

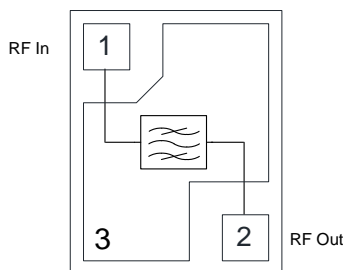
General Description

The QPQ1286 is a high performance Bulk Acoustic Wave (BAW) filter designed to meet the strict LTE rejection requirements for use in B40, Sub-Band 2320-2370 MHz

QPQ1286 is specifically designed to meet the high performance expectations of insertion loss and rejection for LTE TDD systems under all operating conditions.

The QPQ1286 uses common module packaging techniques to achieve the industry standard 2.0 x 1.6 x 0.73 mm footprint.

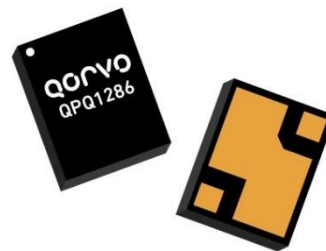
Functional Block Diagram



Top View


Pin Configuration

Pin No.	Label
1	RF in
2	RF out
3	Ground



3 Pin 2 x 1.6 mm leadless SMT Package

Product Features

- Highly selective BAW filter achieving low insertion loss over full bandwidth and operating conditions
- Performance -20 to +90 °C
- Excellent Wi-Fi rejection
- Single-ended operation
- No Matching required for operation at 50 Ω
- High Power Handling Compatible for Small Cells
- Small Size
- RoHS compliant (2002/95/EC), Pb-free 

Applications

- For Band 40 TD-LTE applications
- 2320 – 2370 MHz Sub-Band
- For Small Cells Base Stations

Ordering Information

Part No.	Description
QPQ1286SR	100 pieces on a 7" reel
QPQ1286TR7	2,500 pieces on a 7" reel (standard)
QPQ1286EVB	Evaluation Board

Absolute Maximum Ratings

Parameter	Rating
Storage Temperature ⁽¹⁾	-40 to +125 °C
Operating Temperature ⁽²⁾	-40 to +105°C

⁽¹⁾ Operation of this device outside the parameter ranges given may cause permanent damage.

⁽²⁾ Device will function but it is not guaranteed to meet electrical specifications.

Life Test

Conditions	Rating
+29 dBm, LTE SIGNAL PAR = 8dB, 5MHz, 16 QAM + 90 °C	>175,300 hrs.

Power rating is valid when Power is injected into Pin 1

Electrical Specifications ⁽¹⁾

Test conditions unless otherwise specified. Temperature Range: -20 to +90 °C

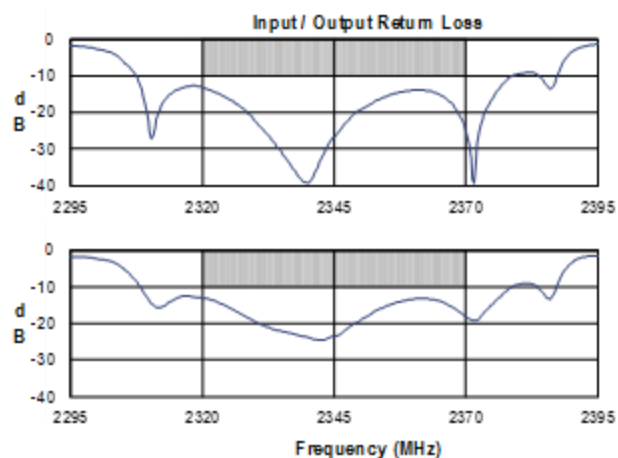
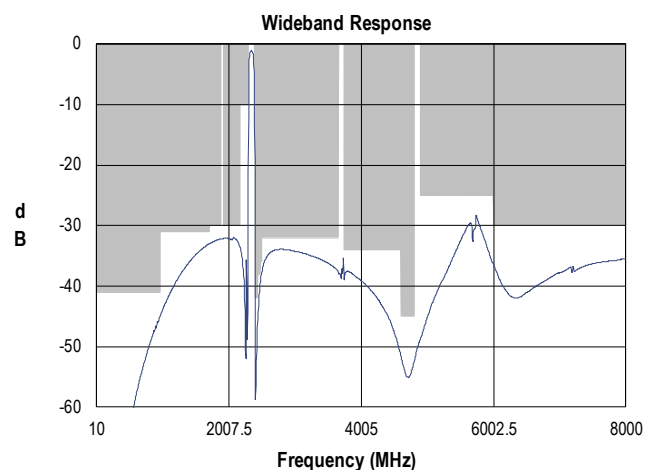
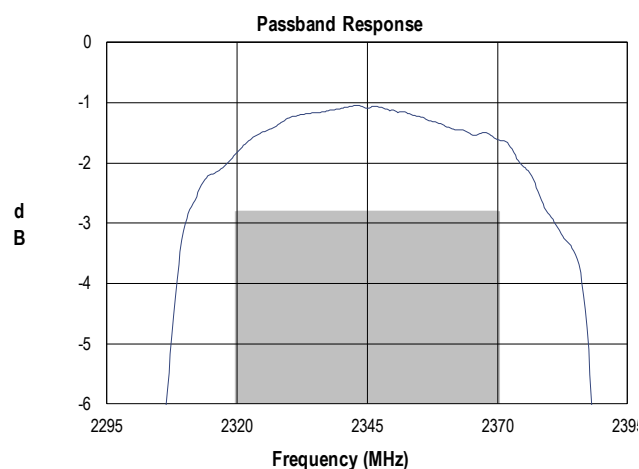
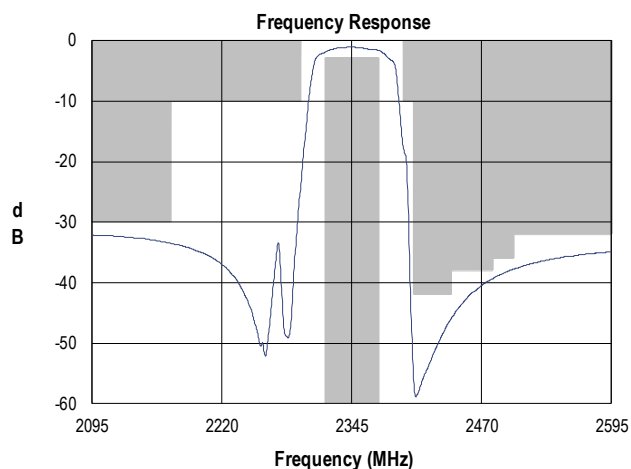
Parameter	Conditions	Min	Typ	Max	Units
Maximum Insertion Loss	2320.0 – 2370.0	-	1.9	2.8	dB
Input / Output VSWR	2320.0–2370.0 MHz	-	1.6:1	2.0:1	-
Input / Output Return Loss	2320.0–2370.0 MHz	9.5	14	-	dB
Amplitude Variation ⁽²⁾	2320.0–2370.0 MHz	-	0.9	1.5	dB
Group Delay Ripple ⁽³⁾	2320.0–2370.0 MHz	-	7	25	ns p-p
Phase Ripple ⁽⁴⁾	2320.0–2370.0 MHz	-	11	35	° p-p
Attenuation in WIFI Band ⁽⁵⁾	2405 – 2440 MHz (Channel 1 - 7)	42	47	-	dB
	2440 – 2480 MHz (Channel 8 - 14)	38	40	-	
Attenuation ⁽⁶⁾	10–960 MHz	41	45	-	dB
	961–1709 MHz	31	33	-	
	1710–1880 MHz	30	32	-	
	1920–2170 MHz	30	32	-	
	2171–2295 MHz	10	23	-	
	2395–2405 MHz	10	17	-	
	2480–2500 MHz	36	38	-	
	2500–3660 MHz	32	34	-	
	3750–4600 MHz	34	37	-	
	4600–4800 MHz	43	49	-	
2 nd Harmonic	4901–6000 MHz	25	29	-	dBc
	6001–8000 MHz	30	34	-	
Source/Load Impedance ⁽⁷⁾	Single-ended	-	50	-	Ω

Notes:

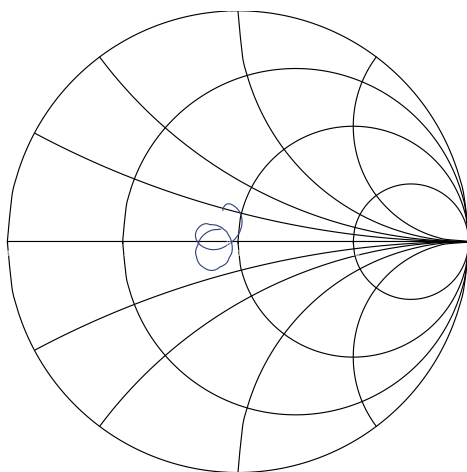
1. All specifications are based on the QORVO schematic for the main reference design shown on page 3.
2. Amplitude Variation is defined as the difference between the lowest loss and the highest loss within defined frequency points.
3. This is defined as the worst difference between a peak and adjacent valley within defined frequency points.
4. Typical values are and average of 20 pieces measured at a temperature of 25 C.
5. Attenuation is referenced to ZERO dB.
6. Attenuation is referenced to ZERO dB.
7. This is the optimum impedance in order to achieve the performance shown.

Performance Plots

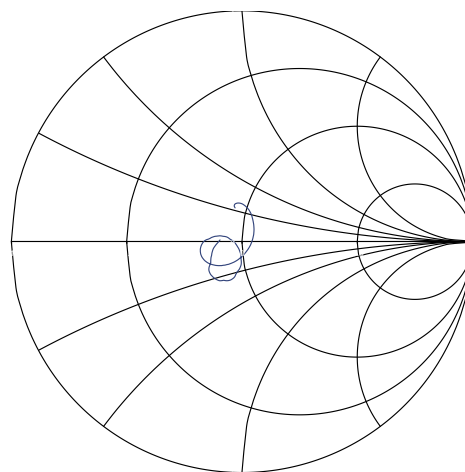
Test conditions unless otherwise noted: Temp.= +25 °C



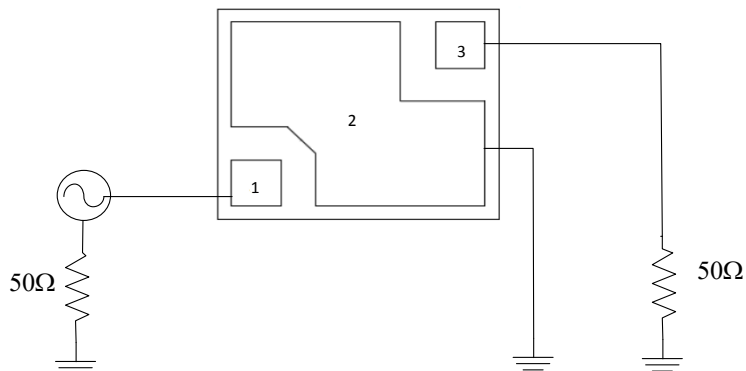
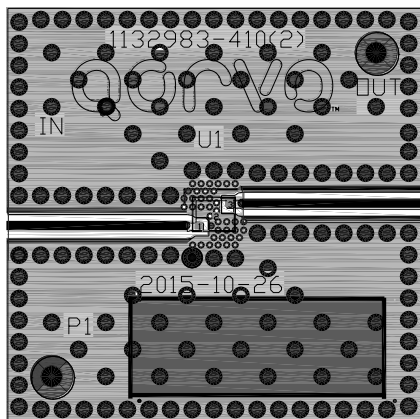
Input Smith Chart



Output Smith Chart



Evaluation Board



Notes:

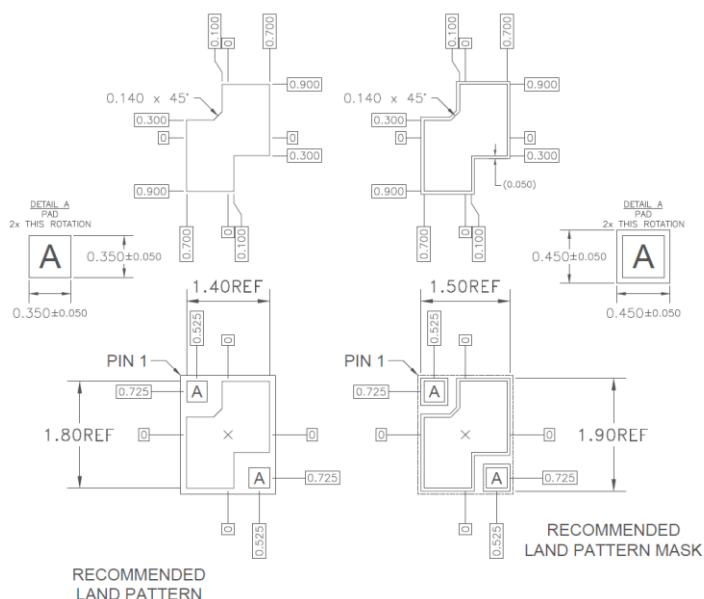
1. Top, middle & bottom layers: 1/2 oz copper, Substrates: FR4 dielectric, .062" thick, Finish plating: Nickel: 3-8 μm thick, Gold: .03-.2 μm thick, Hole plating: Copper min .0008 μm thick

Bill of Material

Reference Des.	Value	Description	Manuf.	Part Number
U1	N/A	Band 40 BAW Filter	Qorvo	QPP1286
PCB	N/A	3-layer	Multiple	1132983
SMA	N/A	SMA connector	Radiall	9602-1111-018

PCB Mounting Pattern

All dimensions are in millimeters



Package Marking and Dimensions

Marking

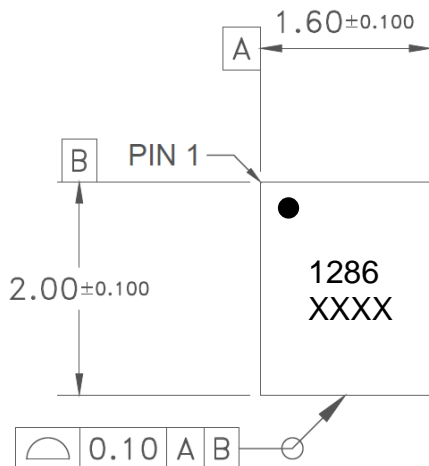
4-digit Part Number: 1286

4-digit Trace Code: XXXX

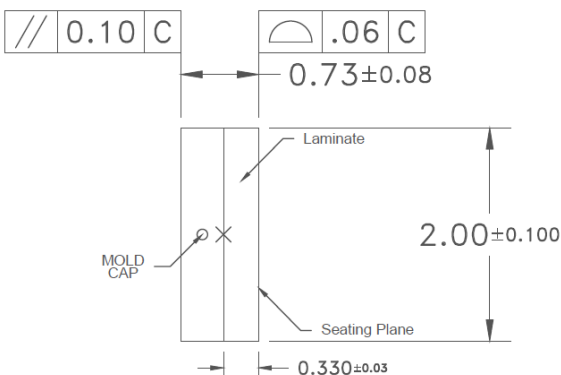
Body: Al₂O₃ ceramic

Lid: Kovar, Au over Ni plating

Terminations: Au plating 0.5 - 1.0µm, over a 2-6µm Ni plating

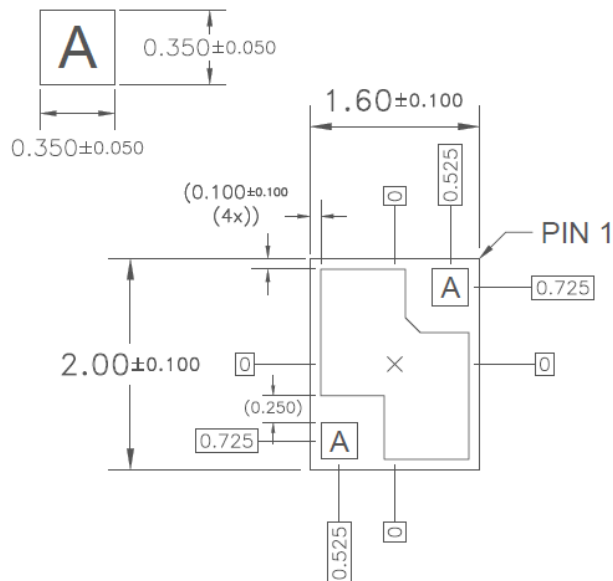


TOP
VIEW

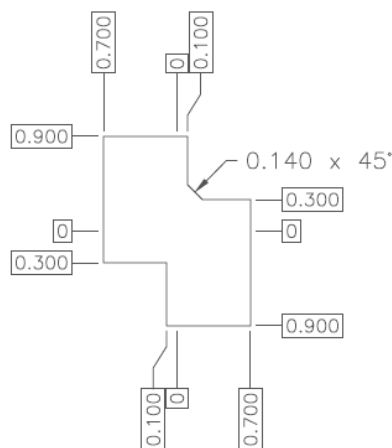


SIDE
VIEW

DETAIL A
PAD
2x THIS ROTATION



BOTTOM
VIEW

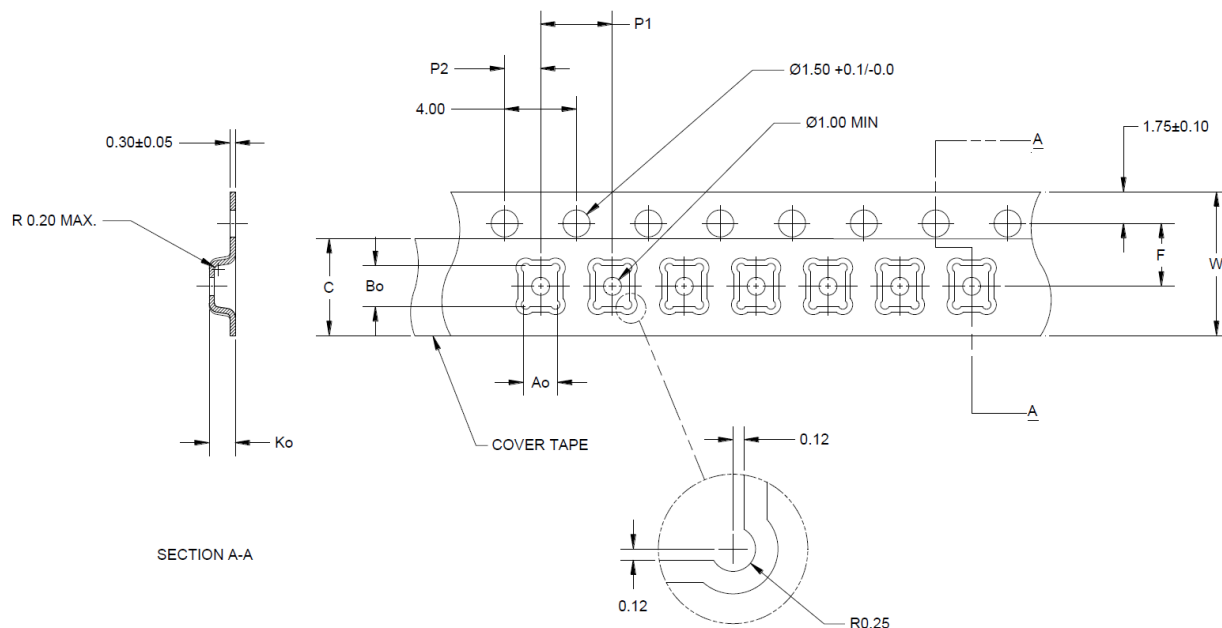


Notes:

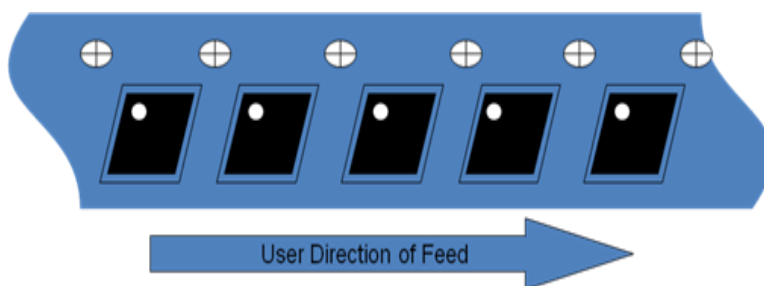
1. All dimensions are in millimeters. Angles are in degrees.
2. Dimension and tolerance formats conform to ASME Y14.4M-1994.
3. The terminal #1 identifier and terminal numbering conform to JESD 95-1 SPP-012.

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.



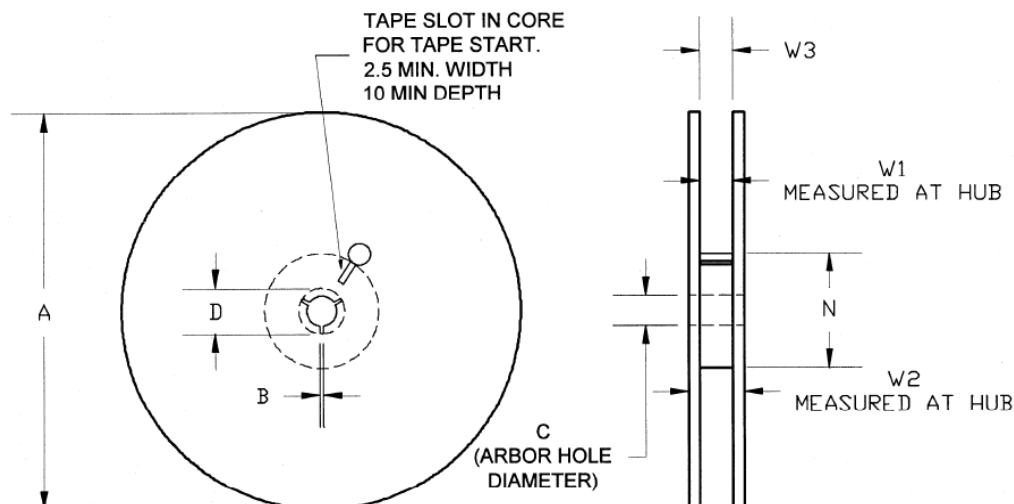
Feature	Measure	Symbol	Size (in)	Size (mm)
Cavity	Length	A0	0.077	1.95
	Width	B0	0.093	2.35
	Depth	K0	0.045	1.15
	Pitch	P1	0.157	4.00
Centerline Distance	Cavity to Perforation - Length Direction	P2	0.079	2.00
	Cavity to Perforation - Width Direction	F	0.138	3.50
Cover Tape	Width	C	0.213	5.40
Carrier Tape	Width	W	0.315	8.00



Tape and Reel Information – Reel 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.



Feature	Measure	Symbol	Size (in)	Size (mm)
Flange	Diameter	A	6.969	177.0
	Thickness	W2	0.559	14.2
	Space Between Flange	W1	0.346	8.8
Hub	Outer Diameter	N	2.283	58.0
	Arbor Hole Diameter	C	0.512	13.0
	Key Slit Width	B	0.079	2.0
	Key Slit Diameter	D	0.787	20.0

Handling Precautions

Parameter	Rating	Standard
ESD – Human Body Model (HBM)	Class 3B	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 temp.) and tin/lead (245°C max. reflow temp.) soldering processes.

Solder profiles available upon request.

Contact plating: Au over Ni

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 (C₁₅H₁₂Br₄O₂) Free
- PFOS Free
- SVHC Free
- Qorvo Green



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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