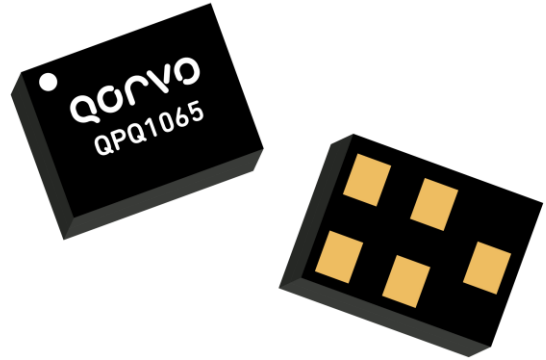


General Description

QPQ1065 is a 1616.0 – 1626.5 MHz compact Iridium Band Pass Filter. This TC-SAW filter also has excellent power handling capability for low power transmitters.

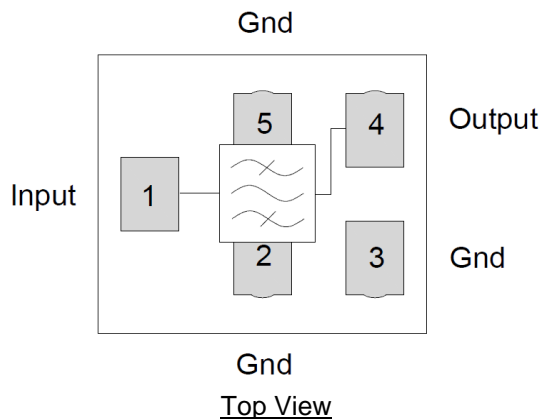
Housed in a 1.4 x 1.2 mm laminate with over mold package, this device allows for a compact and cost-effective solution for Iridium applications.

No matching components are required, making the PCB design and implementation easy.



1.4 X 1.2 X 0.84 mm

Functional Block Diagram



Product Features

- Frequency: 1616.0 - 1626.5 MHz
- No matching required for operation at 50Ω
- High Rejection
- Laminate with Over Mold Surface Mount Package (SMP)
- Small Size: 1.4 x 1.2 x 0.84mm

Performance is typical across frequency. Please reference electrical specification table and data plots for more details.

Applications

- General purpose Iridium
- Communication Systems

Pin Configuration - Single Ended

| Pin No. | Label |
|---------|--------------------------|
| 1 | RF Input ⁽¹⁾ |
| 2, 3, 5 | Ground |
| 4 | RF Output ⁽¹⁾ |

⁽¹⁾ Blocking capacitors are required on any ports where a DC voltage may be present.

Ordering Information

| Part No. | Description |
|--------------|--------------------------------|
| QPQ1065TR7 | 7" Taped Reel with 2500 pieces |
| QPQ1065EVB01 | Evaluation board |

Absolute Maximum Ratings

| Parameter | Rating |
|---|--------------|
| Storage Temperature | -55 to 125°C |
| Operation Temperature | -55 to 105°C |
| RF Input Power ⁽¹⁾ - Test conditions: PW = 500ms; DC = 50% @ +25 °C | 31.5 dBm |

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability.

⁽¹⁾ Input Power for both Input & Output ports

Minimum Lifetime Ratings

| Conditions | Rating |
|--|-------------------|
| RF Input Power ⁽¹⁾ @ Pin 1 (RFIN Port) | >10 years @ +105C |

⁽¹⁾ Input Power: CW, 24 dBm

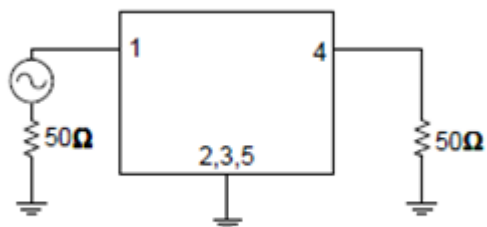
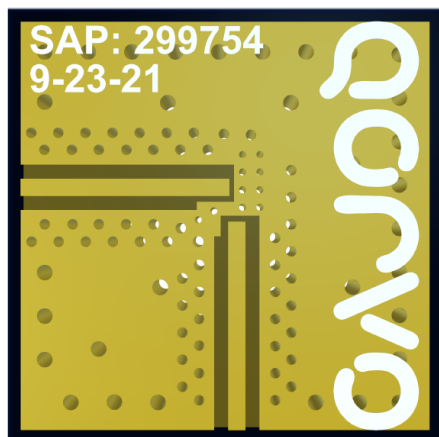
Electrical Specifications ^(1,2)

| Iridium Band Pass Filter | | | | | |
|--|-----------------------|--------|------------------------|--------|-------|
| Parameter ⁽³⁾ | Conditions | Min | Typical ⁽⁴⁾ | Max | Units |
| Center Frequency | 1616.0 - 1626.5 MHz | - | 1621.25 | - | MHz |
| Lower 2.5 dB Passband Edge | Relative to 0 dB | - | - | 1616.0 | MHz |
| Upper 2.5 dB Passband Edge | Relative to 0 dB | 1626.5 | - | - | MHz |
| Maximum Insertion Loss | 1616.0 - 1626.5 MHz | - | 1.5 | 2.5 | dB |
| Amplitude Variation (p-p) | 1616.0 - 1626.5 MHz | - | 0.4 | 1.0 | dB |
| Group Delay | @ 1621.25 MHz | - | 23.6 | 26 | ns |
| Group Delay Variation (p-p) | 1616.0 - 1626.5 MHz | - | 4.9 | 12 | ns |
| Absolute Attenuation (Relative to 0 dB) | 10 - 1543.25 MHz | 35 | 45 | - | dB |
| | 1560.42 – 1590.42 MHz | 32 | 35 | - | |
| | 1699.25 - 2500 MHz | 35 | 44 | - | |
| Input VSWR | 1616.0 - 1626.5 MHz | - | - | 2.1:1 | - |
| Output VSWR | 1616.0 - 1626.5 MHz | - | - | 2.1:1 | - |
| Nominal Impedance ⁽⁵⁾ | Single Ended | - | 50 | - | Ohm |

Notes:

1. All specifications are based on the Qorvo schematics for the reference designs shown on page 3.
2. In production, devices will be tested at room temperature to a guard banded specification to ensure electrical compliance over temperature.
3. Electrical margin has been built into the design to account for the variations due to temperature drift and manufacture tolerances.
4. Typical values are based on average measurements at room temperature on pcb. (25 °C ±5 °C)
5. Optimum impedance to achieve the performance shown.

Evaluation Board – QPQ1065-EVB



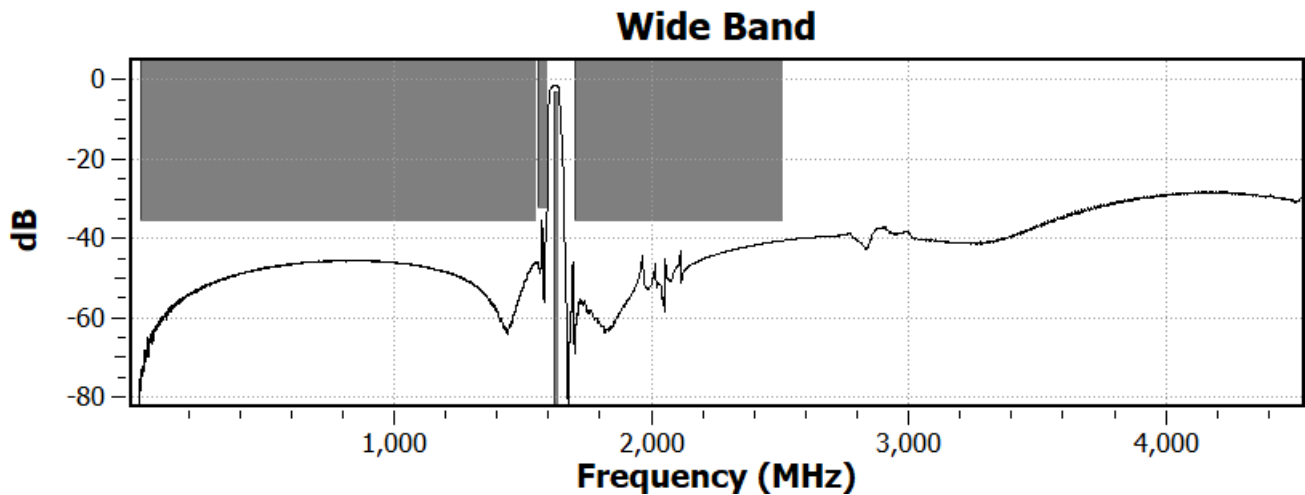
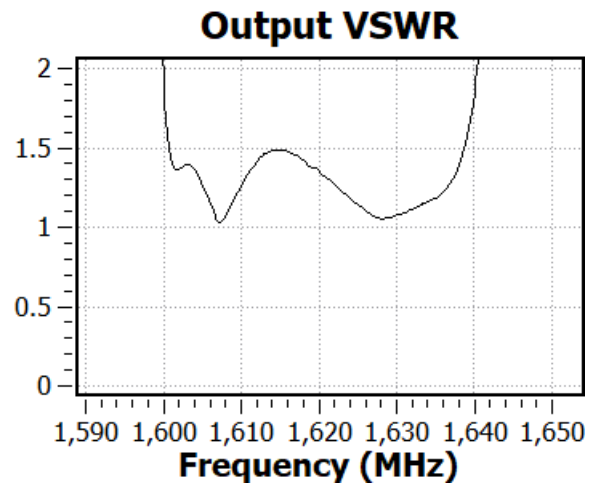
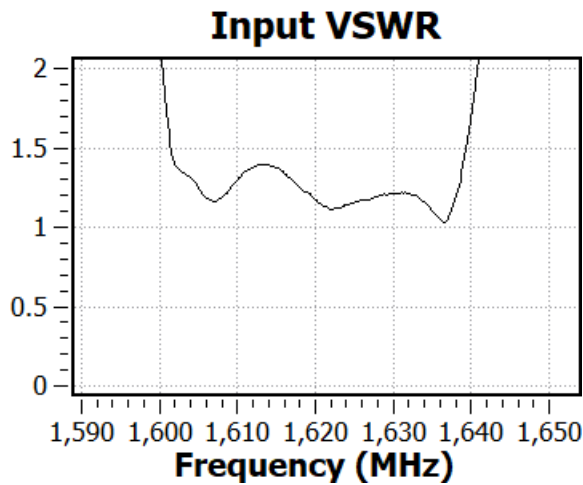
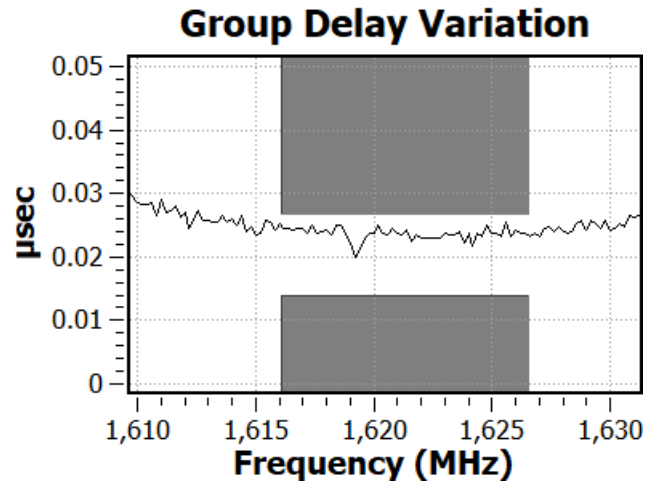
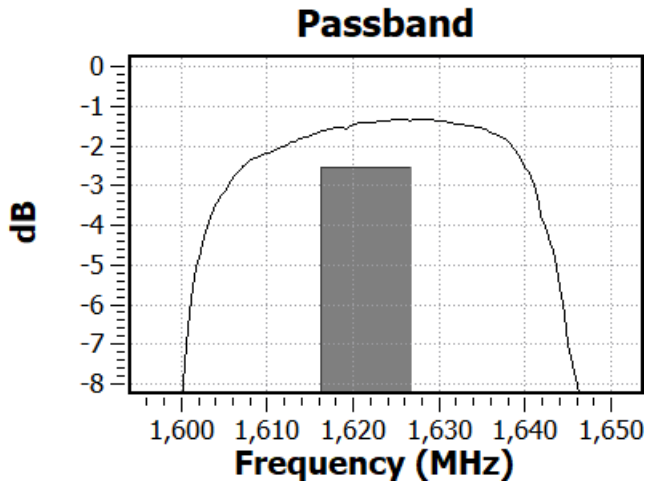
Notes: Blocking capacitors are required on any RF ports where a DC voltage may be present.

Bill of Material – QPQ1065-EVB

| Reference Des. | Value | Description | Manuf. | Part Number |
|----------------|-------|------------------------------------|---------|-------------|
| DUT | - | 1616.0 - 1626.5 Iridium SAW Filter | Qorvo | QPQ1065 |
| SMA | - | SMA connector | Various | |
| PCB | - | Printed Circuit Board | Various | |

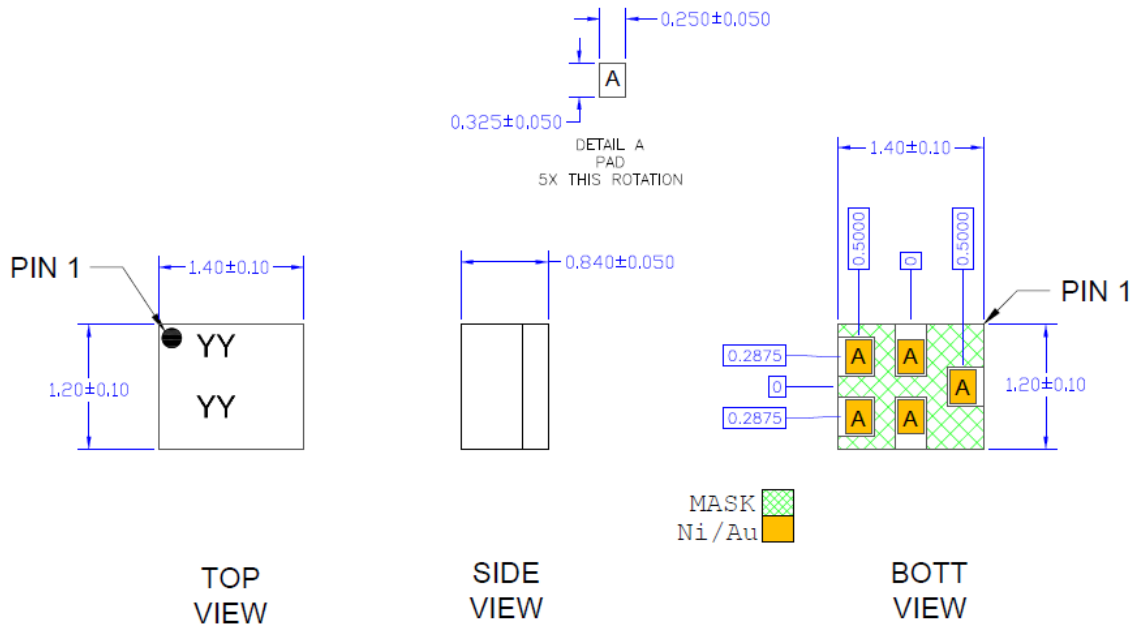
Typical Performances

Test conditions unless otherwise noted: Temp = +25 °C, 50 Ω system



Package Marking and Dimensions

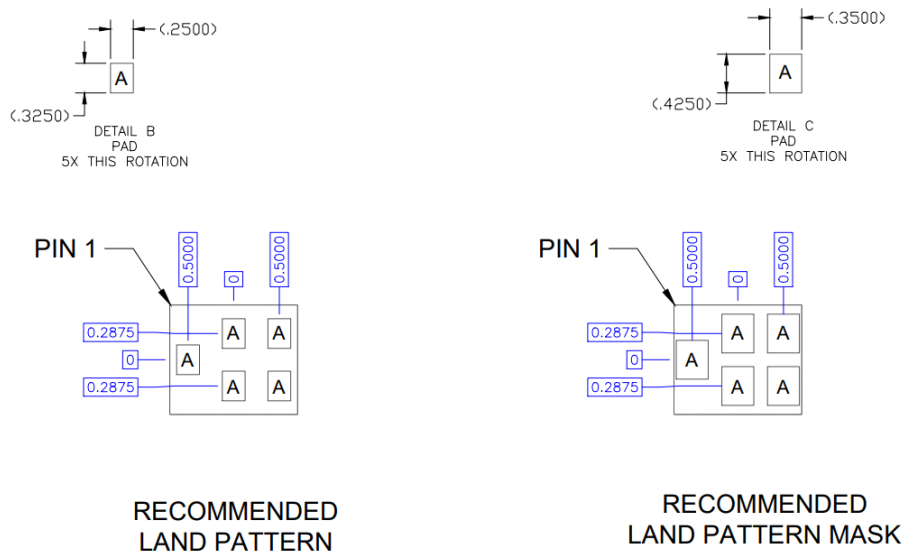
Marking: Trace Code – YYYY



Notes:

1. All dimensions are in millimeters. Angles are in degrees.
2. The terminal #1 identifier and terminal numbering conform to JESD 95-1 SPP-012

PCB Mounting Pattern



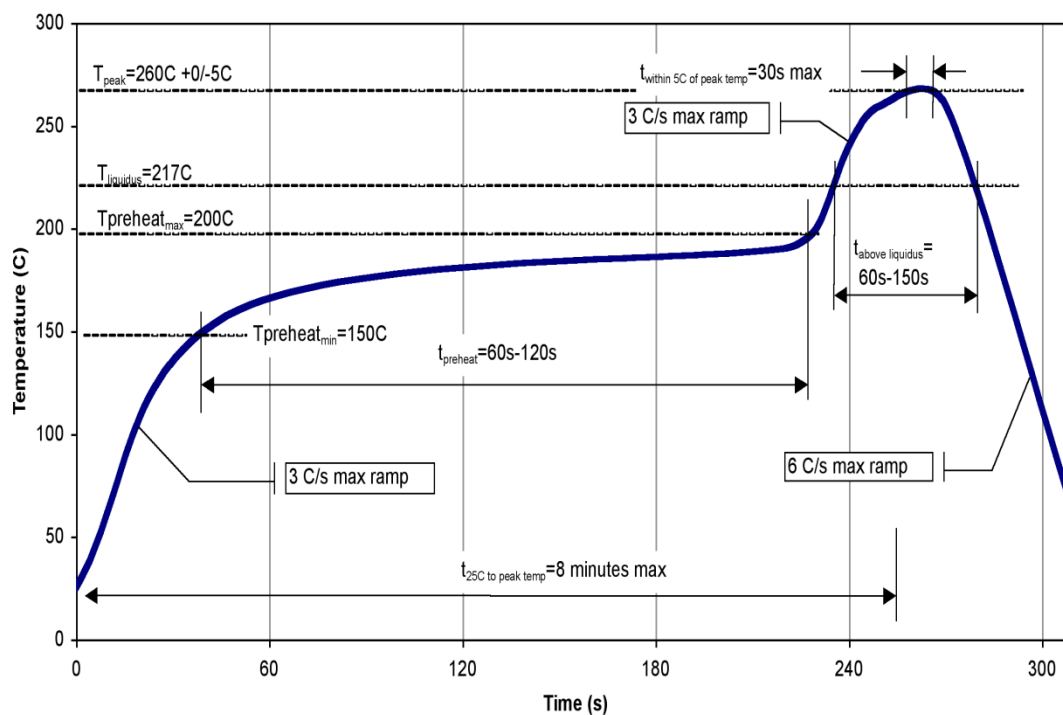
Notes:

1. All dimensions are in millimeters. Angles are in degrees. .

Assembly Notes

1. Compatible with both Lead-free solder (260°C peak reflow temperature) and tin/lead (245°C peak reflow temp.) soldering processes.
2. Contact plating: ENEPIG

Recommended Soldering Profile



Handling Precautions

| Parameter | Rating | Standard |
|----------------------------------|----------|---------------------|
| ESD – Human Body Model (HBM) | Class 1C | ESDA / JEDEC JS-001 |
| ESD – Charged Device Model (CDM) | Class C3 | ESDA / JEDEC JS-002 |
| MSL – Moisture Sensitivity Level | Level 3 | IPC/JEDEC J-STD-020 |



Caution!
ESD-Sensitive Device

RoHS Compliance

This part is compliant with 2011/65/EU RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment) as amended by Directive 2015/863/EU.

This product also has the following attributes:

- Lead Free
- Halogen Free (Chlorine, Bromine)
- Antimony Free
- TBBP-A (C₁₅H₁₂Br₄O₂) Free
- SVHC Free
- PFOS Free

Contact Information

For the latest specifications, additional product information, worldwide sales and distribution locations:

Web: www.qorvo.com

Tel: 1-844-890-8163

Email: customer.support@qorvo.com

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