
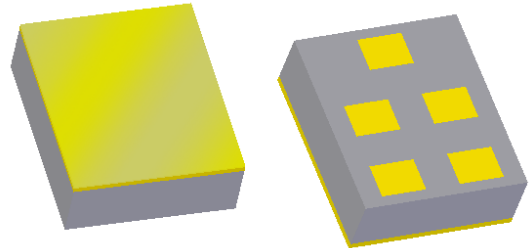


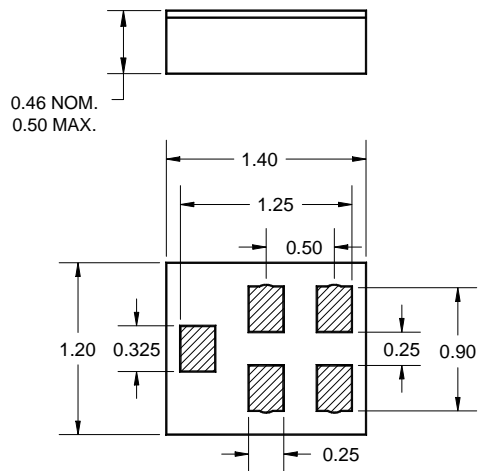
## Features

- Ultra-Low Loss
- For GPS applications
- Single-ended operation
- Small Size
- Usable bandwidth 2.4 MHz
- Ceramic chip-scale Package (CSP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free 



## Package

Surface Mount 1.40 x 1.20 x 0.46 mm  
CSP-5BT

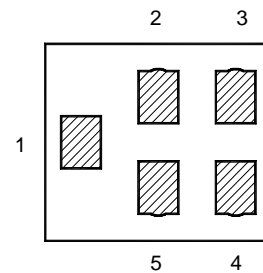


Dimensions shown are nominal in millimeters  
All tolerances are  $\pm 0.10$ mm

Body:  $Al_2O_3$  ceramic  
Lid: Kovar or Alloy 42, Au over Ni plated  
Terminations: Au plating 0.5 - 1.0 $\mu$ m,  
over a 2 - 6 $\mu$ m Ni plating

## Pin Configuration

Bottom View



Pin No.	Description
1	Input
4	Output
2,3,5	Ground

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

Operating Temperature Range: <sup>(2)</sup> -30 to +85 °C

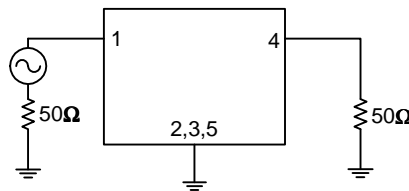
Parameter <sup>(3)</sup>	Minimum	Typical <sup>(4)</sup>	Maximum	Unit
<b>Center Frequency</b>	-	1575.42	-	MHz
<b>Maximum Insertion Loss</b> 1574.22 – 1576.62 MHz	-	0.6	0.8	dB
<b>Amplitude Variation</b> 1574.22 – 1576.62 MHz	-	0.02	0.2	dB p-p
<b>Absolute Attenuation</b> 824 – 960 MHz	21	22	-	dB
1500 – 1525.42 MHz	21	34	-	dB
1625.42 – 1650 MHz	21	34	-	dB
1710 – 2170 MHz	23	24	-	dB
<b>Input/Output Return Loss</b> 1574.22 – 1576.62 MHz	15	23	-	dB
<b>Source Impedance (single-ended) <sup>(5)</sup></b>	-	50	-	Ω
<b>Load Impedance (single-ended) <sup>(5)</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. This is the optimum impedance in order to achieve the performance shown

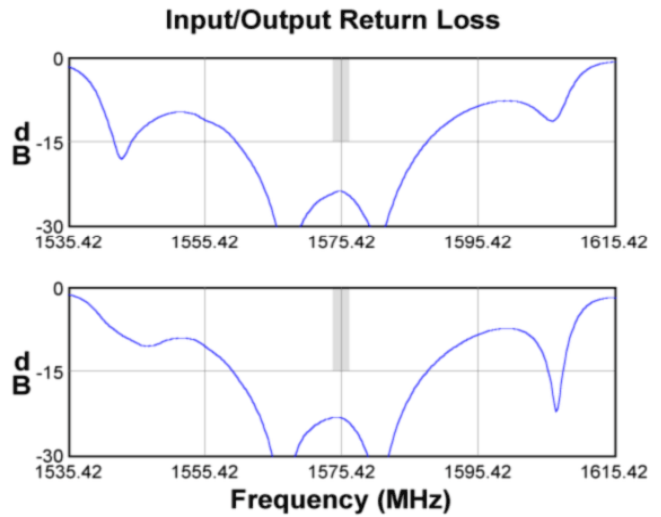
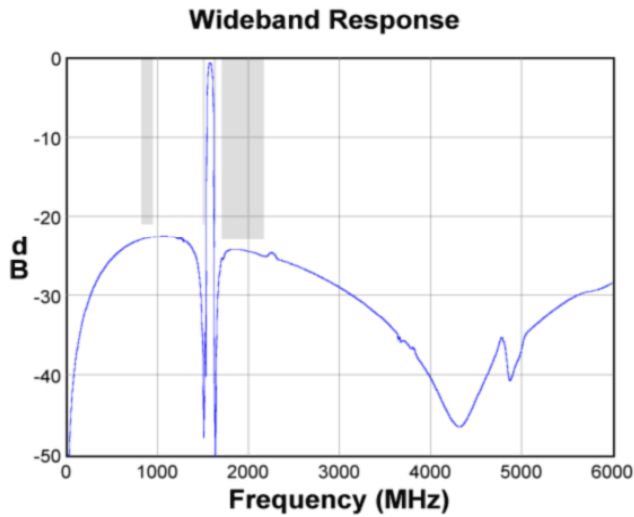
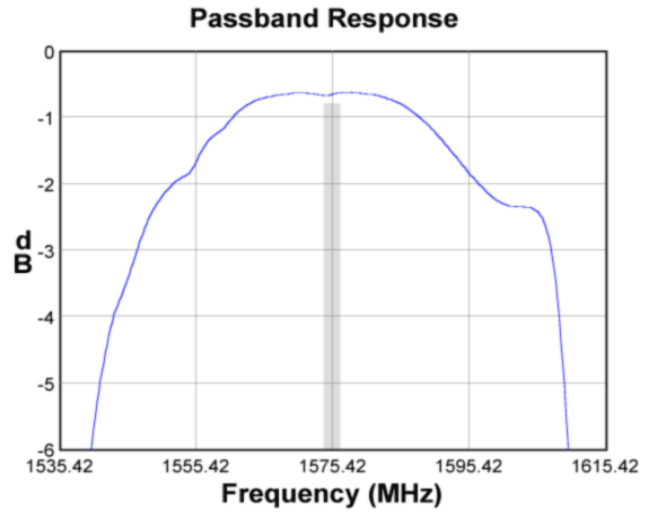
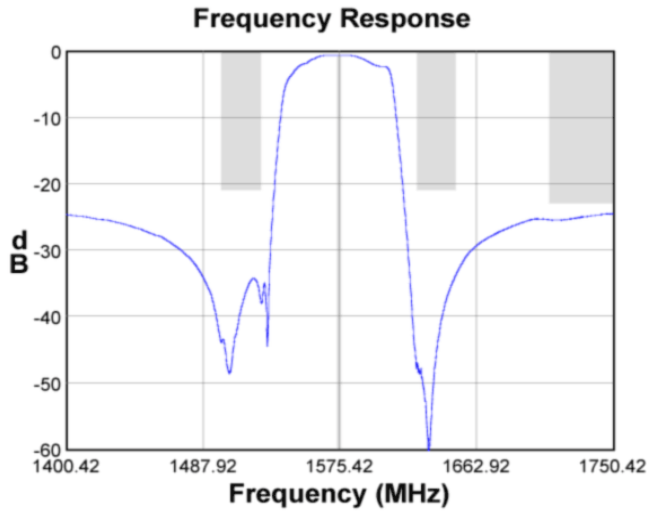
**Test Circuit:**

50 Ω  
Single-ended  
Input  
No impedance matching  
required

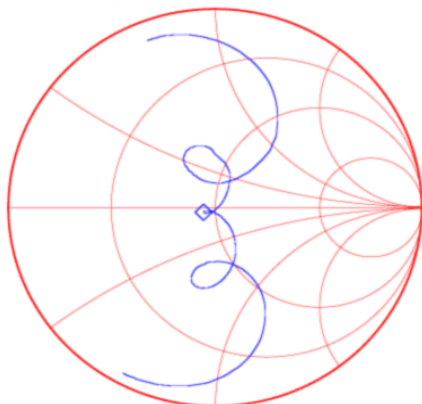


50 Ω  
Single-ended  
Output  
No impedance matching  
required

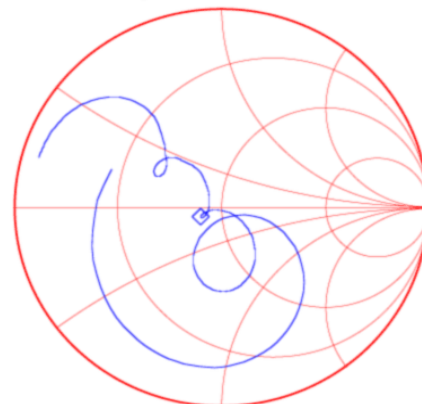
**Typical Performance (at room temperature)**



**Input Smith Chart**

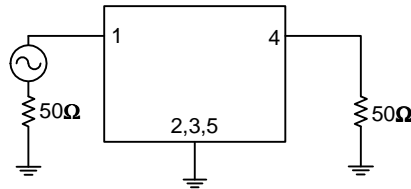


**Output Smith Chart**



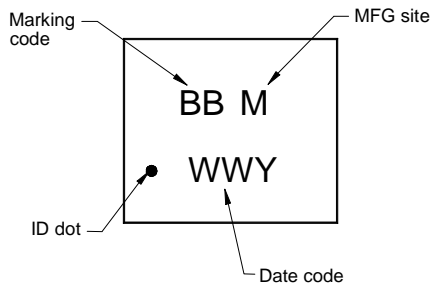
**Matching Schematics**

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



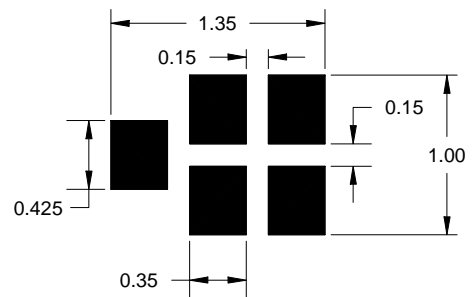
50  $\Omega$   
Single-ended  
Output  
No impedance matching  
required

**Marking**



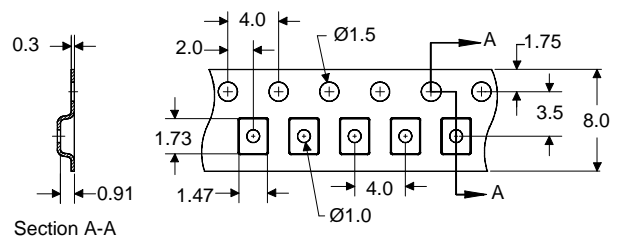
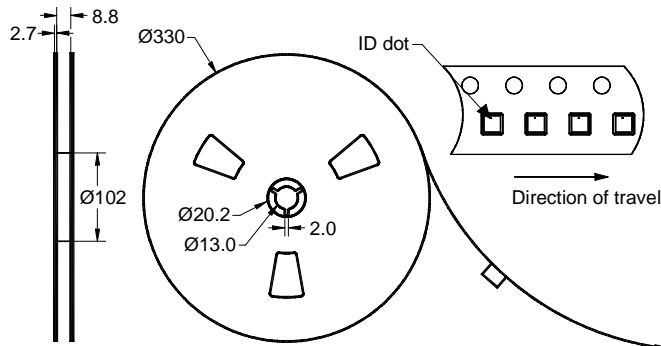
The date code consists of: WW = 2 digit week,  
Y = last digit of year, M = manufacturing site code

**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: 10000 units/reel

### Maximum Ratings


Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	-30	+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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