
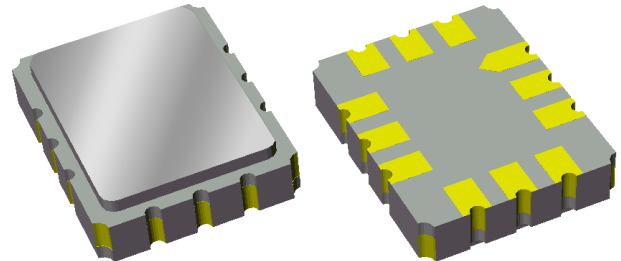


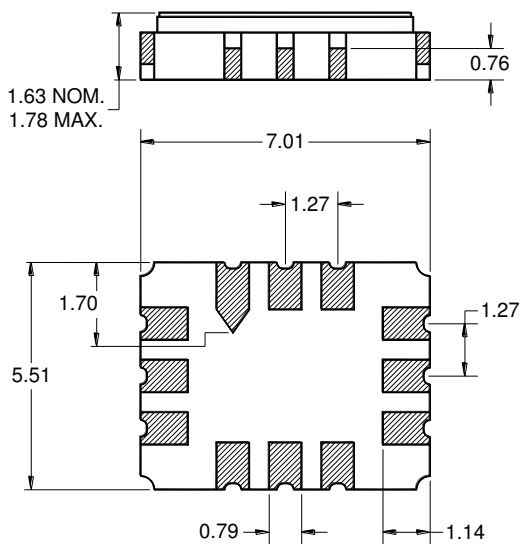
## Features

- For WCDMA Applications
- Usable Bandwidth of 19.2 MHz
- Low Loss
- High Attenuation
- Balanced Operation
- Ceramic Surface Mount Package (SMP)
- Hermetic
- RoHS compliant (2002/95/EC), **Pb-free** 



## Package

Surface Mount 7.01 x 5.51 x 1.63 mm  
SMP-28B

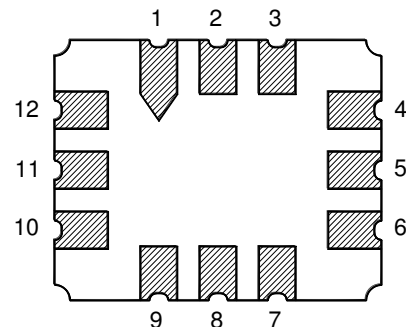


Dimensions shown are nominal in millimeters  
All tolerances are  $\pm 0.15$ mm except overall  
length and width  $\pm 0.13$ mm

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

## Pin Configuration

Bottom View



| Pin No.  | Description |
|----------|-------------|
| 10       | Input +     |
| 12       | Input -     |
| 4        | Output +    |
| 6        | Output -    |
| 1,2,3,5  | Case Ground |
| 7,8,9,11 | Case Ground |

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

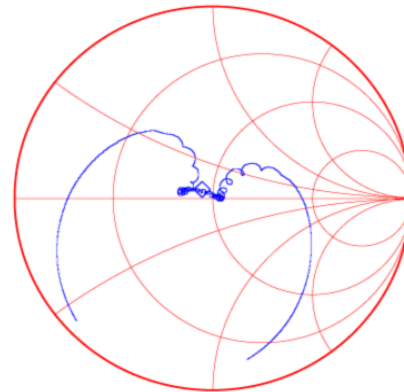
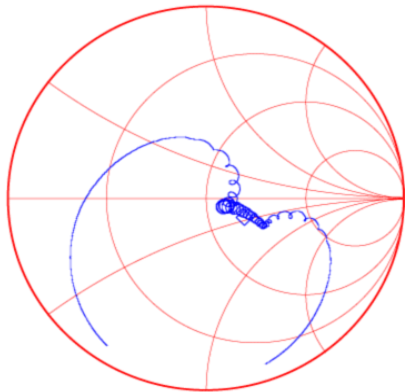
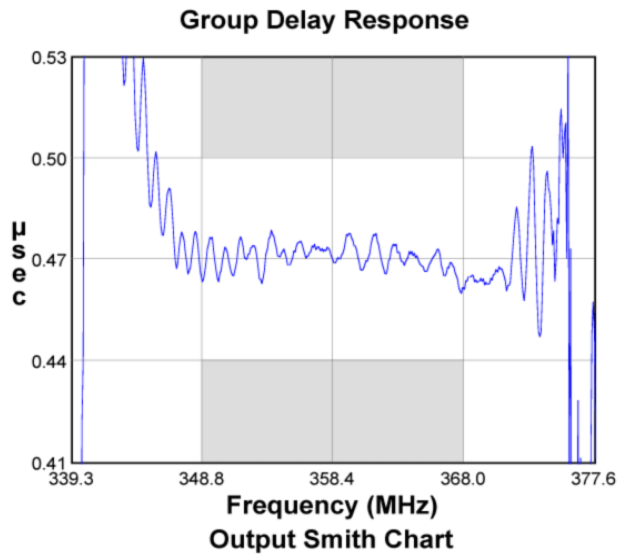
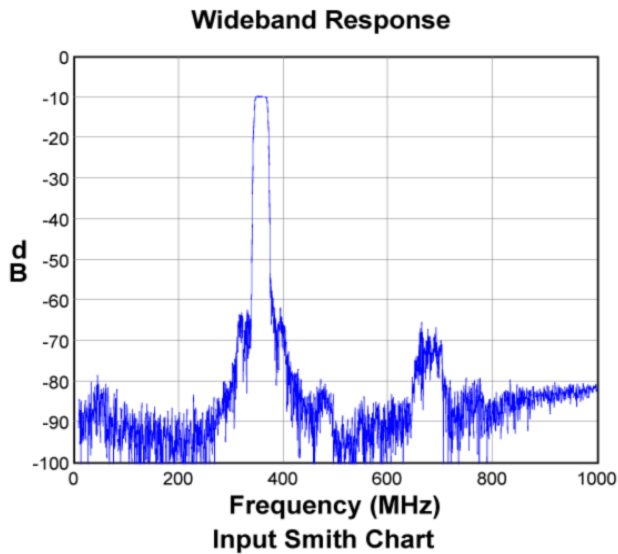
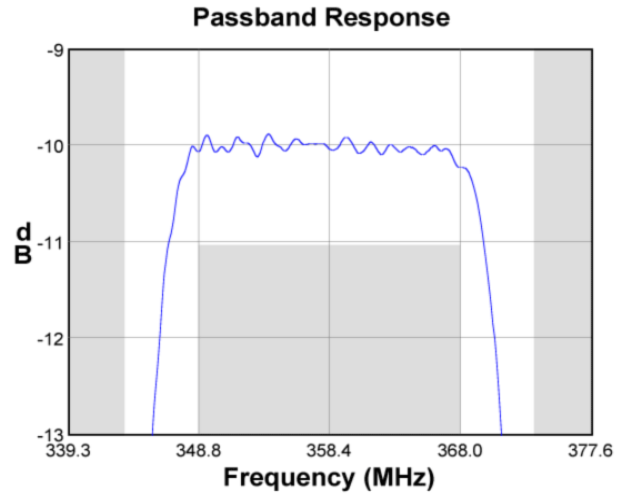
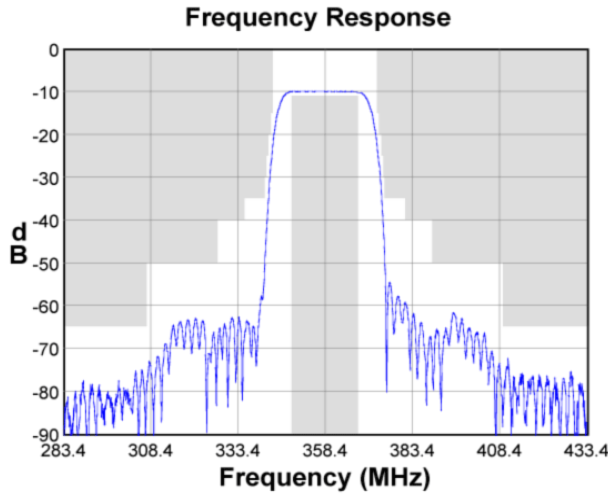
Operating Temperature Range: <sup>(2)</sup> -33 to +85 °C

| Parameter <sup>(3)</sup>                                  | Minimum | Typical <sup>(4)</sup> | Maximum | Unit   |
|---|---------|------------------------|---------|--------|
| <b>Center Frequency</b>                                   | -       | 358.4                  | -       | MHz    |
| <b>Insertion Loss at Center Frequency</b>                 | -       | 10.1                   | 12.5    | dB     |
| <b>Lower 5 dB Bandedge <sup>(5)</sup></b>                 | 343.4   | 344.8                  | -       | MHz    |
| <b>Upper 5 dB Bandedge <sup>(5)</sup></b>                 | -       | 371.8                  | 373.4   | MHz    |
| <b>Amplitude Variation</b><br>348.8 – 368 MHz             | -       | 0.3                    | 1.0     | dB p-p |
| <b>Absolute Group Delay</b>                               | -       | 470                    | 600     | ns     |
| <b>Group Delay Variation</b><br>348.8 – 368 MHz           | -       | 25                     | 60      | ns p-p |
| <b>Absolute Attenuation <sup>(5)</sup></b>                |         |                        |         |        |
| 10.00 – 286.40 MHz  | 55      | 70                     | -       | dB     |
| 286.40 – 307.40 MHz                                       | 55      | 62                     | -       | dB     |
| 307.40 – 327.70 MHz                                       | 40      | 52                     | -       | dB     |
| 327.70 – 335.40 MHz                                       | 30      | 51                     | -       | dB     |
| 335.40 – 341.15 MHz                                       | 25      | 38                     | -       | dB     |
| 341.15 – 341.65 MHz                                       | 20      | 31                     | -       | dB     |
| 341.65 – 342.15 MHz                                       | 15      | 25                     | -       | dB     |
| 342.15 – 342.90 MHz                                       | 10      | 17                     | -       | dB     |
| 373.90 – 374.65 MHz                                       | 10      | 17                     | -       | dB     |
| 374.65 – 375.15 MHz                                       | 15      | 25                     | -       | dB     |
| 375.15 – 375.40 MHz                                       | 20      | 32                     | -       | dB     |
| 375.40 – 381.40 MHz                                       | 25      | 37                     | -       | dB     |
| 381.40 – 389.10 MHz                                       | 30      | 49                     | -       | dB     |
| 389.10 – 409.40 MHz                                       | 40      | 51                     | -       | dB     |
| 409.40 – 430.40 MHz                                       | 55      | 64                     | -       | dB     |
| 430.40 – 640.00 MHz                                       | 55      | 66                     | -       | dB     |
| 640.00 – 720.00 MHz                                       | 50      | 55                     | -       | dB     |
| 720.00 – 1000 MHz   | 55      | 70                     | -       | dB     |
| <b>Time Side-lobe Response Attenuation (1.0 – 500 μs)</b> | 40      | 48                     | -       | dB     |
| <b>Source Impedance Balanced <sup>(6)</sup></b>           | -       | 200                    | -       | Ω      |
| <b>Load Impedance Balanced <sup>(6)</sup></b>             | -       | 200                    | -       | Ω      |

**Notes:**

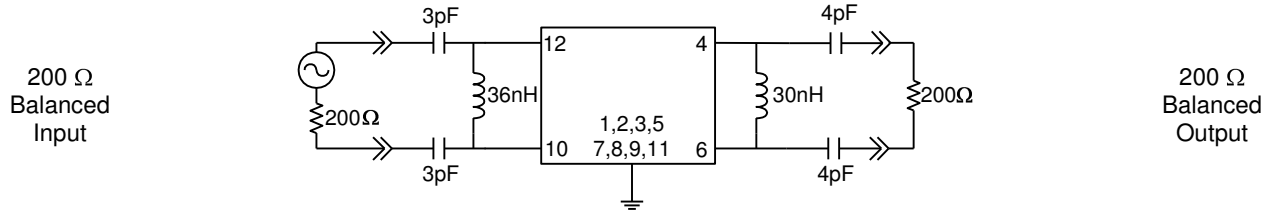
1. All specifications are based on the TriQuint test circuit shown on page 4
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
3. Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances
4. Typical values are based on average measurements at room temperature
5. Relative to insertion loss at center frequency
6. This is the optimum impedance in order to achieve the performance shown

**Typical Performance (at room temperature)**

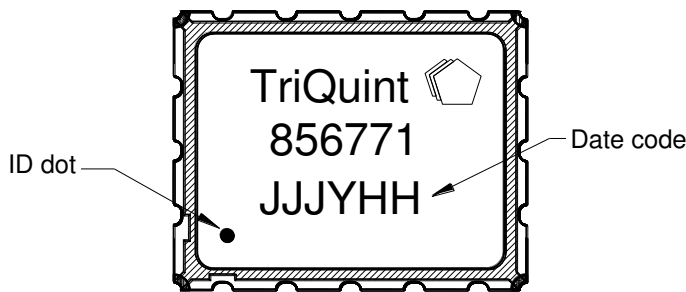


**Matching Schematics**

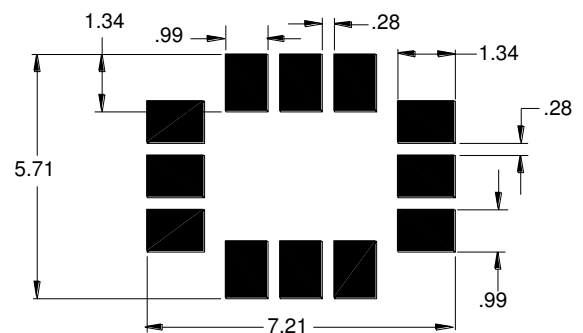
Actual matching values may vary due to PCB layout and parasitics



**Marking**



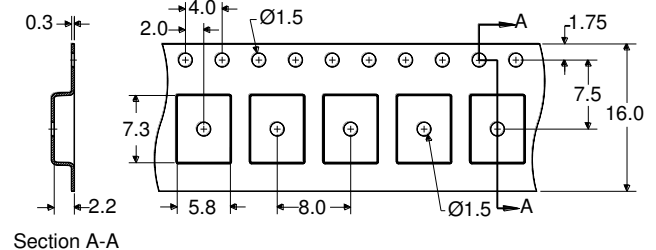
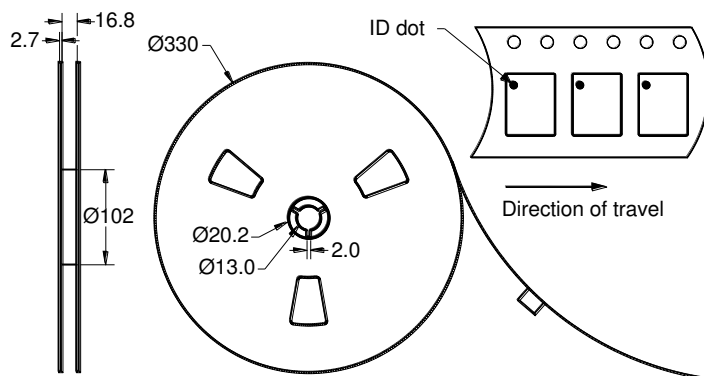
**PCB Footprint**



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

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

**Tape and Reel**




Dimensions shown are nominal in millimeters  
Packaging quantity: 3000 units/reel

### Maximum Ratings


| Parameter                               | Symbol           | Minimum | Maximum | Unit |
|---|------------------|---------|---------|------|
| Operating Temperature Range             | T                | -33     | +85     | °C   |
| Storage Temperature Range               | T <sub>stg</sub> | -40     | +85     | °C   |
| Input Power (at +50°C for 24 hours max) | P <sub>in</sub>  | -       | +19     | dBm  |

### 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](#)

TriQuint's liability is limited only to the Surface Acoustic Wave (SAW) component(s) described in this data sheet. TriQuint does not accept any liability for applications, processes, circuits or assemblies, which are implemented using any TriQuint component described in this data sheet.

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