TQQ0041T

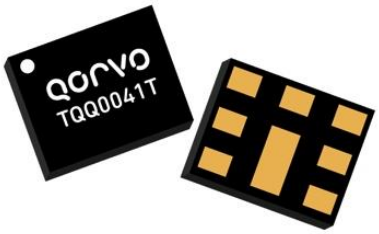
Band 41 Tx/Rx Filter

Product Overview

The TQQ0041T is a high-performance Bulk Acoustic Wave (BAW) Tx / Rx filter designed to meet the strict LTE rejection requirements for use in B41.

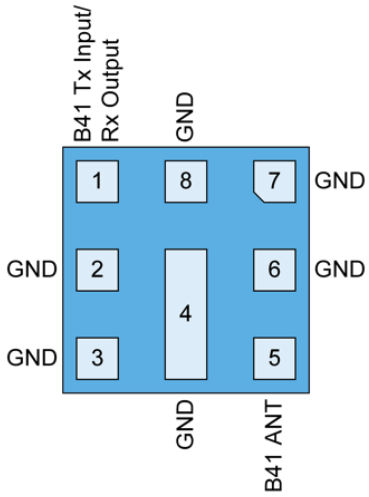
TQQ0041T is specifically designed to meet the high performance expectations of insertion loss and rejection for LTE transmit systems under all operating conditions.

The TQQ0041T uses common module packaging techniques to achieve the industry standard 1.8 mm x 1.4 mm x 0.73 mm footprint.



8-Pin: 1.8 mm x 1.4 mm Package

Functional Block Diagram



Top View

Pin Configuration

Pin Number	Label
1	B41 Tx Input / Rx Output
5	B41 Ant
2, 3, 4, 6, 7, 8	Ground

*Note, see application section for details on optimal grounding.

Key Features

- Highly selective BAW filter achieving low insertion loss over full bandwidth and operating conditions
- Excellent Wi-Fi rejection
- Tested and validated for Power Class 2 Applications
- Performance −20 to +85 °C
- RoHS compliant, Pb-free module package

Applications

- For Full Band 41 TD-LTE Tx/Rx
- Power Class 2

Ordering Information

Part Number	Description
TQQ0041T	Packaged Part
TQQ0041T-EVB	Evaluation Board

Standard T/R size = 2500 pieces per reel.

Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	−40 to +85 °C
Input Power (2496 MHz to 2690 MHz, CW signal, 5000 hrs, 55°C, pin1)	+31 dBm
Input Power (2496 MHz to 2690 MHz, LTE Signal, 5000 hrs, 55°C, pin 1) 10MHz 12RB, 19RB offset, 40% Duty Cycle	+33 dBm
Peak RF Input Power (pin 1), max duration of 0.5 sec	+37 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

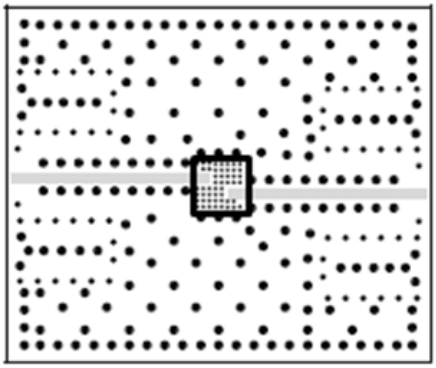
Electrical specifications are measured at specified test conditions.

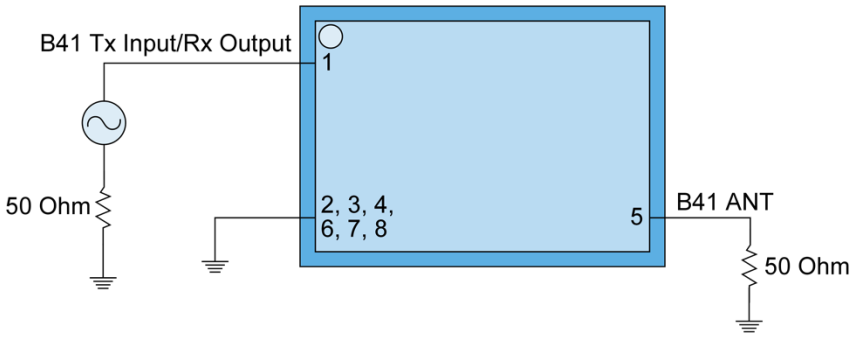
Electrical Specifications − Band 41[1]

Parameter	Condition	−20 °C to +85 °C			
		Min.	Typ[2]	Max.	Unit
Insertion Loss	2496 – 2500 MHz	–	3.2	3.7	dB
	2500 – 2686 MHz	–	2.5	3.2	dB
	2686 – 2690 MHz	–	2.5	3.2	dB
Passband Ripple	2496 – 2690 MHz	–	1.2	2.0	dB
VSWR In	2496 – 2690 MHz	–	1.6:1	2.0:1	–
VSWR Out	2496 – 2690 MHz	–	1.6:1	2.0:1	–
Attenuation	10 – 1564 MHz	30	44	–	dB
	1565 – 1615 MHz	32	36	–	dB
	1616 – 2400 MHz	5	6.5	–	dB
	2401 – 2453 MHz (WiFi CH1-7)[3]	40	45	–	dB
	2436 – 2468 MHz (WiFi CH8-10)[3]	40	49	–	dB
	2451 – 2473 MHz (WiFi CH11)[3]	38	45	–	dB
	2456 – 2478 MHz (WiFi CH12)[3]	23	42	–	dB
	2461 – 2483 MHz (WiFi CH13)[3]	12	25	–	dB
	2775 – 4991 MHz	13	16	–	dB
	4992 – 5380 MHz	25	35	–	dB
	5381 – 7487 MHz	18	21	–	dB
	7488 – 8000 MHz	18	25	–	dB
H2	2496 – 2690 MHz[4]	–	-35	–	dBm

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. Averaging |S21| over the center 19 MHz of the channels and converting to dB value.
4. H2 is measured for Pin = +28 dBm (CW) at room temperature.

Reference Design – Tx / Rx 50 Ohms SE/Ant 50 Ohms SE





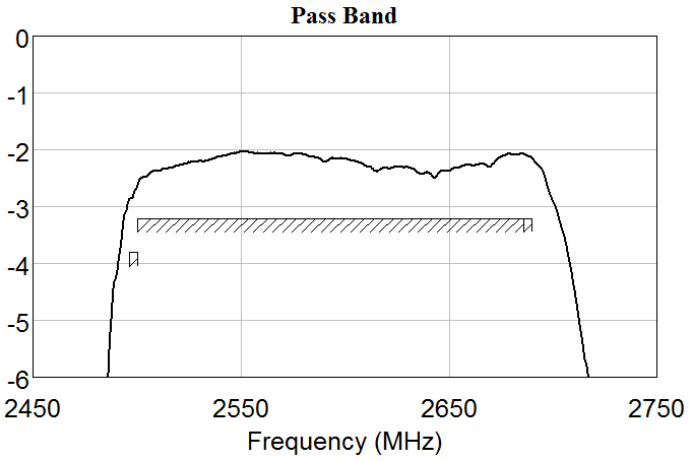
Notes:
1. Top, middle & bottom layers: 35 µm Cu finished thickness plated up to 25 µm Substrates: Isola FR-408HR.
   Finish plating: Silver.
   Hole plating: Via fill.
2. Grey indicates metalized area.
3. This footprint represents a recommendation only.
4. For solder pad recommendation see mechanical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

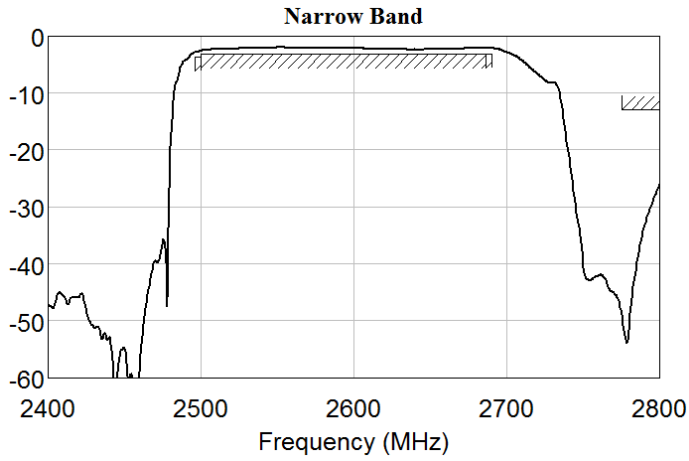
Bill of Material – TQQ0041T-PCB

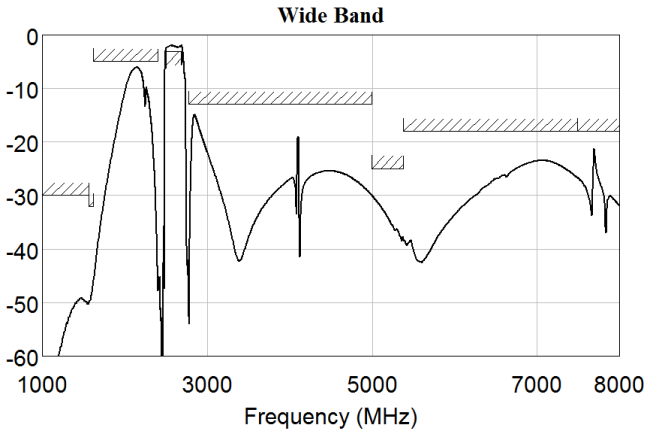
Reference Des.	Value	Description	Manuf.	Part Number
PCB	N/A	3-layer	multiple	TQQ0041T_EVB_R03B

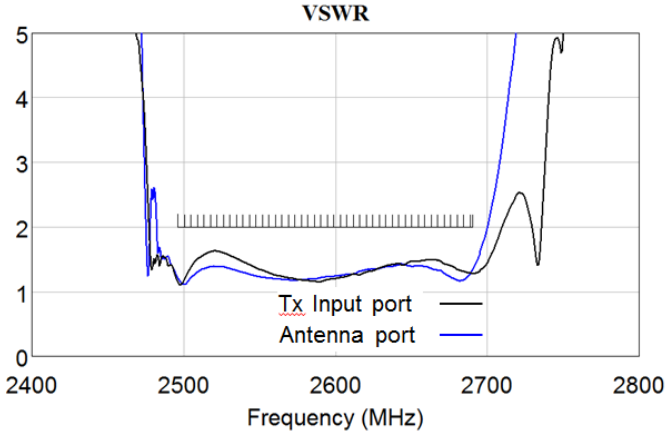
Performance Plots – Band 41

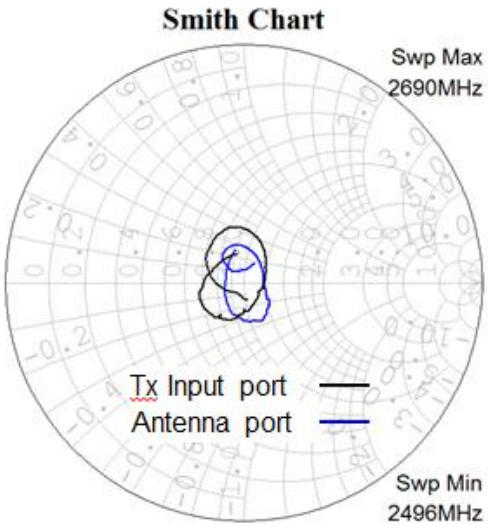
Test conditions unless otherwise noted: Temp. = +25 °C.

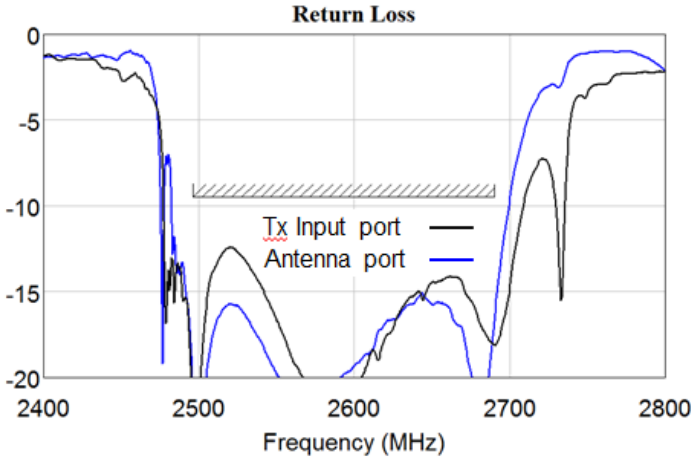






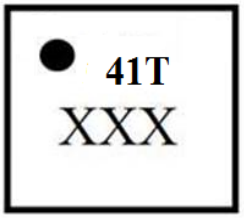






Mechanical Information

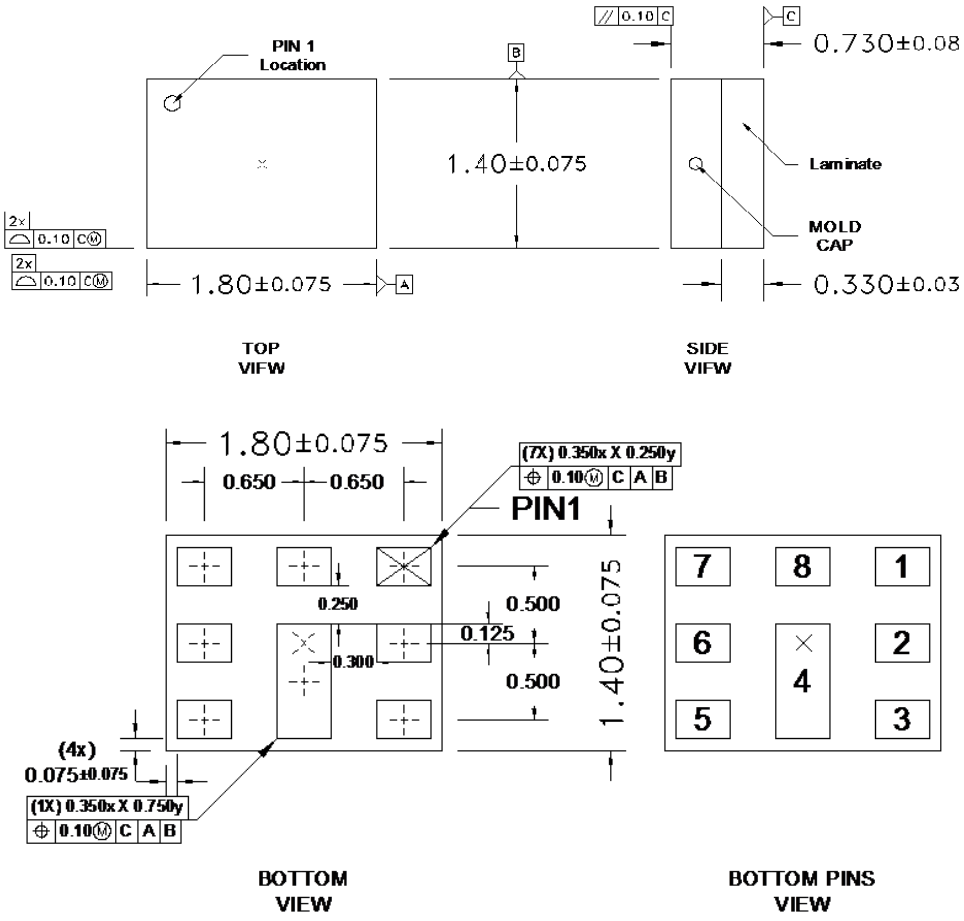
Package Marking and Dimensions



Pin 1 Location: **place in the Upper Left Hand Corner**

Line 1 – Product Name

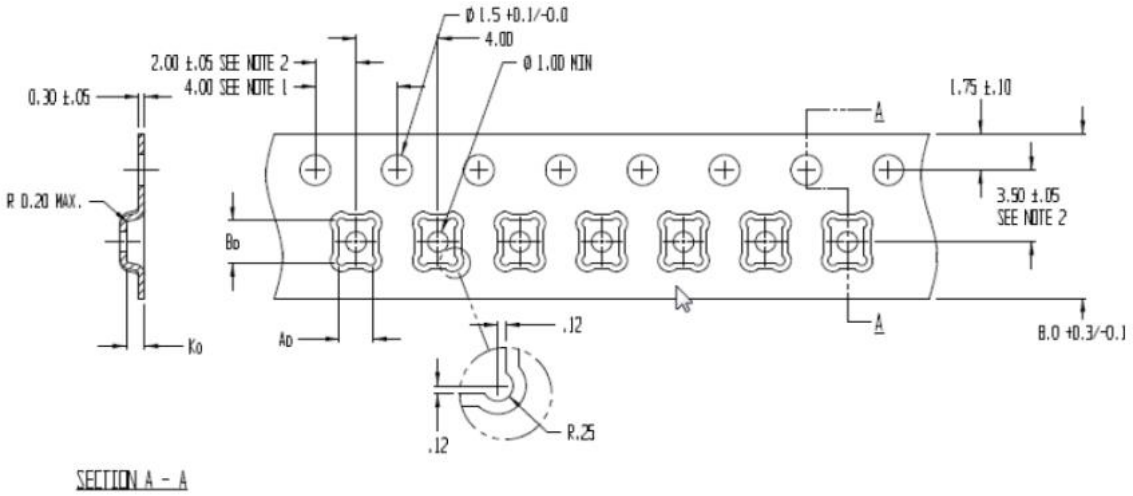
Line 2 – Assembly Lot Code (3 characters only, starting right side of lot code



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

Tape and Reel Information

Tape and reel specifications for this part are also available on the Qorvo website.
Standard T/R size = 2,500 pieces per reel. All dimensions are in millimeters.



Feature	Measure	Symbol	Size (mm)
Cavity	Length	A0	1.66
	Width	B0	2.06
	Depth	K0	0.90
	Pitch	P1	4.0
Centerline Distance	Cavity to Perforation – Length Direction	P2	2.00
	Cavity to Perforation – Width Direction	F	3.50
Cover Tape	Width	C	8.0
Carrier Tape	Width	W	5.4

Handling Precautions

PARAMETER	RATING	STANDARD
ESD – Human Body Model (HBM)	Class 2	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

Solderability

Compatible with both lead-free (260 °C max. reflow temperature) and tin/lead (245 °C max. reflow temperature) soldering processes.
Package lead plating: Plated Au over Ni

RoHS Compliance

This part is compliant with the 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 ($C_{15}H_{12}Br_4O_2$) 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

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