QPQ1290
Band 41 Tx / Rx Filter

Product Overview

The QPQ1290 is a high-performance Bulk Acoustic Wave (BAW) Tx / Rx filter designed to meet the strict LTE rejection requirements for use in B41.

QPQ1290 is specifically designed to meet the high-performance expectations of insertion loss and rejection for LTE transmit systems under all operating conditions.

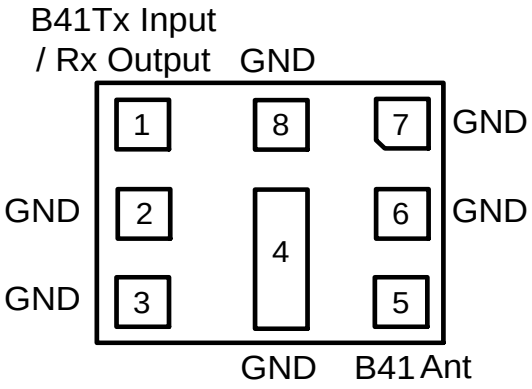
The QPQ1290 uses common module packaging techniques to achieve the industry standard 1.8 x 1.4 x 0.73 mm footprint.

8-Pad 1.8 mm x 1.4 mm x 0.73 mm Package

Key Features

- Highly Selective BAW Filter Achieving Low Insertion Loss Over Full Bandwidth and Operating Conditions
- Excellent Wi-Fi Rejection
- Performance −20 to +85 °C
- RoHS compliant (2002/95/EC), Pb-free

Functional Block Diagram



Top View

Applications

- Full Band 41 TD-LTE Tx / Rx

Pin Configuration - Single Ended

Pin No.	Label - Function
1	B41 Tx Input / Rx Output
5	B41 Ant - Antenna Port
2, 3, 4, 6, 7, 8	GND - Ground Connection*

*Note: see application section for details on optimal grounding

Ordering Information

Part No.	Description
QPQ1290TR7	7” Taped Reel with 2500 pieces
QPQ1290-EVB	Assembled Evaluation Board

Absolute Maximum Ratings

Parameter	Rating
Operating Temperature	−20 to +85 °C
Storage Temperature	−40 to +85°C
Input Power (In Pass-band, CW signal, pin1)	+29 dBm

Operation of this device outside the parameter ranges given above may cause permanent damage.

Recommended Operating Conditions

Parameter	Min	Typ	Max	Unit
T_{CASE}	-20		+85	°C

Electrical specifications are measured at specified test conditions.

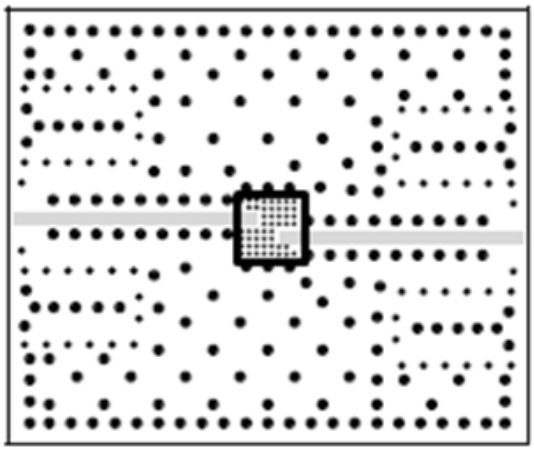
Electrical Specifications – Band 41 (1)

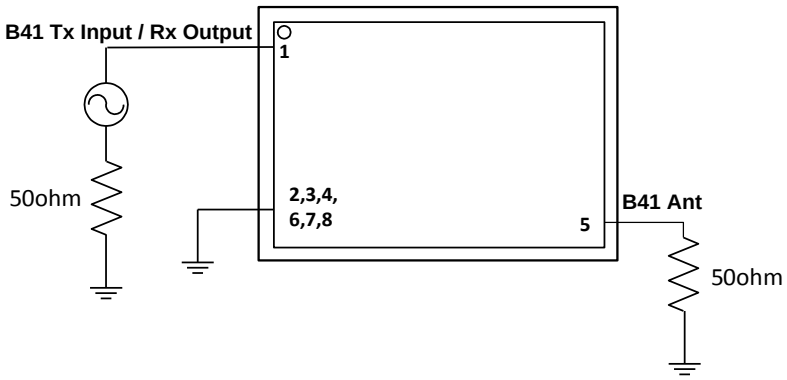
Test conditions unless otherwise specified. Temperature Range: −20°C to +85 °C

Parameter	Conditions	Min	Typ	Max	Unit
Insertion Loss	2496 – 2500 MHz	-	3.1	3.9	dB
	2500 – 2686 MHz	-	2.7	3.3	dB
	2686 – 2690 MHz	-	2.2	3.1	dB
Passband Ripple(3)	2496 – 2690 MHz	-	1.1	2.2	dB
VSWR In	2496 – 2690 MHz	-	1.7	-	-
	2500-2550 MHz	-	1.7	2.1	-
	2590-2690 MHz	-	1.6	2.1	-
Return Loss(4)	2515-2520 MHz	-	14	-	dB
VSWR Out	2496 – 2690 MHz	-	1.7	-	-
	2500-2550 MHz	-	1.5	2.3	-
	2590-2690 MHz	-	1.7	2.3	-
Attenuation	10 - 1564 MHz	35	50	-	dB
	1565 - 1615 MHz	36	46	-	dB
	1616-2400 MHz	5	6	-	dB
	WiFi CH1-7(5)	40	44	-	dB
	WiFi CH8-10(5)	42	51	-	dB
	WiFi CH11(5)	38	47	-	dB
	WiFi CH12(5)	21	41	-	dB
	WiFi CH13(5)	10	24	-	dB
	2775-4991(6) MHz	12	15	-	dB
	4992 - 5380 MHz	27	32	-	dB
	5381 - 7487 MHz	21	23	-	dB
	7488 – 8000 MHz	16	22	-	dB

Notes:
1. All specifications are based on the Qorvo schematic for the main reference design shown on page 3
2. Typical values are values of a nominal part at +25 °C.
3. Measured as Amplitude Variation.
4. Return Loss (2515-2520) MHz to catch 180° rotated parts.
5. Averaging |S21| over the center 19 MHz of the channels and converting to dB value.
6. Measured as Attenuation rejection 2775-3000 MHz.

Evaluation Board and Schematic – QPQ1290EVB





Notes:

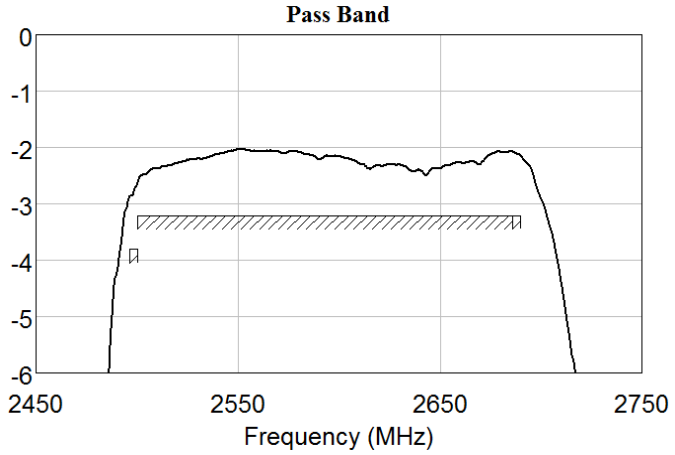
1. Top, middle & bottom layers: 35 µm Cu finished thickness plated up to 25 µm Substrates: Isola FR-408HR
   Finish plating: Silver
   Hole plating: Via fill
2. Grey indicates metalized area
3. This footprint represents a recommendation only
4. For solder pad recommendation see mechanical information
5. Pin 1 is in the same corner as the ID dot (see page 5 Marking).

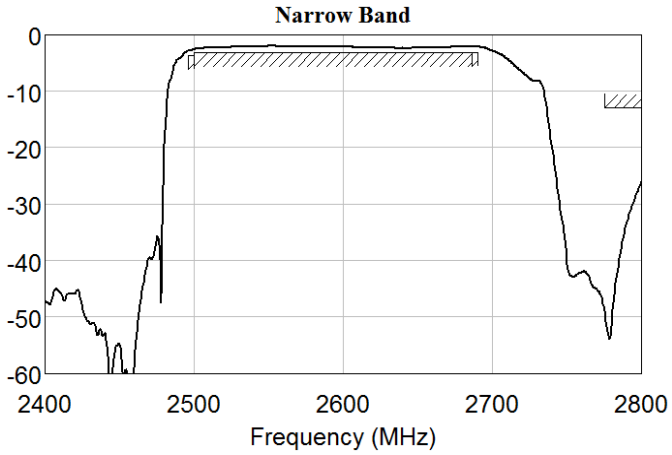
Bill of Material – QPQ1290EVB

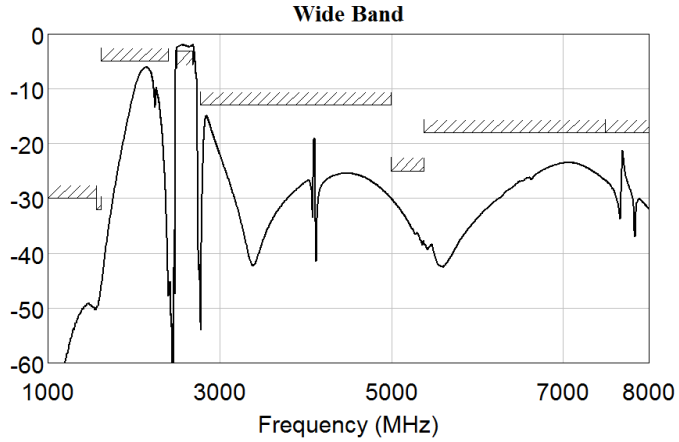
Ref. Des.	Description	Manufacturer	Part Number
	Filter, Band 41	Qorvo	QPQ1290
PCB	Printed Circuit Board, 3-Layer	various	QPQ1290_EVB_R03B

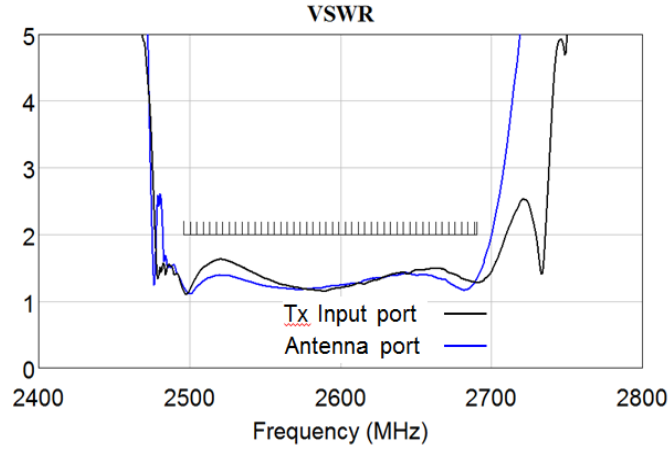
Performance Plots – Band 41

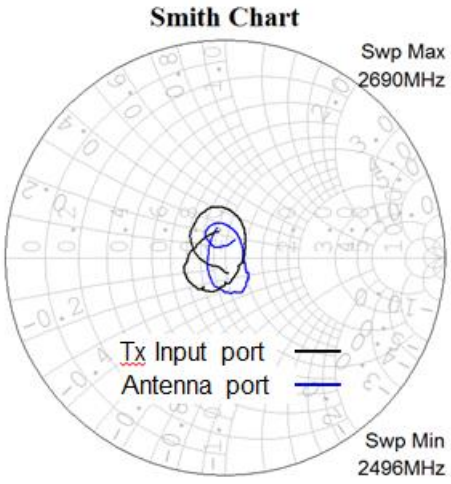
Test conditions unless otherwise noted: Temperature +25°C

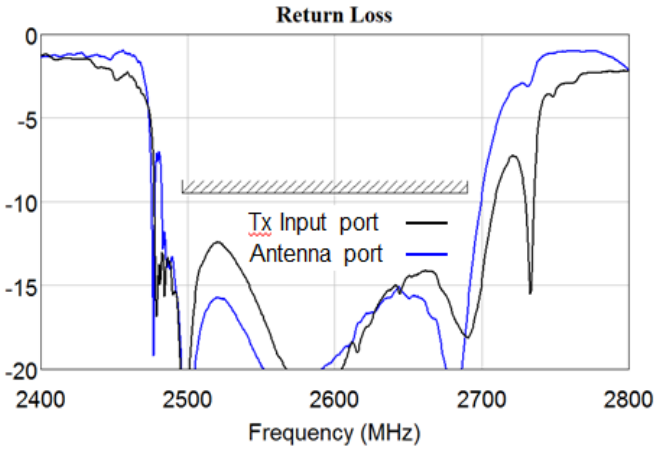








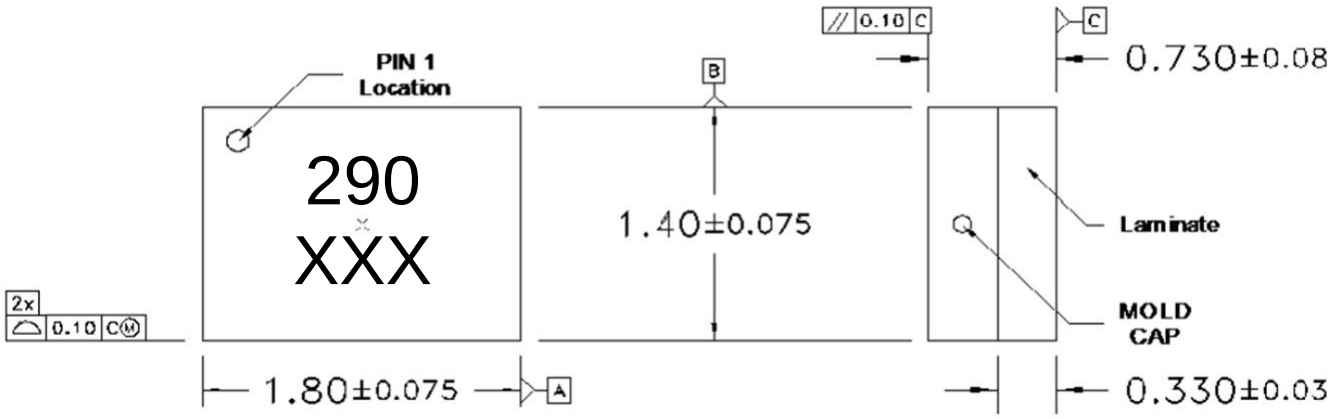




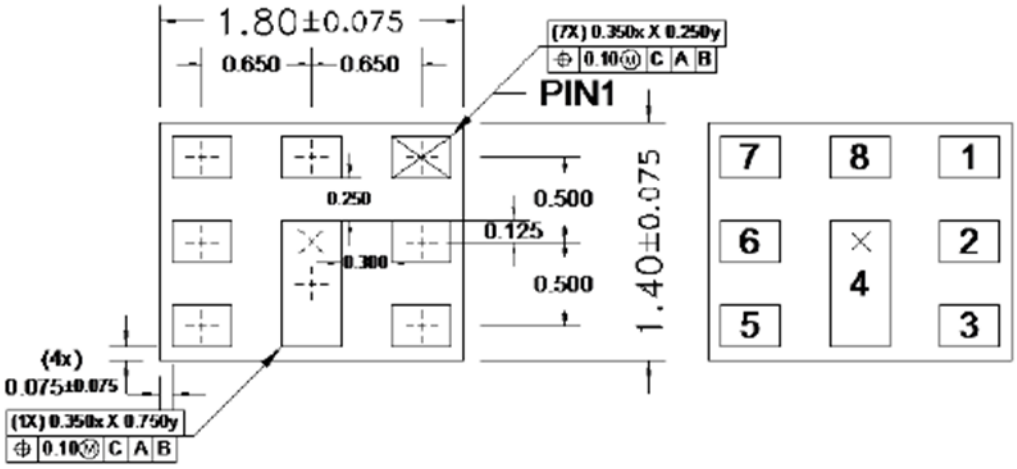
Package Marking and Dimensions

Package Marking

Product Identifier: 290
Assembly Code: XXX



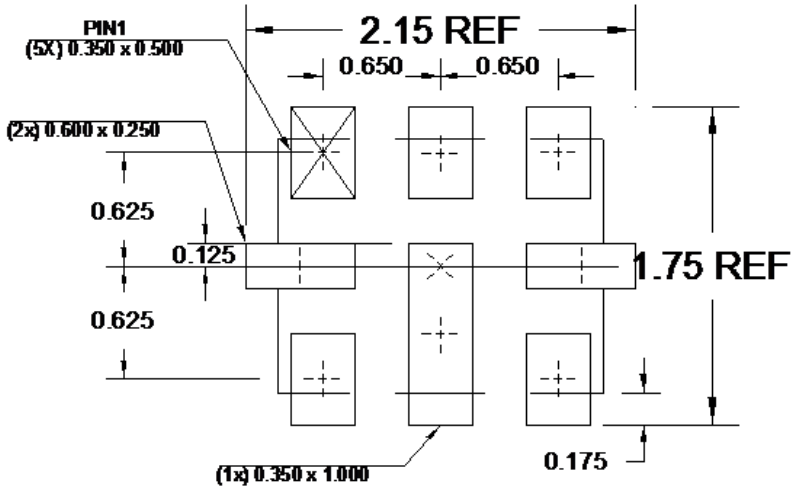
Top View Side View



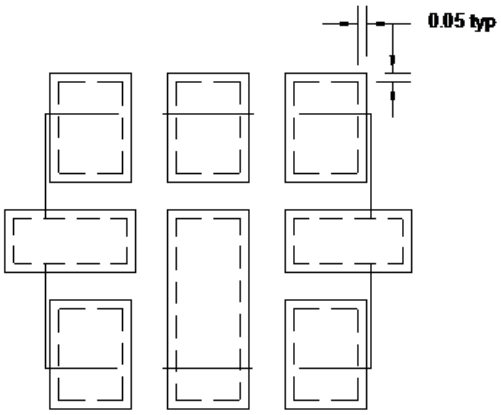
Bottom View Bottom Pin View

Notes:
1. Package Style: Laminate Over Mold Module
2. Dimensions: 1.8 x 1.4 x 0.73 mm
3. All dimensions shown are nominal in millimeters

PCB Mounting Pattern



RECOMMENDED
LAND PATTERN



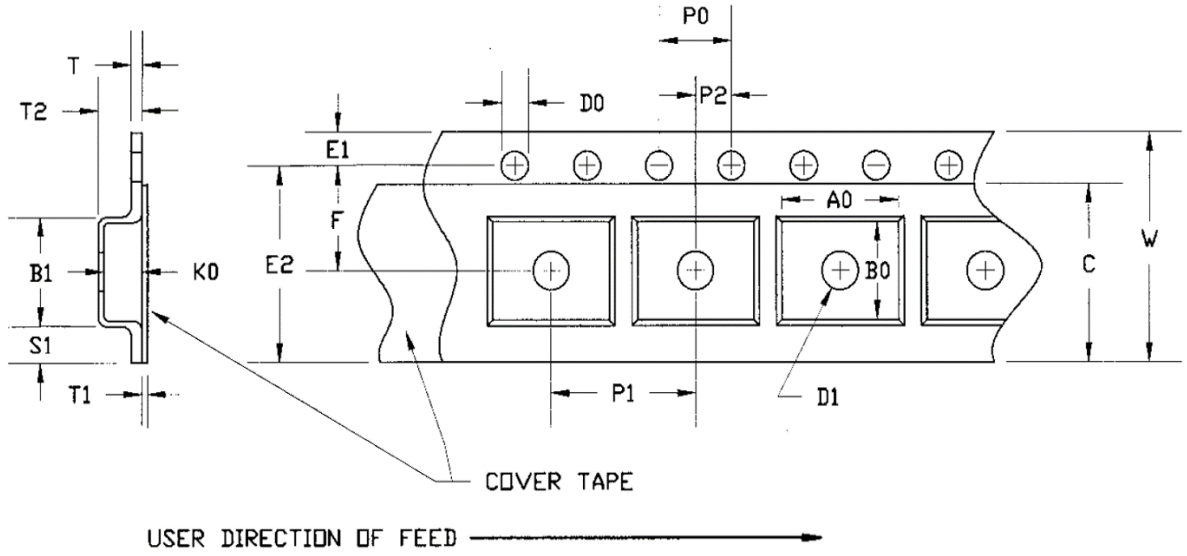
RECOMMENDED
LAND PATTERN MASK

Notes:

1. All dimensions are in millimeters. Angles are in degrees.
2. Use 1 oz. copper minimum for top and bottom layer metal.

Tape and Reel Information – Carrier and Cover Tape Dimensions

Tape and reel specifications for this part are also available on the Qorvo website.
Standard T/R size = 2500 pieces on a 7” reel. All dimensions are in millimeters.



Feature	Measure	Symbol	Size (mm)
Cavity	Length	A0	1.60
	Width	B0	2.00
	Depth	K0	0.95
	Pitch	P1	4.0
Centerline Distance	Cavity to Perforation - Length Direction	P2	2.00
	Cavity to Perforation - Width Direction	F	3.50
Carrier Tape	Width	W	8.0
Cover Tape	Width	C	5.4

Handling Precautions

Parameter	Rating	Standard
ESD – Human Body Model (HBM)	Class 2	ESDA / JEDEC JS-001-2012
ESD – Charged Device Model (CDM)	Class C3	JEDEC JESD22-C101F
MSL – Moisture Sensitivity Level	Level 3	IPC/JEDEC J-STD-020

Caution!
ESD-Sensitive Device

Solderability

Compatible with both lead-free (260°C max. reflow temp.) and tin/lead (245°C max. reflow temp.) soldering processes.
Solder profiles available upon request.

Contact Plating: Electrolytic Ni/Au

RoHS Compliance

This part is compliant with EU 2002/95/EC RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment).

This product also has the following attributes:

- Lead Free
- Halogen Free (Chlorine, Bromine)
- Antimony Free
- TBBP-A ($C_{15}H_{12}Br_4O_2$) Free
- PFOS Free
- SVHC 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

For technical questions and application information:

Email: appsupport@qorvo.com

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