

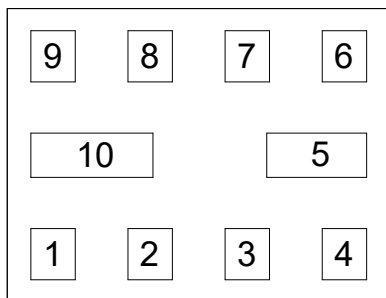
General Description

The 885137 is a high-performance Bulk Acoustic Wave (BAW) filter module designed to meet the strict LTE requirements for use in LTE from 699–2400 MHz and 2496–2690 MHz and WLAN requirements.

885137 is specifically designed to meet the high performance expectations of insertion loss and rejection for LTE and WLAN systems under all operating conditions. 885137 allows diplexing the Cellular path and a filtered WiFi path to one antenna port.

The 885137 uses common module packaging techniques to achieve the industry standard 1.7 x 1.3 x 0.46 mm footprint.

Functional Block Diagram

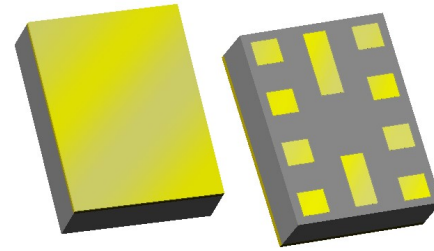


Top View

Pin Configuration - Single Ended

| Pin No. | Label |
|------------|---------------------------------|
| 1 | RF3 |
| 4 | RF2 |
| 6 | SMD# 1 to RF2 |
| 7 | SMD# 2 to RF1, SMD# 4 to Ground |
| 9 | RF1 (ANT) |
| 2,3,5,8,10 | Ground |

*Note: See Evaluation Board section page 11 for details on optimal grounding



CSP-1713 package: 1.70 x 1.30 x 0.46 mm

Product Features

- Diplexer is formed with WiFi Bandpass and Band stop filters.
- Highly selective BAW filters achieving low insertion loss and high attenuation over full bandwidth and operating conditions
- Rejection in WLAN band of 10 dB minimum
- Single antenna port, diplexing
- Performance -40 to +95 °C
- RoHS compliant, Pb-free module package



Applications

- Usable Bandwidth of 79 MHz (CH1 – 13)
- For WLAN coexistence to B7, B38, B40 and B41 LTE applications
- LTE gateways, data cards and routers
- WiFi antenna extractor circuits.
- High-power WLAN Access Points and Small Cells
- 2.4 GHz ISM applications
- Wi-Fi Set Top Box, Gateways and Routers-

Ordering Information

| Part No. | Description |
|------------|------------------------------|
| 885137 | 15,000 units/reel (standard) |
| 885137-EVB | Evaluation board |

Absolute Maximum Ratings

| Parameter | Rating |
|--------------------------------------|----------------|
| Storage Temperature ⁽¹⁾ | -55 to +150 °C |
| Operating Temperature ⁽²⁾ | -20 to +85 °C |
| RF Input Power | |
| RF2 (Cell Port) | +25 dBm |
| RF3 (WiFi Port) | +20 dBm |

Notes:

1. Operation of this device outside the parameter ranges given may cause permanent damage.
2. Specifications are not guaranteed over all operating conditions.
3. TD-SCDMA, LTE continuous; simultaneously TX power presence at RF2 and RF3.

Electrical Specifications ⁽¹⁾

Operating Temp = -40 to +95°C, Characteristic Impedance [Z0] = 50 Ω. (Unless otherwise noted)

RF1 to RF2 (Ant- Cell)(S12)

| Parameter ⁽³⁾ | Conditions | Min | Typ ⁽²⁾ | Max | Units |
|---|-------------------|-----|--------------------|-----|--------|
| Insertion Loss | 699 – 960 MHz | - | 1.3 | 2.3 | dB |
| | 1574 – 1615 MHz | | 0.8 | 0.9 | |
| | 1710 – 2170 MHz | | 1.0 | 1.3 | |
| | 2300 – 2370 MHz | | 1.9 | 3.2 | |
| | 2370 – 2377.5 MHz | | 2.5 | 4.7 | |
| | 2496 – 2510 MHz | | 2.0 | 3.7 | |
| | 2510 – 2570 MHz | | 1.0 | 1.5 | |
| | 2570 – 2690 MHz | | 1.0 | 1.4 | |
| Amplitude Variation (within any 20 MHz) | 2300 – 2370 MHz | - | 0.4 | 1.3 | dB p-p |
| | 2496 – 2510 MHz | | 1.1 | 2.8 | |
| | 2510 – 2570 MHz | | 0.3 | 0.7 | |
| VSWR (In/Out) | 2300 – 2370 MHz | - | 1.4 | 2.0 | - |
| | 2496 – 2510 MHz | | 1.9 | 3.1 | |
| | 2510 – 2570 MHz | | 1.4 | 2.4 | |
| | 2570 – 2690 MHz | | 1.4 | 2.0 | |

Notes:

1. All specifications are based on the Qorvo schematic for the reference design shown on page 11.
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature.
3. Electrical margin has been built into design to account the variations due to temperature drift and manufacturing tolerances.

Electrical Specifications ⁽¹⁾

Operating Temp = -40 to +95°C, Characteristic Impedance [ZO] = 50 Ω. (Unless otherwise noted)

RF1 to RF2 (Ant- Cell) (S12)

| Parameter ⁽³⁾ | Conditions | Min | Typ ⁽²⁾ | Max | Units |
|--|--|-----|--------------------|-----|-------|
| Attenuation ⁽⁶⁾ | 2402 – 2478.64 MHz ⁽⁴⁾ | 15 | 18 | | dB |
| | 2478.64 – 2482 MHz ⁽⁴⁾ | 13 | 18 | | |
| | 2402.5 – 2421.5 MHz (ISM Ch 1) ⁽⁵⁾ | 20 | 25 | | |
| | 2407.5 – 2426.5 MHz (ISM Ch 2) ⁽⁵⁾ | 17 | 22 | | |
| | 2412.5 – 2431.5 MHz (ISM Ch 3) ⁽⁵⁾ | 16 | 20 | | |
| | 2417.5 – 2436.5 MHz (ISM Ch 4) ⁽⁵⁾ | 16 | 19 | | |
| | 2422.5 – 2441.5 MHz (ISM Ch 5) ⁽⁵⁾ | 16 | 19 | | |
| | 2427.5 – 2446.5 MHz (ISM Ch 6) ⁽⁵⁾ | 16 | 19 | - | |
| | 2432.5 – 2451.5 MHz (ISM Ch 7) ⁽⁵⁾ | 16 | 20 | | |
| | 2437.5 – 2456.5 MHz (ISM Ch 8) ⁽⁵⁾ | 17 | 21 | | |
| | 2442.5 – 2461.5 MHz (ISM Ch 9) ⁽⁵⁾ | 17 | 23 | | |
| | 2447.5 – 2466.5 MHz (ISM Ch 10) ⁽⁵⁾ | 21 | 26 | | |
| | 2452.5 – 2471.5 MHz (ISM Ch 11) ⁽⁵⁾ | 24 | 27 | | |
| | 2457.5 – 2476.5 MHz (ISM Ch 12) ⁽⁵⁾ | 19 | 26 | | |
| 2462.5 – 2481.5 MHz (ISM Ch 13) ⁽⁵⁾ | 17 | 22 | | | |

RF2 to RF3 Isolation (Cell - WiFi) (S23)

| | | | | | |
|----------------------------|--------------------------------|----|----|---|----|
| Attenuation ⁽⁶⁾ | 2300 – 2370 MHz | 41 | 49 | | dB |
| | 2402 – 2482 MHz ⁽⁴⁾ | 17 | 19 | | |
| | ISM CH 1 – 13 ⁽⁵⁾ | 17 | 20 | | |
| | 2570 – 2690 MHz ⁽⁴⁾ | 42 | 45 | | |
| | 2496 – 2500 MHz | 13 | 28 | - | |
| | 2500 – 2510 MHz | 25 | 44 | | |
| | 2510 – 2570 MHz | 49 | 53 | | |
| | 2370 – 2400 MHz | 12 | 16 | | |

Notes:

1. All specifications are based on the Qorvo schematic for the reference design shown on page 11.
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature.
3. Electrical margin has been built into design to account the variations due to temperature drift and manufacturing tolerances.
4. Data is the integrated value of the linear s-parameter over a 1 MHz range in the indicated band.
5. Data is the integrated value of the linear s-parameter over 19MHz range in the indicated band.
6. Reference to zero dB.

Electrical Specifications ⁽¹⁾

Operating Temp = -40 to +95°C, Characteristic Impedance [ZO] = 50 Ω. (Unless otherwise noted)

RF1 to RF3 (Ant- WiFi) (S13)

| Parameter ⁽³⁾ | Conditions | Min | Typ ⁽²⁾ | Max | Units |
|----------------------------|-------------------------------------|-----|--------------------|-----|--------|
| Insertion Loss | 2402 – 2480 MHz | - | 2.6 | 4.2 | dB |
| | 2402 – 2475.81 MHz ⁽⁴⁾ | | 2.4 | 3.4 | |
| | 2475.81 – 2480 MHz ⁽⁴⁾ | | 2.4 | 4.3 | |
| | ISM CH 1 – 12 ⁽⁵⁾ | | 1.8 | 2.3 | |
| | ISM CH 13 ⁽⁵⁾ | | 1.8 | 2.7 | |
| Amplitude Variation | 2402 – 2480 MHz | - | 1.5 | 3.1 | dB p-p |
| | 2402 – 2480 MHz (within any 20 MHz) | | 1.3 | 2.7 | |
| Attenuation ⁽⁶⁾ | 10 – 1549 MHz | 44 | 45 | - | dB |
| | 1549 – 1615 MHz | 44 | 45 | | |
| | 1710 – 1990 MHz | 41 | 42 | | |
| | 2110 – 2170 MHz | 40 | 42 | | |
| | 2300 – 2370 MHz | 46 | 48 | | |
| | 2496 – 2500 MHz | 12 | 25 | | |
| | 2500 – 2570 MHz | 22 | 39 | | |
| | 2570 – 2690 MHz | 42 | 44 | | |
| VSWR (In/Out) | 2402 – 2480 MHz | - | 1.7 | 2.6 | - |

Notes:

1. All specifications are based on the Qorvo schematic for the reference design shown on page 11.
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5. Data is the integrated value of the linear s-parameter over 19MHz range in the indicated band.
6. Reference to zero dB.

Electrical Specifications ⁽¹⁾

Operating Temp = -30 to +85°C, Characteristic Impedance [Z0] = 50 Ω. (Unless otherwise noted)

RF1 to RF2 (Ant- Cell) (S12)

| Parameter ⁽³⁾ | Conditions | Min | Typ ⁽²⁾ | Max | Units |
|---|-------------------|-----|--------------------|-----|--------|
| Insertion Loss | 699 – 960 MHz | | 1.3 | 2.3 | dB |
| | 1574 – 1615 MHz | | 0.8 | 0.9 | |
| | 1710 – 2170 MHz | | 1.0 | 1.2 | |
| | 2300 – 2370 MHz | | 1.9 | 3.1 | |
| | 2370 – 2377.5 MHz | - | 2.5 | 4.6 | |
| | 2496 – 2510 MHz | | 2.0 | 3.6 | |
| | 2510 – 2570 MHz | | 1.0 | 1.5 | |
| Amplitude Variation (within any 20 MHz) | 2300 – 2370 MHz | | 0.4 | 1.3 | dB p-p |
| | 2496 – 2510 MHz | - | 1.1 | 2.7 | |
| | 2510 – 2570 MHz | | 0.3 | 0.7 | |
| VSWR (In/Out) | 2300 – 2370 MHz | | 1.4 | 2.0 | - |
| | 2496 – 2510 MHz | | 1.9 | 3.0 | |
| | 2510 – 2570 MHz | - | 1.4 | 2.3 | |
| | 2570 – 2690 MHz | | 1.4 | 2.0 | |

Notes:

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Electrical Specifications ⁽¹⁾

Operating Temp = -30 to +85°C, Characteristic Impedance [ZO] = 50 Ω. (Unless otherwise noted)

RF1 to RF2 (Ant- Cell) (S12)

| Parameter ⁽³⁾ | Conditions | Min | Typ ⁽²⁾ | Max | Units |
|--|--|-----|--------------------|-----|-------|
| Attenuation ⁽⁶⁾ | 2402 – 2478.64 MHz ⁽⁴⁾ | 15 | 18 | | dB |
| | 2478.64 – 2482 MHz ⁽⁴⁾ | 14 | 18 | | |
| | 2402.5 – 2421.5 MHz (ISM Ch 1) ⁽⁵⁾ | 20 | 25 | | |
| | 2407.5 – 2426.5 MHz (ISM Ch 2) ⁽⁵⁾ | 17 | 22 | | |
| | 2412.5 – 2431.5 MHz (ISM Ch 3) ⁽⁵⁾ | 16 | 20 | | |
| | 2417.5 – 2436.5 MHz (ISM Ch 4) ⁽⁵⁾ | 16 | 19 | | |
| | 2422.5 – 2441.5 MHz (ISM Ch 5) ⁽⁵⁾ | 16 | 19 | | |
| | 2427.5 – 2446.5 MHz (ISM Ch 6) ⁽⁵⁾ | 16 | 19 | - | |
| | 2432.5 – 2451.5 MHz (ISM Ch 7) ⁽⁵⁾ | 16 | 20 | | |
| | 2437.5 – 2456.5 MHz (ISM Ch 8) ⁽⁵⁾ | 17 | 21 | | |
| | 2442.5 – 2461.5 MHz (ISM Ch 9) ⁽⁵⁾ | 17 | 23 | | |
| | 2447.5 – 2466.5 MHz (ISM Ch 10) ⁽⁵⁾ | 21 | 26 | | |
| | 2452.5 – 2471.5 MHz (ISM Ch 11) ⁽⁵⁾ | 24 | 27 | | |
| 2457.5 – 2476.5 MHz (ISM Ch 12) ⁽⁵⁾ | 19 | 26 | | | |
| 2462.5 – 2481.5 MHz (ISM Ch 13) ⁽⁵⁾ | 17 | 22 | | | |

RF2 to RF3 Isolation (Cell - WiFi) (S23)

| | | | | | |
|----------------------------|--------------------------------|----|----|---|----|
| Attenuation ⁽⁶⁾ | 2300 – 2370 MHz | 41 | 49 | | dB |
| | 2402 – 2482 MHz ⁽⁴⁾ | 17 | 19 | | |
| | ISM CH 1 – 13 ⁽⁵⁾ | 17 | 20 | | |
| | 2570 – 2690 MHz ⁽⁴⁾ | 42 | 45 | | |
| | 2496 – 2500 MHz | 13 | 28 | - | |
| | 2500 – 2510 MHz | 26 | 44 | | |
| | 2510 – 2570 MHz | 49 | 53 | | |
| | 2370 – 2400 MHz | 12 | 16 | | |

Notes:

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4. Data is the integrated value of the linear s-parameter over a 1 MHz range in the indicated band.
5. Data is the integrated value of the linear s-parameter over 19 MHz range in the indicated band.
6. Reference to zero dB.

Electrical Specifications ⁽¹⁾

Operating Temp = -30 to +85°C, Characteristic Impedance [ZO] = 50 Ω. (Unless otherwise noted)

RF1 to RF3 (Ant- WiFi) (S13)

| Parameter ⁽³⁾ | Conditions | Min | Typ ⁽²⁾ | Max | Units |
|----------------------------|-------------------------------------|-----|--------------------|-----|--------|
| Insertion Loss | 2402 – 2480 MHz | - | 2.6 | 4.0 | dB |
| | 2402 – 2475.81 MHz ⁽⁴⁾ | | 2.4 | 3.4 | |
| | 2475.81 – 2480 MHz ⁽⁴⁾ | | 2.4 | 4.1 | |
| | ISM CH 1 – 12 ⁽⁵⁾ | | 1.8 | 2.2 | |
| | ISM CH 13 ⁽⁵⁾ | | 1.8 | 2.6 | |
| Amplitude Variation | 2402 – 2480 MHz | - | 1.5 | 2.9 | dB p-p |
| | 2402 – 2480 MHz (within any 20 MHz) | | 1.3 | 2.6 | |
| Attenuation ⁽⁶⁾ | 10 – 1549 MHz | 44 | 45 | - | - |
| | 1549 – 1615 MHz | 44 | 45 | | |
| | 1710 – 1990 MHz | 41 | 42 | | |
| | 2110 – 2170 MHz | 40 | 42 | | |
| | 2300 – 2370 MHz | 46 | 48 | | |
| | 2496 – 2500 MHz | 12 | 25 | | |
| | 2500 – 2570 MHz | 23 | 39 | | |
| | 2570 – 2690 MHz | 42 | 44 | | |
| VSWR (In/Out) | 2402 – 2480 MHz | - | 1.7 | 2.5 | - |

Notes:

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6. Reference to zero dB.

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RF1 to RF2 (Ant- Cell) (S12)

| Parameter ⁽³⁾ | Conditions | Min | Typ ⁽²⁾ | Max | Units |
|---|-------------------|-----|--------------------|-----|--------|
| Insertion Loss | 699 – 960 MHz | - | 1.3 | 2.3 | dB |
| | 1574 – 1615 MHz | | 0.8 | 0.9 | |
| | 1710 – 2170 MHz | | 1.0 | 1.2 | |
| | 2300 – 2370 MHz | | 1.9 | 3.0 | |
| | 2370 – 2377.5 MHz | | 2.5 | 4.4 | |
| | 2496 – 2510 MHz | | 2.0 | 3.3 | |
| | 2510 – 2570 MHz | | 1.0 | 1.5 | |
| Amplitude Variation (within any 20 MHz) | 2300 – 2370 MHz | - | 0.4 | 1.2 | dB p-p |
| | 2496 – 2510 MHz | | 1.1 | 2.3 | |
| | 2510 – 2570 MHz | | 0.3 | 0.6 | |
| VSWR (In/Out) | 2300 – 2370 MHz | - | 1.4 | 2.0 | - |
| | 2496 – 2510 MHz | | 1.9 | 2.9 | |
| | 2510 – 2570 MHz | | 1.4 | 2.3 | |
| | 2570 – 2690 MHz | | 1.4 | 2.0 | |

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RF1 to RF2 (Ant- Cell) (S12)

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| | 2402.5 – 2421.5 MHz (ISM Ch 1) ⁽⁵⁾ | 21 | 25 | | |
| | 2407.5 – 2426.5 MHz (ISM Ch 2) ⁽⁵⁾ | 17 | 22 | | |
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| | 2417.5 – 2436.5 MHz (ISM Ch 4) ⁽⁵⁾ | 16 | 19 | | |
| | 2422.5 – 2441.5 MHz (ISM Ch 5) ⁽⁵⁾ | 16 | 19 | | |
| | 2427.5 – 2446.5 MHz (ISM Ch 6) ⁽⁵⁾ | 16 | 19 | - | |
| | 2432.5 – 2451.5 MHz (ISM Ch 7) ⁽⁵⁾ | 16 | 20 | | |
| | 2437.5 – 2456.5 MHz (ISM Ch 8) ⁽⁵⁾ | 17 | 21 | | |
| | 2442.5 – 2461.5 MHz (ISM Ch 9) ⁽⁵⁾ | 18 | 23 | | |
| | 2447.5 – 2466.5 MHz (ISM Ch 10) ⁽⁵⁾ | 22 | 26 | | |
| | 2452.5 – 2471.5 MHz (ISM Ch 11) ⁽⁵⁾ | 24 | 27 | | |
| 2457.5 – 2476.5 MHz (ISM Ch 12) ⁽⁵⁾ | 20 | 26 | | | |
| 2462.5 – 2481.5 MHz (ISM Ch 13) ⁽⁵⁾ | 17 | 22 | | | |

RF2 to RF3 Isolation (Cell - WiFi)(S23)

| | | | | | |
|----------------------------|--------------------------------|----|----|--|----|
| Attenuation ⁽⁶⁾ | 2300 – 2370 MHz | 41 | 49 | | dB |
| | 2402 – 2482 MHz ⁽⁴⁾ | 17 | 19 | | |
| | ISM CH 1 – 13 ⁽⁵⁾ | 17 | 20 | | |
| | 2570 – 2690 MHz ⁽⁴⁾ | 42 | 45 | | |
| | 2496 – 2500 MHz | 14 | 28 | | |
| | 2500 – 2510 MHz | 27 | 44 | | |
| | 2510 – 2570 MHz | 49 | 53 | | |
| | 2370 – 2400 MHz | 12 | 16 | | |

Notes:

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6. Reference to zero dB.

Electrical Specifications ⁽¹⁾

Operating Temp = 0 to +70 °C, Characteristic Impedance [Z0] = 50 Ω. (Unless otherwise noted)

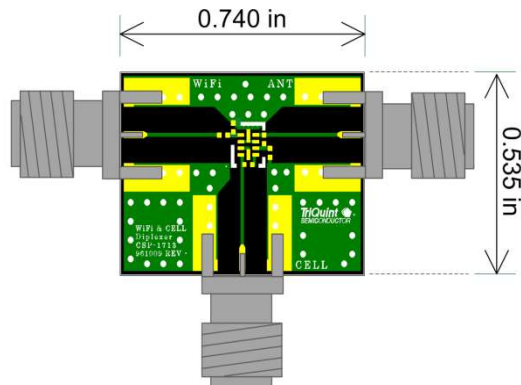
RF1 to RF3 (Ant- WiFi) (S13)

| Parameter ⁽³⁾ | Conditions | Min | Typ ⁽²⁾ | Max | Units |
|----------------------------|-------------------------------------|-----|--------------------|-----|--------|
| Insertion Loss | 2402 – 2480 MHz | - | 2.6 | 3.8 | dB |
| | 2402 – 2475.81 MHz ⁽⁴⁾ | | 2.4 | 3.3 | |
| | 2475.81 – 2480 MHz ⁽⁴⁾ | | 2.4 | 3.8 | |
| | ISM CH 1 – 12 ⁽⁵⁾ | | 1.8 | 2.2 | |
| | ISM CH 13 ⁽⁵⁾ | | 1.8 | 2.5 | |
| Amplitude Variation | 2402 – 2480 MHz | - | 1.5 | 2.7 | dB p-p |
| | 2402 – 2480 MHz (within any 20 MHz) | | 1.3 | 2.4 | |
| Attenuation ⁽⁶⁾ | 10 – 1549 MHz | 44 | 45 | - | - |
| | 1549 – 1615 MHz | 44 | 45 | | |
| | 1710 – 1990 MHz | 41 | 42 | | |
| | 2110 – 2170 MHz | 41 | 42 | | |
| | 2300 – 2370 MHz | 46 | 48 | | |
| | 2496 – 2500 MHz | 12 | 25 | | |
| | 2500 – 2570 MHz | 26 | 39 | | |
| | 2570 – 2690 MHz | 42 | 44 | | |
| VSWR (In/Out) | 2402 – 2480 MHz | 1 | 1.7 | 2.4 | - |

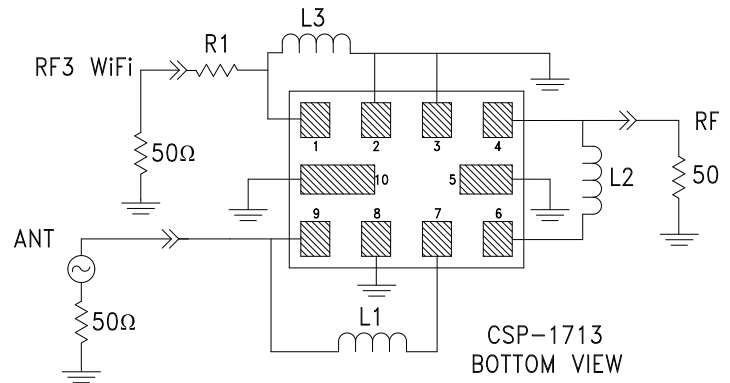
Notes:

1. All specifications are based on the Qorvo schematic for the reference design shown on page 11.
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3. Electrical margin has been built into design to account the variations due to temperature drift and manufacturing tolerances.
4. Data is the integrated value of the linear s-parameter over a 1 MHz range in the indicated band.
5. Data is the integrated value of the linear s-parameter over 19 MHz range in the indicated band.
6. Reference to zero dB.

Evaluation Board



Schematic



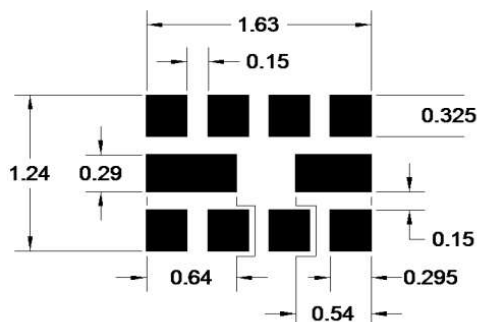
Notes:

- This is the optimum impedance in order to achieve the performance shown.
PCB: 0.75 x 0.75 x 0.063; Construction: 1 OZ Cu Top, Middle and Bottom Layers; Material in between middle and top layer: TLY-5A (.0075); Material in between mid-bottom layers: FR4. (Dimensions are in inches)

Bill of Material

| Reference Des. | Value | Description | Manuf. | Part Number |
|----------------|--------|-----------------------------|-----------|---------------|
| U1 | n/a | Diplexer | TriQuint | 885137 |
| L1 | 3.2 nH | 3.2 nH ± 0.1 nH; 0201 SMD | Murata | LQP03TN3N2B02 |
| L2 | 3.6 nH | 3.6 nH ± 0.1 nH; 0201 SMD | Murata | LQP03TN3N6B02 |
| L3 | 6.2 nH | 6.2 nH ± 3 %; 0201 SMD | Murata | LQP03TN6N2H02 |
| R1 | 0 Ω | 0.0 Ohm 1/20 W jumper; 0201 | Panasonic | ERJ1GN0R00C |
| SMA | N/A | SMA connector | Radiall | 9602-1111-018 |
| PCB | n/a | Printed Circuit Board | TriQuint | 961009 |

PCB Mounting Pattern

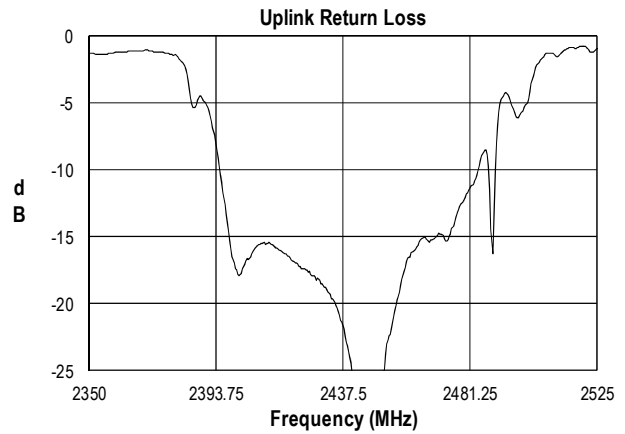
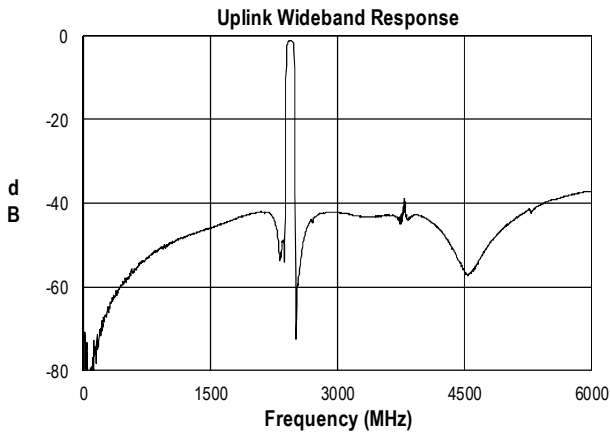
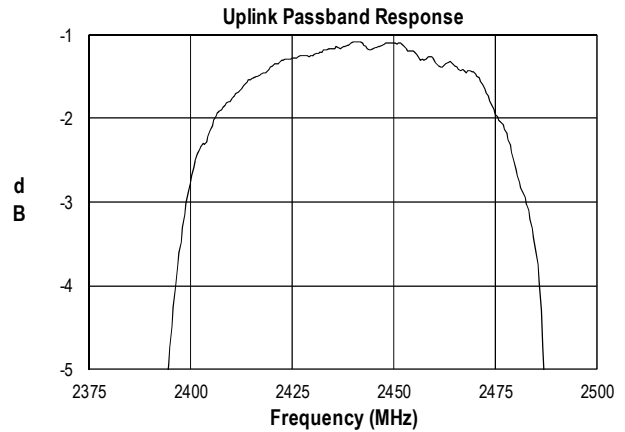
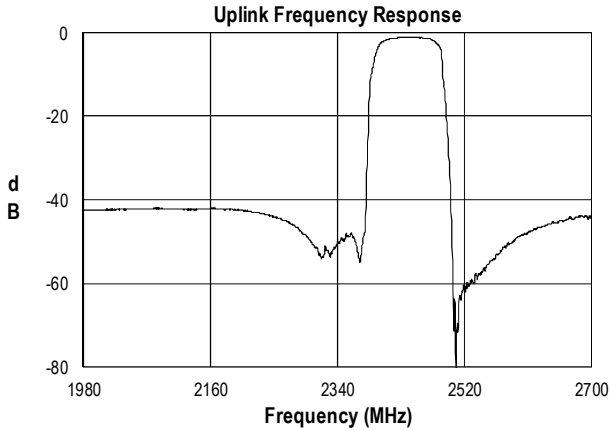


Notes:

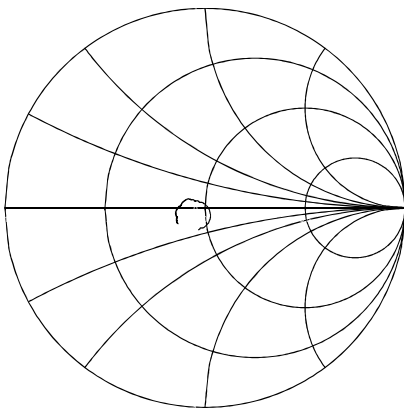
- All dimensions are in millimeters. Angles are in degrees.
- This drawing specifies the mounting pattern used on the TriQuint evaluation board for this product. Some modification may be necessary to suit end user assembly materials and processes

Performance Plots – RF1 to RF3 (ANT-WiFi) (S13)

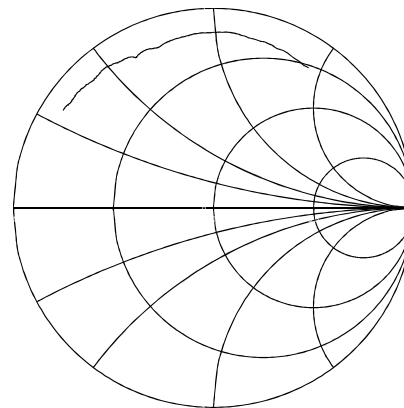
Test conditions unless otherwise noted: Temp= +25 °C



Uplink Path - Antenna Port Impedance

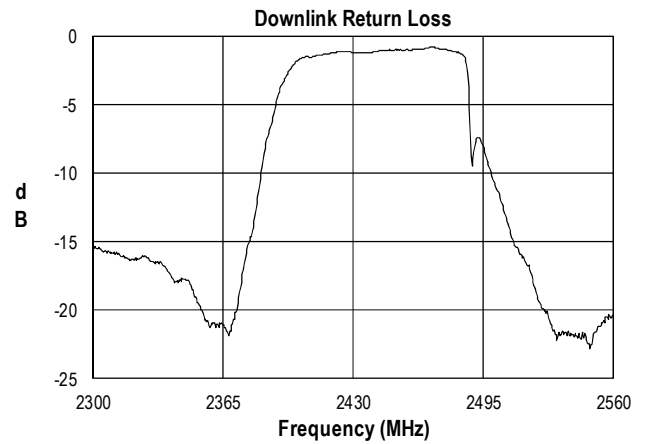
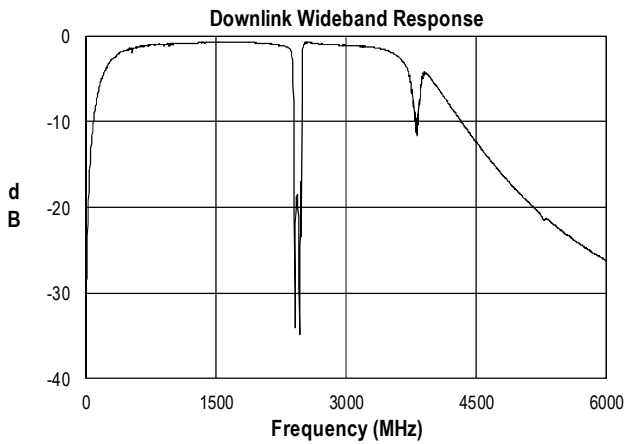
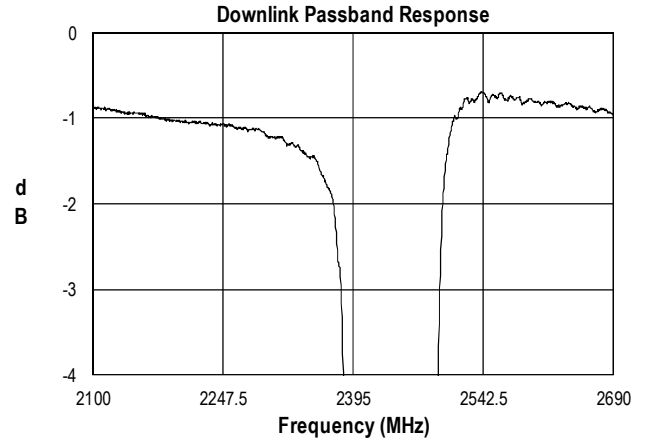
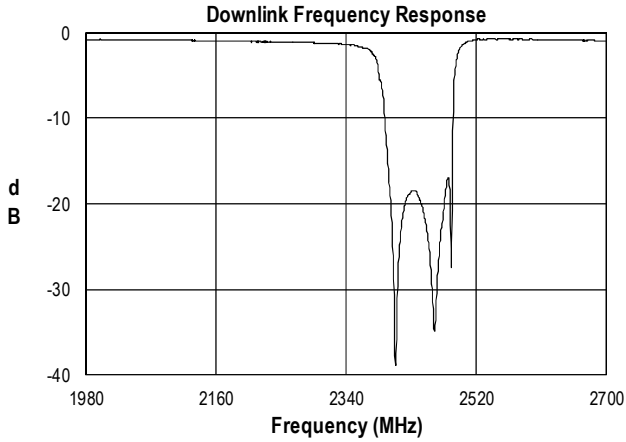


Uplink Port Impedance

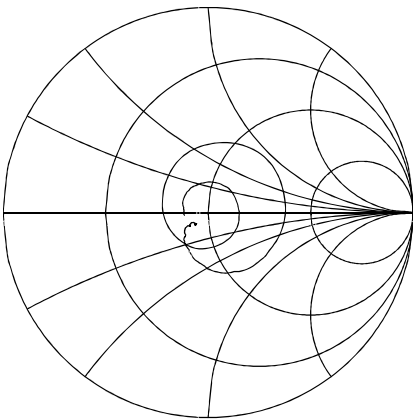


Performance Plots- RF1 to RF2 (ANT- Cell) (S12)

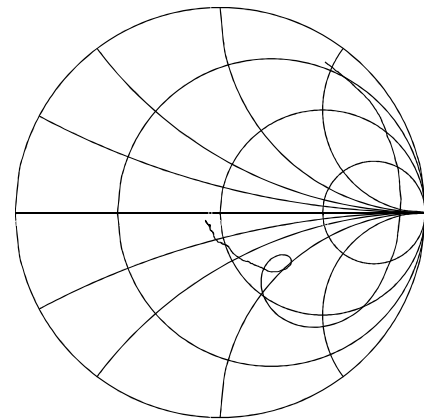
Test conditions unless otherwise noted: Temp= +25 °C



Downlink Path - Antenna Port Impedance

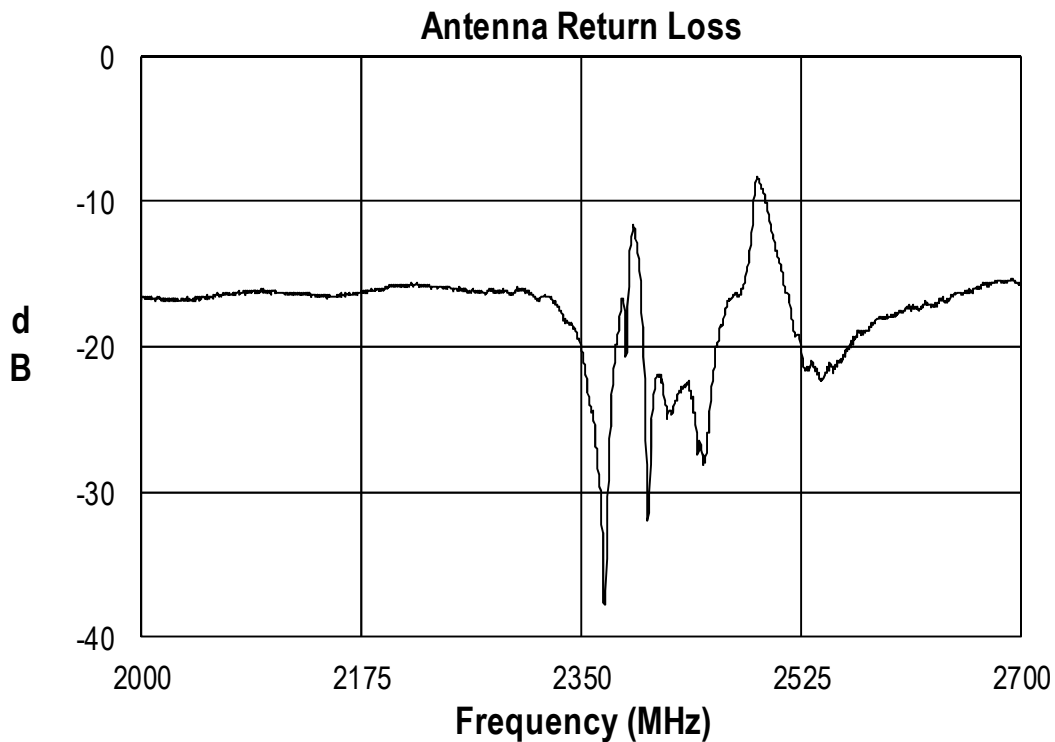
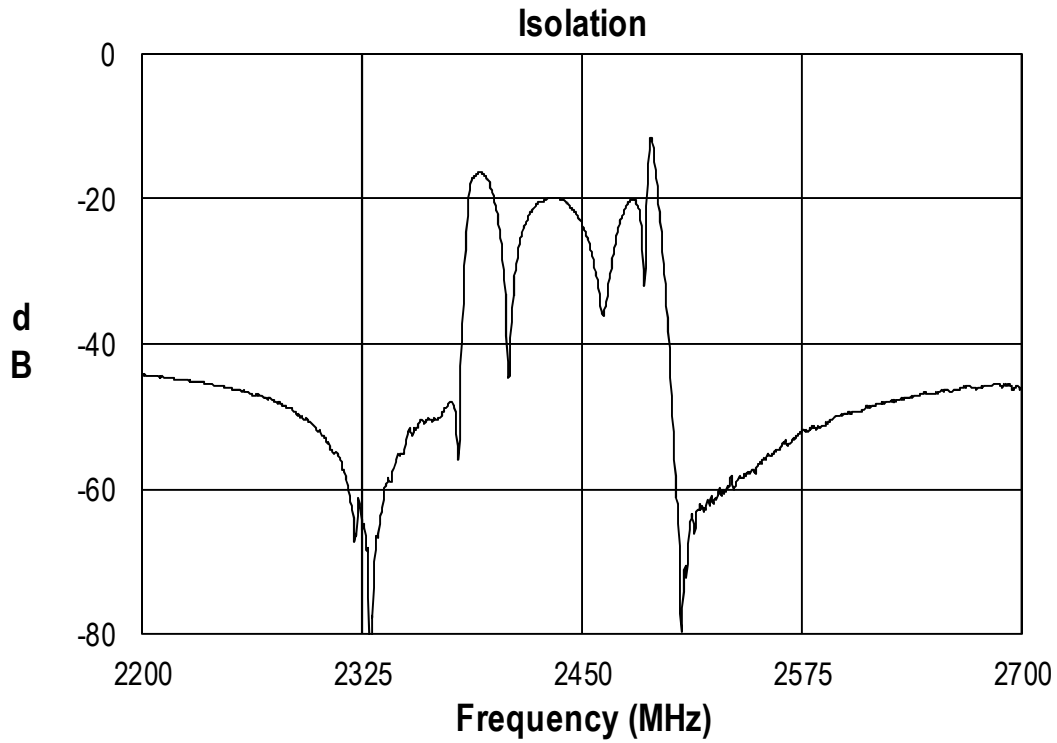


Downlink Port Impedance

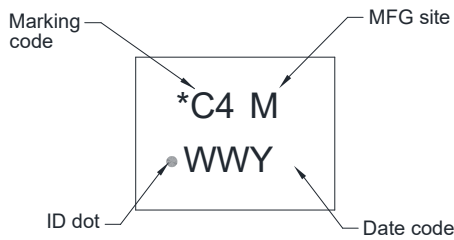


Performance Plots - RF2 to RF3 (Cell - WiFi) (S23)

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



Package Information, Marking and Dimensions

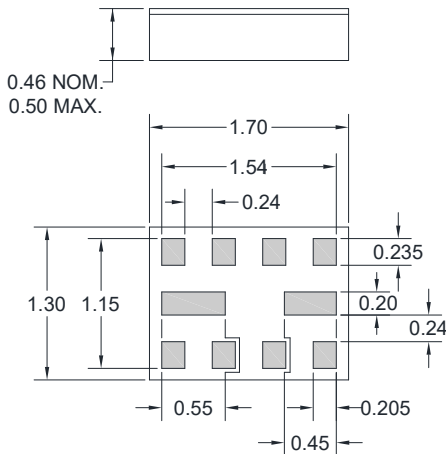


Package Style: CSP-1713
 Dimensions: 1.7 x 1.3 x 0.50 mm

Package for Surface Mount Technology
 Terminations: Au plating 0.5 - 1.0 μm , over a 2-6 μm Ni Plating
 Approximate weight 3.96 mg

All dimensions shown are nominal in millimeters.
 Unless otherwise specified all tolerances are $\pm 0.05\text{mm}$ except length and width that are specified as $\pm 0.1\text{mm}$

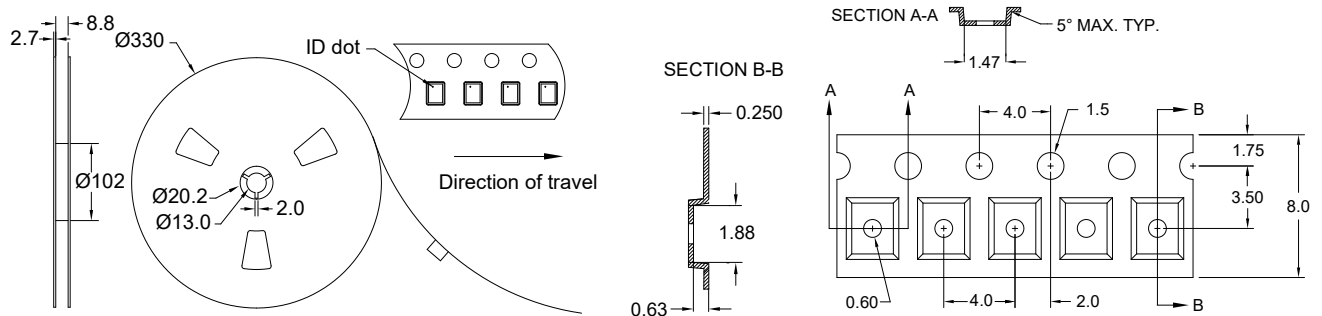
The Marking Code is correlated with the Part Number
 M=Manufacturing Site Code (Blank for Apopka, C for Costa Rica)
 The Date Code consists of:
 WW = 2 digit week
 Y=The last digit of the year



- Notes:
1. All dimensions shown are typical in millimeters
 2. An asterisk (*) in front of the marking code indicates prototype.

Tape and Reel information

Standard T/R size = 15,000 units/reel. All dimensions are in millimeters



Handling Precautions

| Parameter | Rating | Standard |
|----------------------------------|----------------------------------|----------------------------|
| ESD – Human Body Model (HBM) | Class 1B | ESDA / JEDEC JS-001 |
| ESD – Machine Model (MM) | Class B | JEDEC Standard JESD22-A115 |
| MSL – Moisture Sensitivity Level | Not applicable. Hermetic package | |



Caution!
ESD-Sensitive Device

Solderability

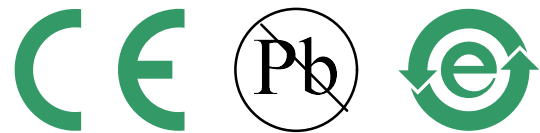
Compatible with both lead-free (260°C max. reflow temp.) and tin/lead (245°C max. reflow temp.) soldering processes. Solder profiles available upon request.

Refer to [Soldering Profile](#) for recommended guidelines

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:

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Tel: 1-844-890-8163
Email: customer.support@qorvo.com

For technical questions and application information: **Email:** fapplication.engineering@qorvo.com

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[PD0922J5050D2HF](#) [1E1305-3](#) [1F1304-3S](#) [1G1304-30](#) [B0922J7575AHF](#) [2020-6622-20](#) [TP-103-PIN](#) [BD1222J50200AHF](#)