
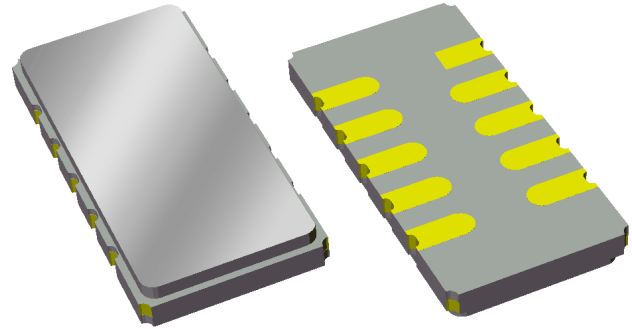


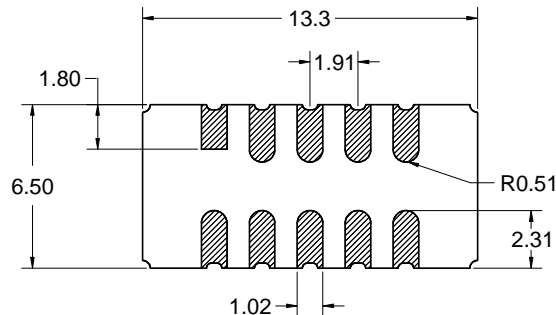
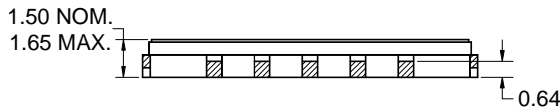
## Features

- For broadband applications
- Typical 3 dB bandwidth of 7.1 MHz
- High attenuation
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Replaces Sawtek P/N 851915 (BW 3dB=7.0 MHz)
- Hermetic
- **RoHS** compliant (2002/95/EC), **Pb-free** 



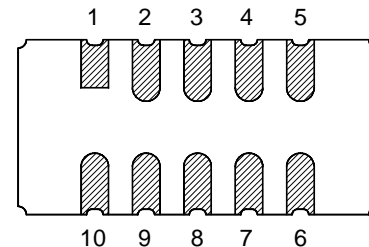
## Package

Surface Mount 13.30 x 6.50 x 1.50 mm  
SMP-53C



## Pin Configuration

Bottom View



### Single-ended Configuration

| Pin No. | Description |
|---------|-------------|
| 10      | RF input    |
| 5       | RF output   |
| 1,6     | Ground      |
| 2,3,4   | Case Ground |
| 7,8,9   | 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> 0 to +70 °C

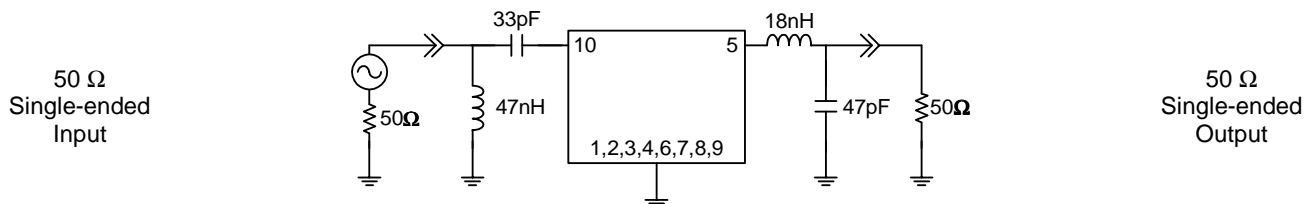
| Parameter <sup>(3)</sup>                      | Minimum | Typical <sup>(4)</sup> | Maximum | Unit |
|---|---------|------------------------|---------|------|
| Center Frequency                              | -       | 140                    | -       | MHz  |
| Minimum Insertion Loss                        | -       | 24.5                   | 25.75   | dB   |
| Lower 1 dB Bandedge <sup>(5)</sup>            | -       | 136.7                  | 136.925 | MHz  |
| Upper 1 dB Bandedge                           | 143.075 | 143.3                  | -       | MHz  |
| Lower 3 dB Bandedge <sup>(5)</sup>            | -       | 136.45                 | 136.58  | MHz  |
| Upper 3 dB Bandedge                           | 143.42  | 143.55                 | -       | MHz  |
| Lower 40 dB Bandedge <sup>(5)</sup>           | 135.425 | 135.6                  | -       | MHz  |
| Upper 40 dB Bandedge                          | -       | 144.4                  | 144.575 | MHz  |
| Amplitude Variation<br>136.925 -143.075 MHz   | -       | 0.6                    | 0.9     | dB   |
| Phase Linearity<br>136.925 -143.075 MHz       | -       | 2.25                   | 3.5     | deg  |
| Group Delay Variation<br>136.925 -143.075 MHz | -       | 40                     | 65      | nsec |
| Absolute Delay                                | -       | 1.6                    | -       | μsec |
| Relative Attenuation <sup>(5)</sup>           |         |                        |         |      |
| 15 -132 MHz                                   | 50      | 60                     | -       | dB   |
| 148 -250 MHz                                  | 50      | 60                     | -       | dB   |
| 250 -280 MHz                                  | 42      | 45                     | -       | dB   |
| 280 -350 MHz                                  | 50      | 60                     | -       | dB   |
| Source Impedance <sup>(6)</sup>               | -       | 50                     | -       | Ω    |
| Load Impedance <sup>(6)</sup>                 | -       | 50                     | -       | Ω    |

**Notes:**

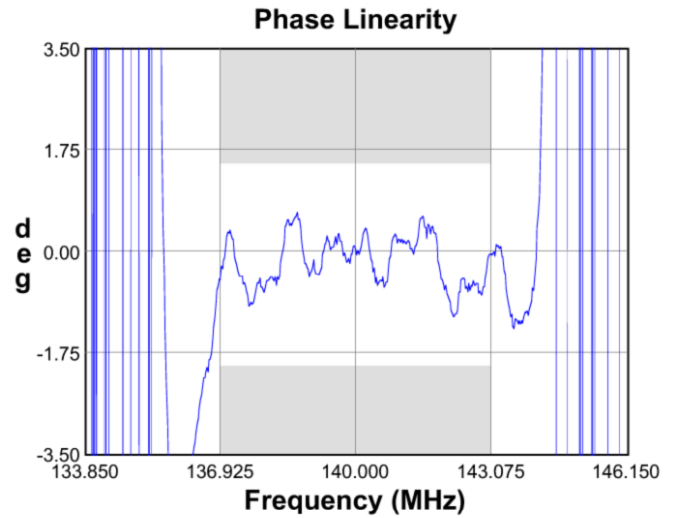
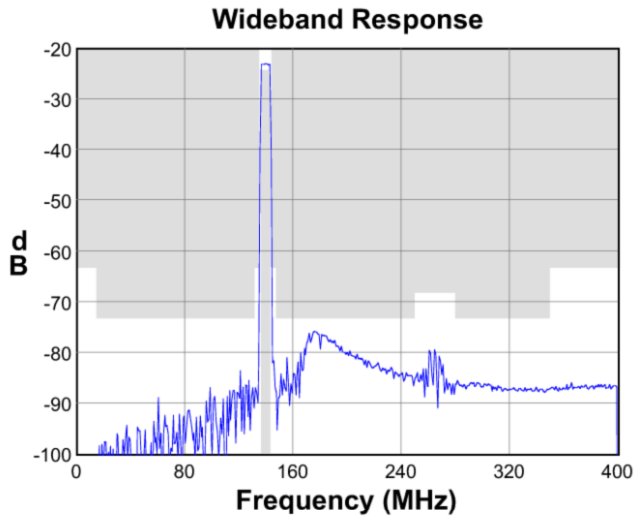
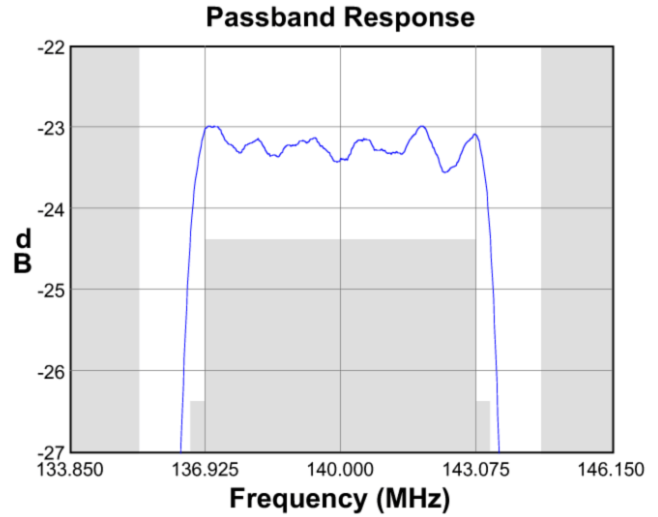
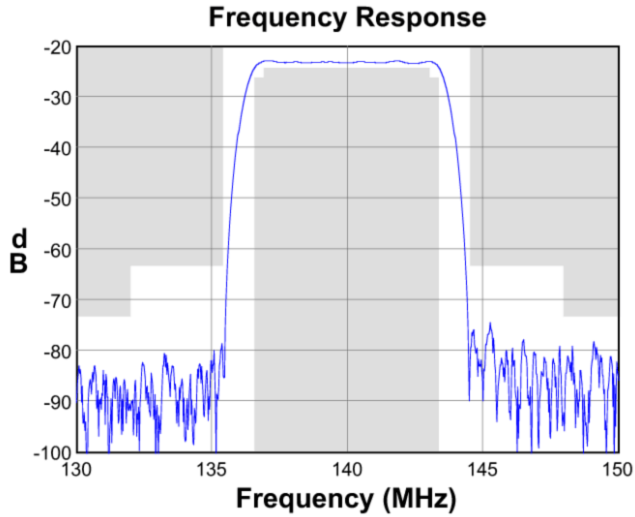
1. All specifications are based on the TriQuint test circuit shown below
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
3. Electrical margin has been built into the design to account for the variations due to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

**Test Circuit:**

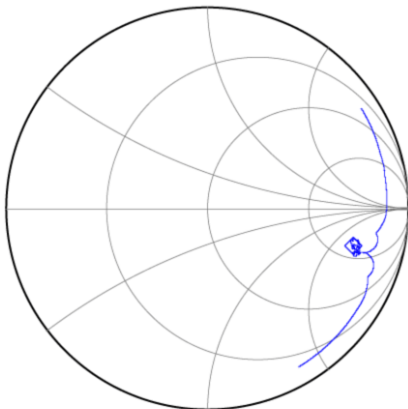
Actual matching values may vary due to PCB layout and parasitics



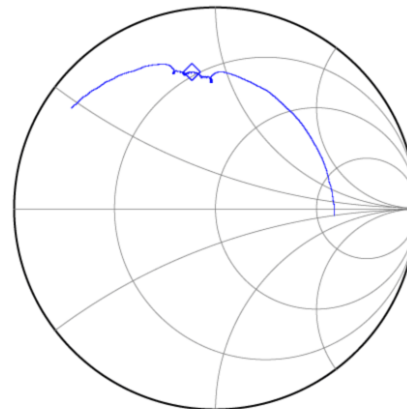
**Typical Performance (at room temperature)**



**Input Smith Chart**

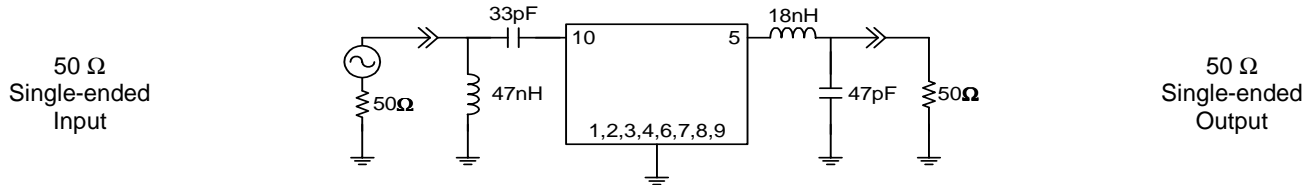


**Output Smith Chart**

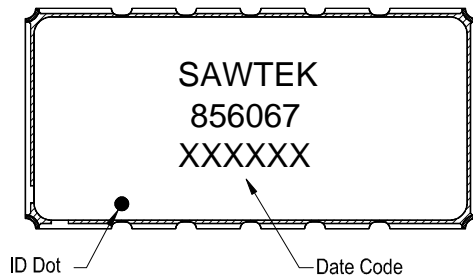


**Matching Schematics**

Actual matching values may vary due to PCB layout and parasitics

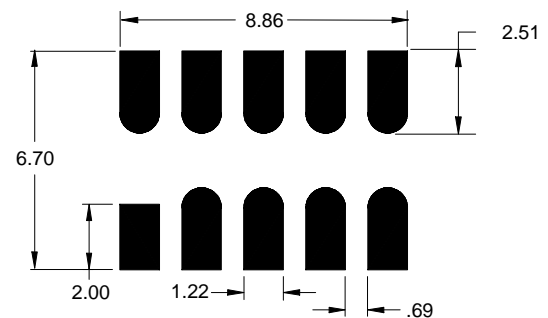


**Marking**



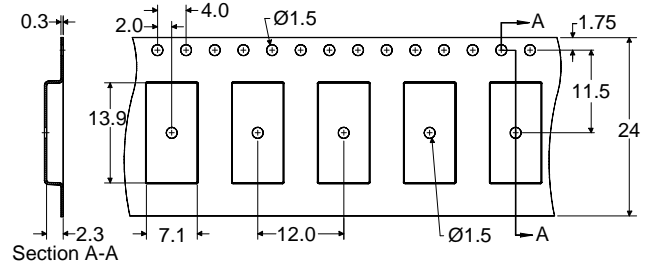
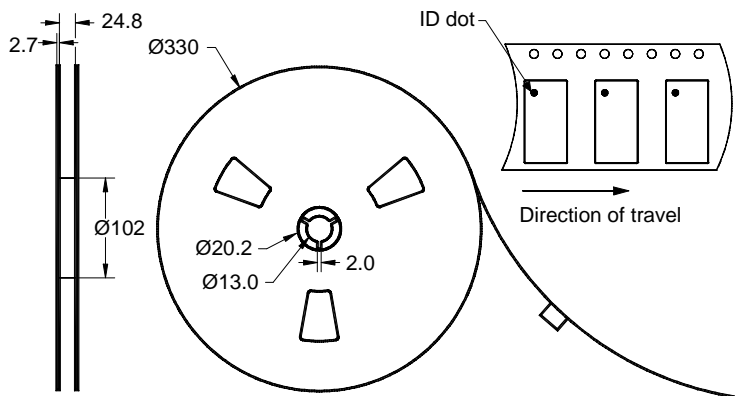
The date code consists of: day of the current year (Julian, 3 digits), last digit of the year (1 digit) and hour (2 digits)

**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: 2000 units/reel

### Maximum Ratings


| Parameter                   | Symbol           | Minimum | Maximum | Unit |
|-----------------------------|------------------|---------|---------|------|
| Operating Temperature Range | T                | -40     | +70     | °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](#)

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.

### 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  
Network of [sales offices](#),  
[Representatives or distributors](#)