
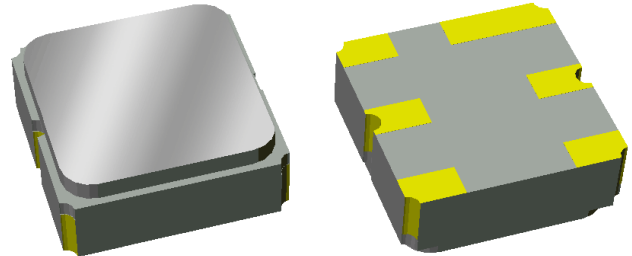


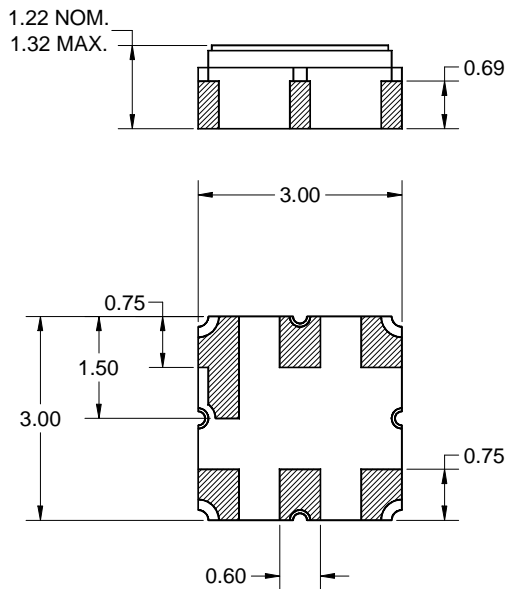
## Features

- For WiMAX applications
- Usable bandwidth 10 MHz
- High attenuation
- No impedance matching required for operation at 50  $\Omega$
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free 



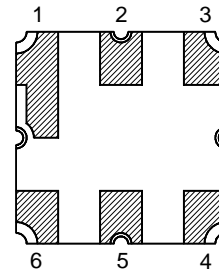
## Package

Surface Mount 3.00 x 3.00 x 1.22 mm  
SMP-12



## Pin Configuration

Bottom View



### Single-ended Configuration

| Pin No. | Description |
|---------|-------------|
| 2       | Input       |
| 5       | Output      |
| 1,3,4,6 | Case ground |

Dimensions shown are nominal in millimeters  
All tolerances are  $\pm 0.15$ mm except overall  
length and width  $\pm 0.10$ mm

Body:  $Al_2O_3$  ceramic  
Lid: Kovar, Ni plated  
Terminations: Au plating 0.5 - 1.0 $\mu$ m,  
over a 2 - 6 $\mu$ m Ni plating

**Electrical Specifications <sup>(1)</sup>**

**Operating Temperature Range:** <sup>(2)</sup> -40 to +85 °C

| Parameter <sup>(3)</sup>                                | Minimum | Typical <sup>(4)</sup> | Maximum | Unit |
|---|---------|------------------------|---------|------|
| <b>Center Frequency</b>                                 | -       | 810                    | -       | MHz  |
| <b>Maximum Insertion Loss</b><br>805 - 815 MHz          | -       | 3.5                    | 5.0     | dB   |
| <b>Amplitude Ripple <sup>(5)</sup></b><br>805 - 815 MHz | -       | 0.7                    | 2.0     | dB   |
| <b>Group Delay Variation</b><br>805 - 815 MHz           | -       | 40                     | 150     | ns   |
| <b>Absolute Attenuation</b><br>10 - 760 MHz             | 50      | 58                     | -       | dB   |
| 760 - 790 MHz   | 30      | 47                     | -       | dB   |
| 790 - 792 MHz   | 20      | 42                     | -       | dB   |
| 792 - 794.5 MHz   | 10      | 30                     | -       | dB   |
| 825.5 - 828 MHz   | 10      | 30                     | -       | dB   |
| 828 - 830 MHz   | 20      | 40                     | -       | dB   |
| 830 - 860 MHz   | 30      | 47                     | -       | dB   |
| 860 - 1300 MHz  | 50      | 56                     | -       | dB   |
| <b>Source Impedance (single-ended) <sup>(6)</sup></b>   | -       | 50                     | -       | Ω    |
| <b>Load Impedance (single-ended) <sup>(6)</sup></b>     | -       | 50                     | -       | Ω    |

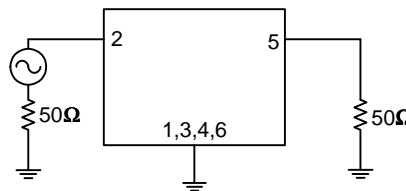
**Notes:**

1. All specifications are based on the TriQuint test circuit shown below
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 the design to account for the variations due to temperature drift and manufacturing tolerances
4. Typical values are based on average measurements at room temperature
5. Amplitude ripple is defined as the worst case difference between the peak and adjacent valley within the defined frequency points
6. This is the optimum impedance in order to achieve the performance shown

**Test Circuit:**

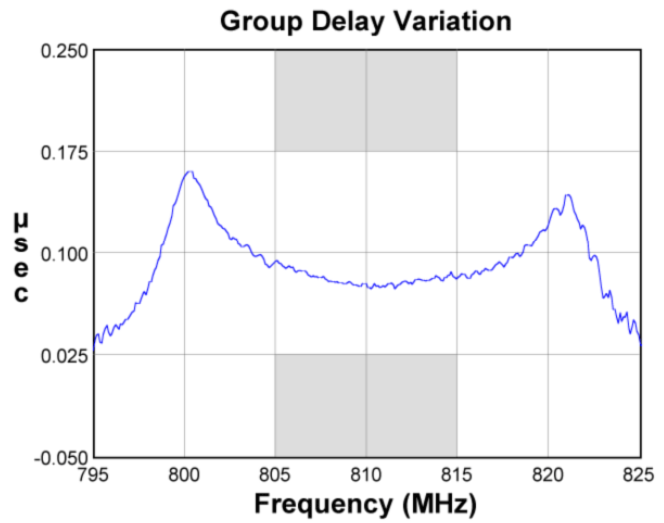
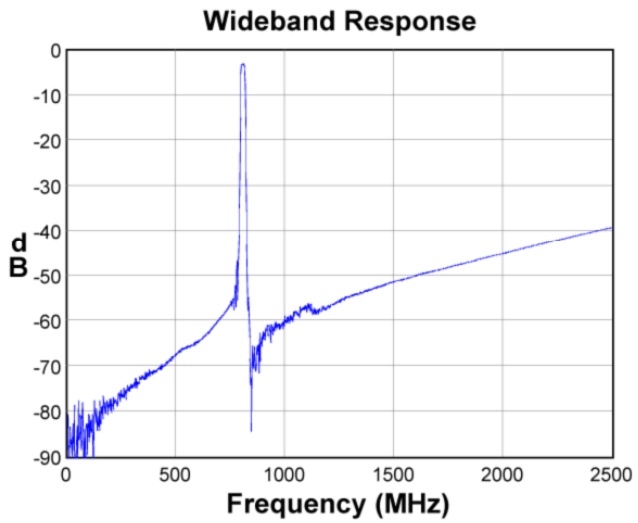
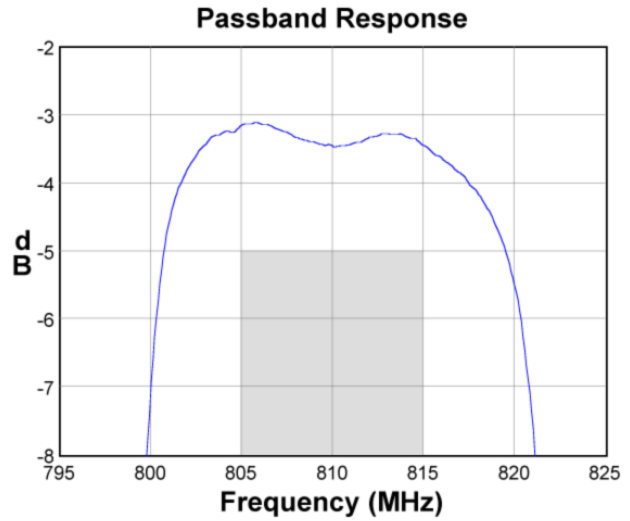
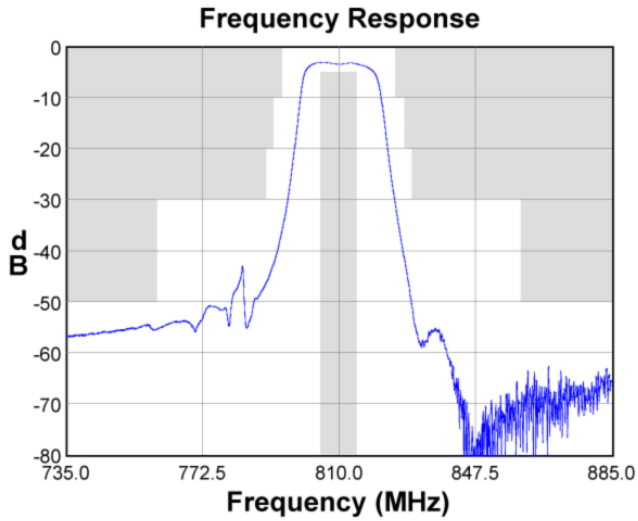
Actual matching values may vary due to PCB layout and parasitics

50 Ω  
Single-ended  
Input  
No impedance matching  
required

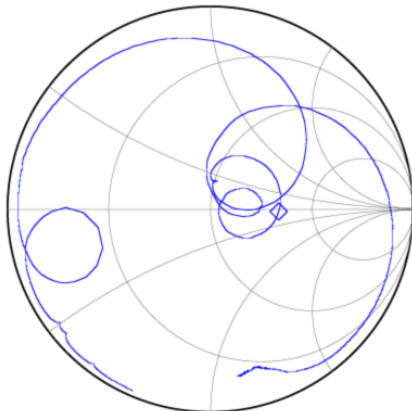


50 Ω  
Single-ended  
Output  
No impedance matching  
required

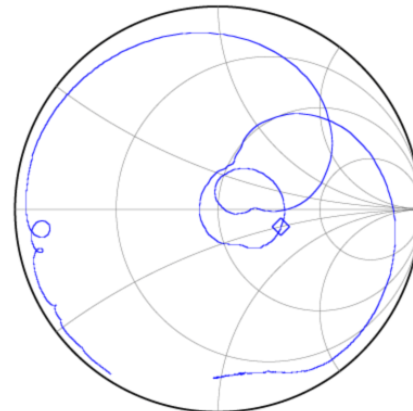
**Typical Performance (at room temperature)**



**Input Smith Chart**



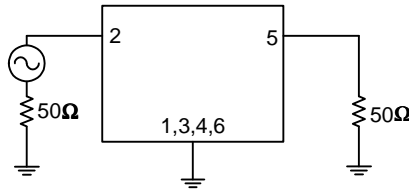
**Output Smith Chart**



**Matching Schematics**

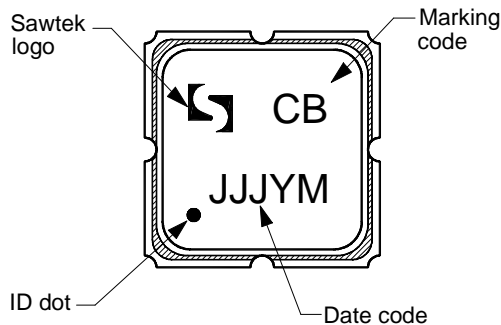
Actual matching values may vary due to PCB layout and parasitics

50  $\Omega$   
Single-ended  
Input  
No impedance matching  
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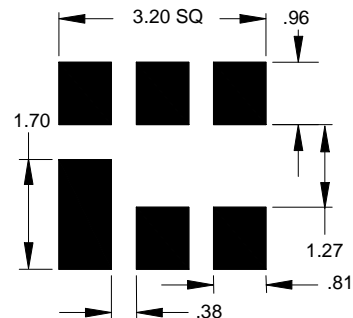
50  $\Omega$   
Single-ended  
Output  
No impedance matching  
required

**Marking**



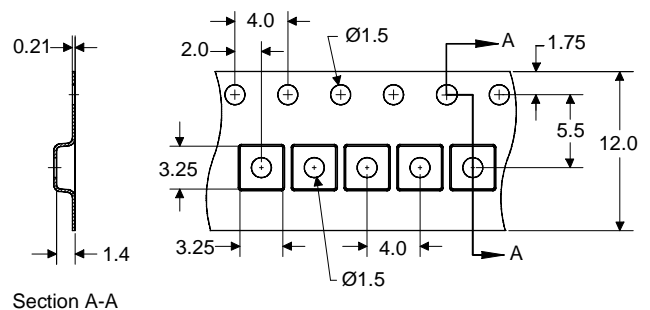
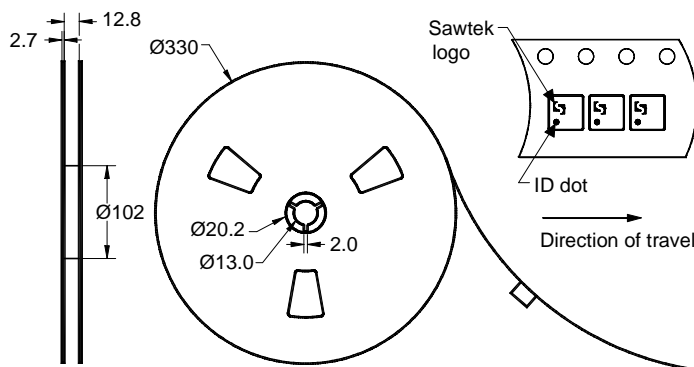
The date code consists of: day of the current year (Julian, 3 digits), last digit of the year (1 digit) and hour (2 digits)

**PCB Footprint**



This footprint represents a recommendation only  
Dimensions shown are nominal in millimeters

**Tape and Reel**




Dimensions shown are nominal in millimeters  
Packaging quantity: 5000 units/reel

### Maximum Ratings


| Parameter                   | Symbol           | Minimum | Maximum | Unit |
|-----------------------------|------------------|---------|---------|------|
| Operating Temperature Range | T                | -40     | +85     | °C   |
| Storage Temperature Range   | T <sub>stg</sub> | -40     | +85     | °C   |

### Important Notes

#### Warnings

- Electrostatic Sensitive Device (ESD) 
- Avoid ultrasonic exposure

#### RoHS Compliance

- This product complies with EU directive 2002/95/EC (RoHS) 

#### Solderability

- Compatible with JESD22-B102, Pb-free process, 260C peak reflow temperature ([see soldering profile](#))

### Links to Additional Technical Information

[PCB Layout Tips](#)

[Qualification Flowchart](#)

[Soldering Profile](#)

[S-Parameters](#)

[RoHS Information](#)

[Other Technical Information](#)

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### Contact Information

**TriQuint**   
SEMICONDUCTOR

PO Box 609501  
Orlando, FL 32860-9501  
USA

Phone: +1 (407) 886-8860  
Fax: +1 (407) 886-7061  
Email: [info-product@tqs.com](mailto:info-product@tqs.com)  
Web: [www.triquint.com](http://www.triquint.com)

Or contact one of our worldwide  
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