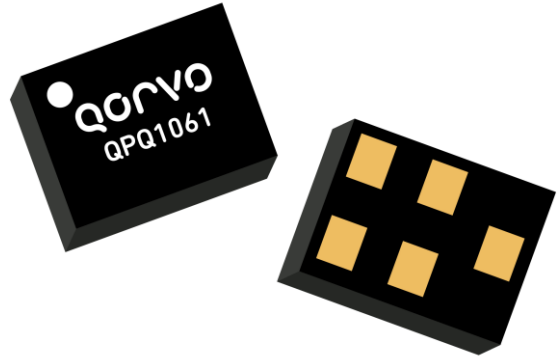


### General Description

QPQ1061 is a L2 GPS Band Pass Filter in a compact size for use in any GPS application. Designed for rejection of unwanted GPS signals, this SAW filter also has excellent power handling capability for low power transmitters.

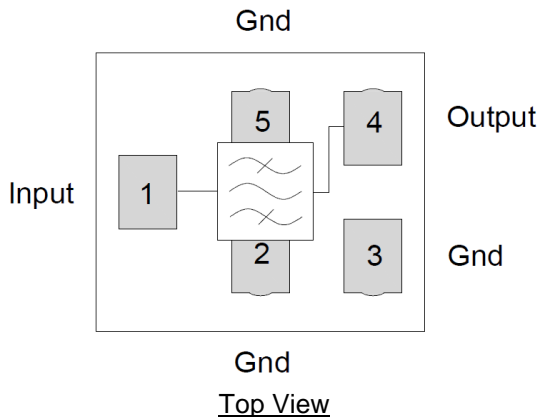
Housed in a 1.4 x 1.2 mm laminate with over mold package, this device allows for a compact and cost-effective diplexer solution for GPS applications.

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



1.4 X 1.2 X 0.84 mm

### Functional Block Diagram



### Pin Configuration - Single Ended

Pin No.	Label
1	Antenna Input <sup>(1)</sup>
2, 3, 5	Ground
4	L2 Output <sup>(1)</sup>

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

### Product Features

- Usable bandwidth 31 MHz
- No matching required for operation at 50Ω
- Excellent rejection for GPS operation
- High Isolation
- 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 GPS
- Communication Systems

### Ordering Information

Part No.	Description
QPQ1061TR7	7" Taped Reel with 2500 pieces
QPQ1061EVB	Evaluation board

### Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	-40 to 125°C
Operation Temperature	-55 to 105°C
RF Input Power <sup>(1)</sup> - Test conditions: PW = 200ms; DC = 50% @ +25 °C	34 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.

<sup>(1)</sup> Input Power for both Input & Output ports

### Minimum Lifetime Ratings

Conditions	Rating
RF Input Power <sup>(1)</sup> , @ Pin 1 (Antenna Port), @ Pin 4 (L2 Port)	>10 years @ +95C >5 years @ +105C

<sup>(1)</sup> Input Power: CW, 25 dBm

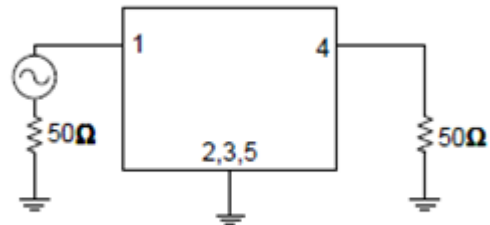
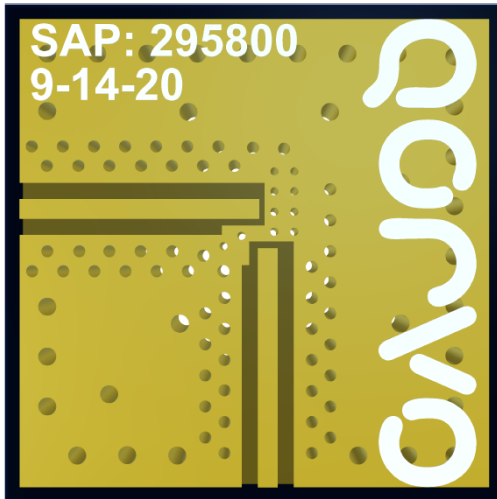
### Electrical Specifications <sup>(1,2)</sup>

L2 Band GPS					
Parameter <sup>(3)</sup>	Conditions	Min	Typical <sup>(4)</sup>	Max	Units
Center Frequency	1212.1 - 1243.1 MHz	-	1227.6	-	MHz
Maximum Insertion Loss	1212.1 - 1243.1 MHz	-	1.2	2.0	dB
	1215.6 - 1239.6 MHz	-	1.1	-	
	1217.6 - 1237.6 MHz	-	1.1	-	
Amplitude Variation	1212.1 - 1243.1 MHz	-	0.4	0.9	dB
	1215.6 - 1239.6 MHz	-	0.3	-	
	1217.6 - 1237.6 MHz	-	0.3	-	
Group Delay Variation	1212.1 - 1243.1 MHz	-	21	38	ns
	1215.6 - 1239.6 MHz	-	17	-	
	1217.6 - 1237.6 MHz	-	16	-	
Absolute Attenuation (Relative to 0 dB)	10 - 1172.6 MHz	38	39	-	dB
	1282.6 - 2500 MHz	35	37	-	
Input Return Loss	1212.1 - 1243.1 MHz	10	13.6	-	dB
	1215.6 - 1239.6 MHz	-	14	-	
	1217.6 - 1237.6 MHz	-	14	-	
Output Return Loss	1212.1 - 1243.1 MHz	10	14	-	dB
	1215.6 - 1239.6 MHz	-	15	-	
	1217.6 - 1237.6 MHz	-	16	-	
Nominal Impedance <sup>(5)</sup>	Single Ended	-	50	-	Ohm

#### Notes:

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

**Evaluation Board – QPQ1061-EVB**



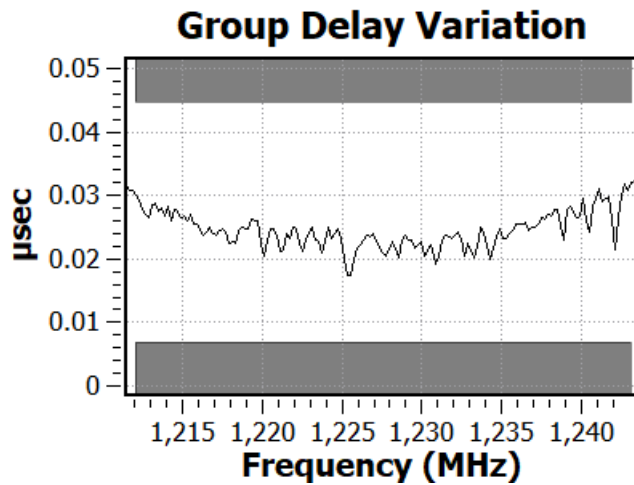
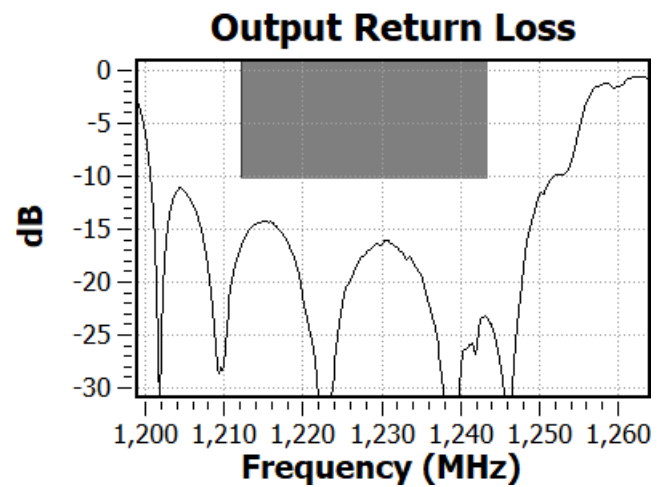
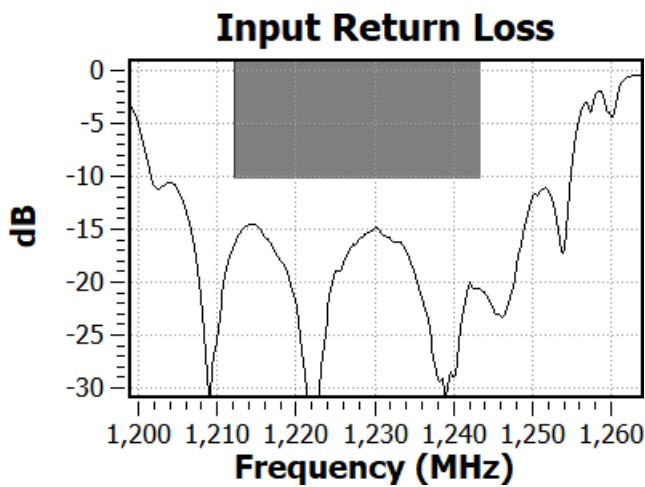
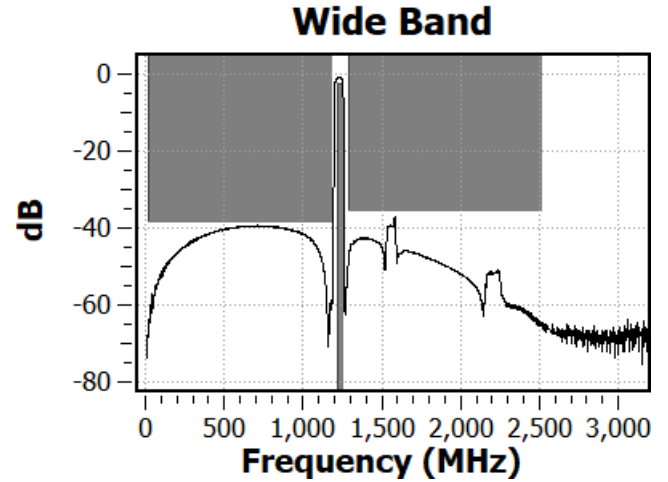
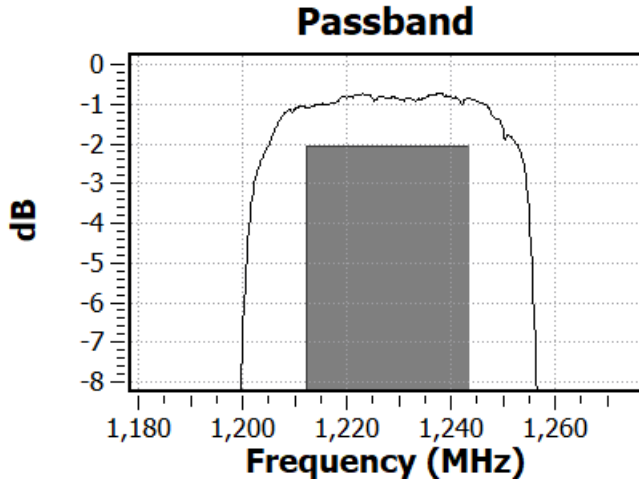
Notes: Blocking capacitors are required on any RF ports where a DC voltage may be present.

**Bill of Material – QPQ1061-EVB**

Reference Des.	Value	Description	Manuf.	Part Number
DUT	-	L2 Low Loss GPS SAW Filter	Qorvo	QPQ1061
SMA	-	SMA connector	Various	
PCB	-	Printed Circuit Board	Various	

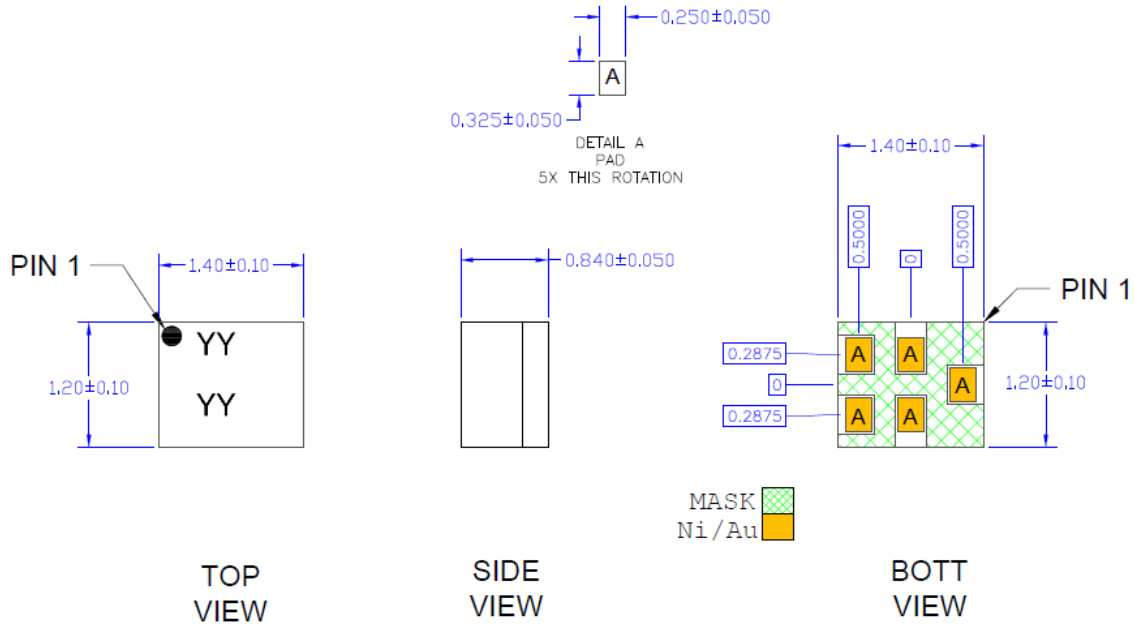
### Typical Performances

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



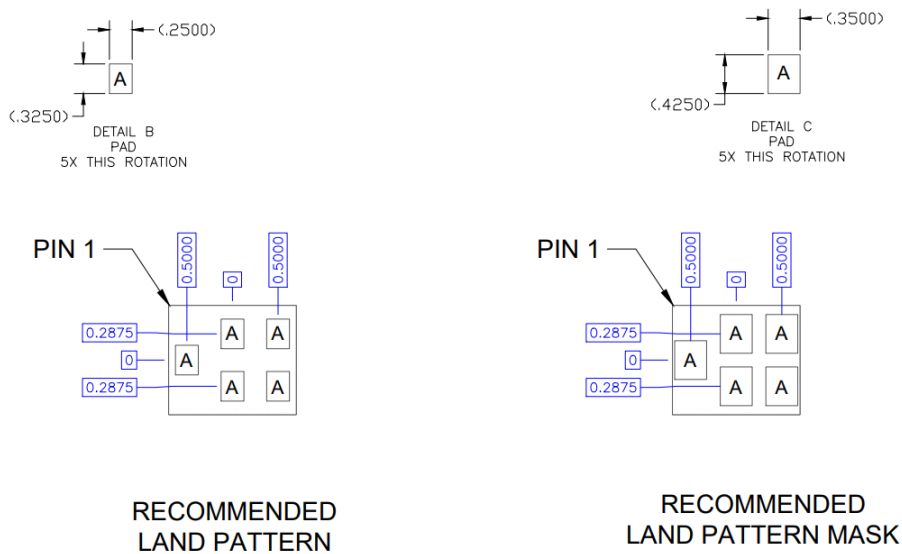
## Package Marking and Dimensions

Marking: Qorvo Logo  
 Part Number – 1061  
 Trace Code – Assigned by subcontractor



- 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

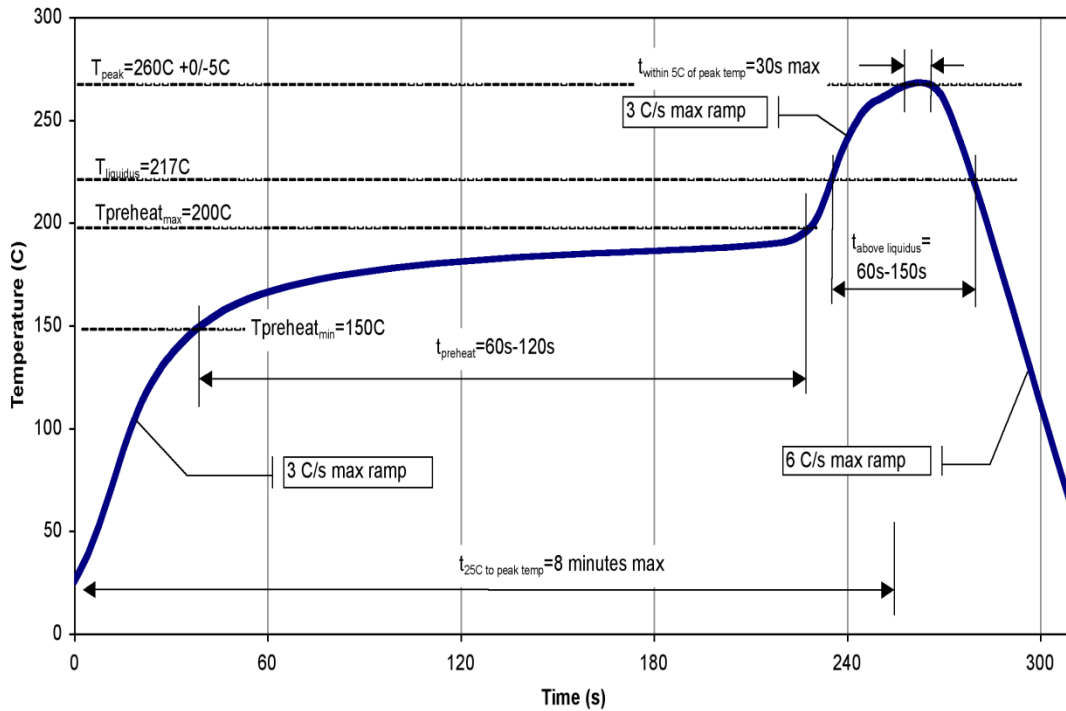


- Notes:
1. All dimensions are in millimeters. Angles are in degrees. .

## 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 3A	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 (C<sub>15</sub>H<sub>12</sub>Br<sub>4</sub>O<sub>2</sub>) Free
- SVHC Free
- PFOS Free

## Contact Information

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

**Web:** [www.qorvo.com](http://www.qorvo.com)

**Tel:** 1-844-890-8163

**Email:** [customer.support@qorvo.com](mailto:customer.support@qorvo.com)

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