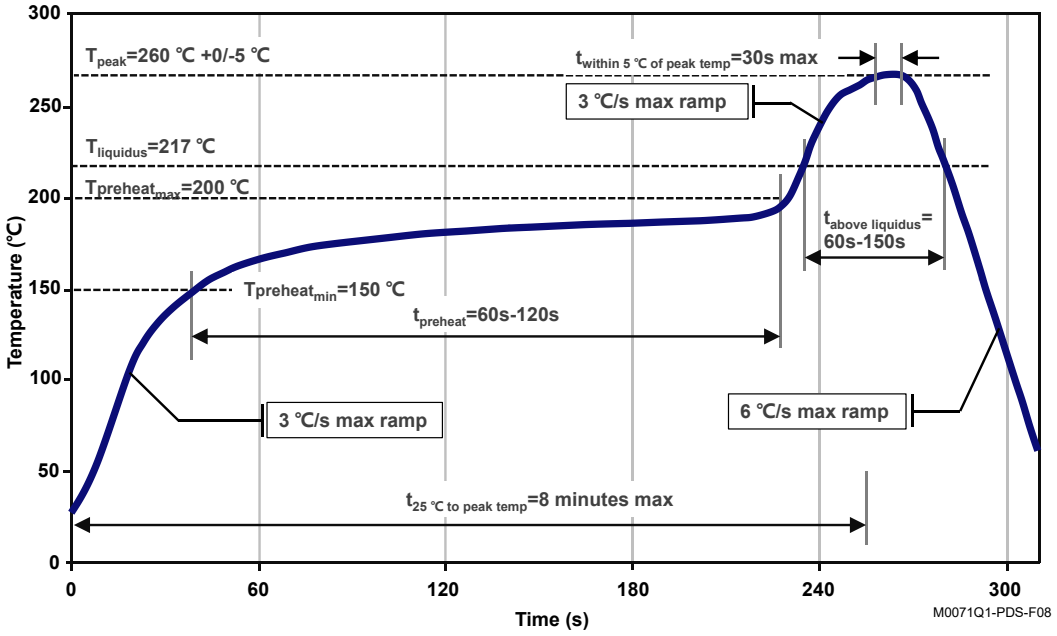


Figure 8. Recommended Solder Temperature Profile

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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