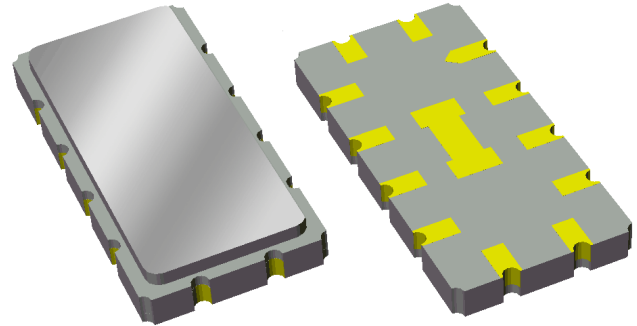


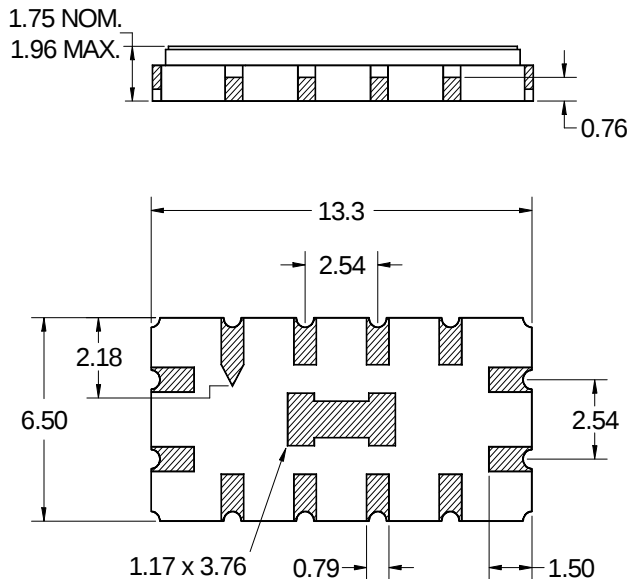
Features

- For TD-SCDMA applications
- Usable bandwidth 15 MHz
- Low Loss
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free 



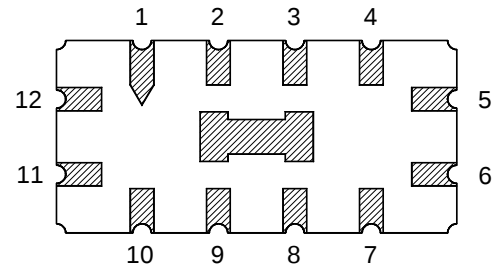
Package

Surface Mount 13.30 x 6.50 x 1.75 mm
SMP-53A



Pin Configuration

Bottom View



Single-ended Configuration

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

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

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

Target Electrical Specifications ⁽¹⁾

Operating Temperature Range: ⁽²⁾ -40 to +85 °C

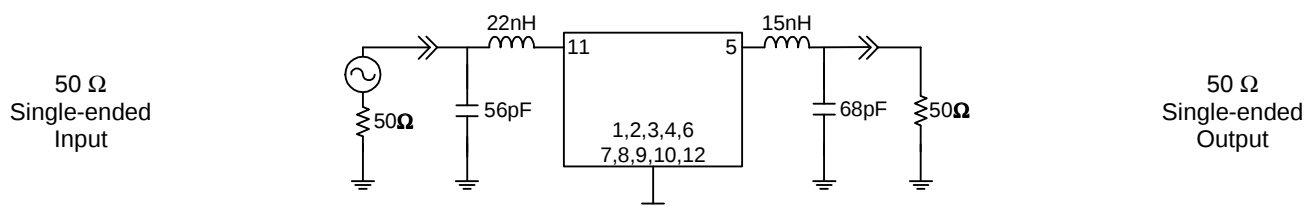
Parameter ⁽³⁾	Minimum	Typical ⁽⁴⁾	Maximum	Unit
Center Frequency	-	153.6	-	MHz
Insertion Loss at Center Frequency	-	10	12	dB
1 dB Bandwidth ⁽⁵⁾	15	17.2	-	MHz
3 dB Bandwidth ⁽⁵⁾	16	18.3	-	MHz
40 dB Bandwidth ⁽⁵⁾	-	22.3	25	MHz
Lower 1 dB Band Edge ⁽⁵⁾	-	144.9	146.1	MHz
Upper 1 dB Band Edge ⁽⁵⁾	161.1	162.1	-	MHz
Lower 3 dB Band Edge ⁽⁵⁾	-	144.5	145.6	MHz
Upper 3 dB Band Edge ⁽⁵⁾	161.6	162.8	-	MHz
Amplitude Variation 146.1 – 161.1 MHz	-	0.4	1.0	dB p-p
Group Delay at 153.6	-	1.04	1.3	μs
Group Delay Variation 146.1 – 161.1 MHz	-	55	140	ns p-p
Phase Ripple 146.1 – 161.1 MHz	-	10	-	deg
Relative Attenuation ⁽⁵⁾ 10 – 50 MHz	50	62	-	dB
50 – 141.1 MHz	40	51	-	dB
166.1 – 170.1 MHz	40	43.7	-	dB
170.1 – 300 MHz	40	58	-	dB
300 – 500 MHz	45	70	-	dB
Input/Output Return Loss 146.1 – 161.1 MHz	8	10	-	dB
Source Impedance (single-ended) ⁽⁶⁾	-	50	-	Ω
Load Impedance (single-ended) ⁽⁶⁾	-	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 loss at center frequency
6. This is the optimum impedance in order to achieve the performance shown

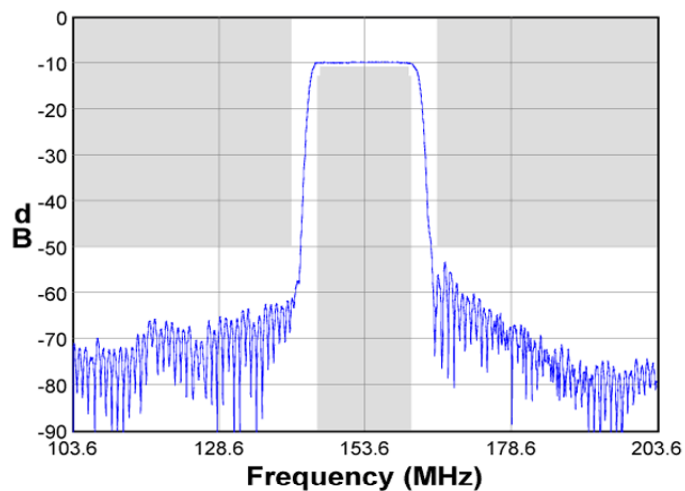
Test Circuit:

Actual matching values may vary due to PCB layout and parasitics

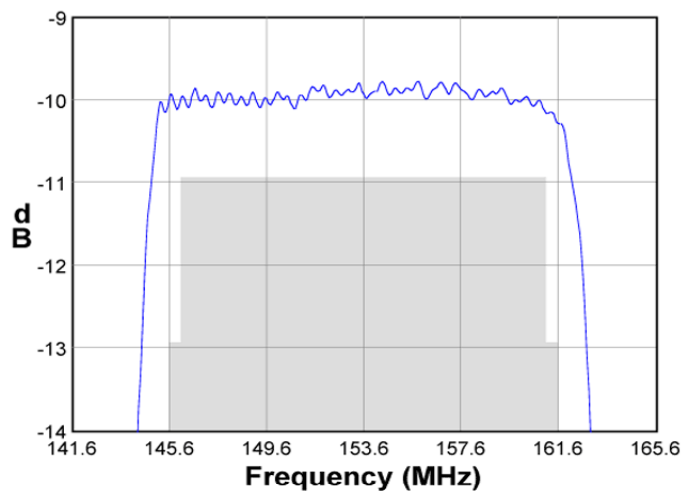


Typical Performance (at room temperature)

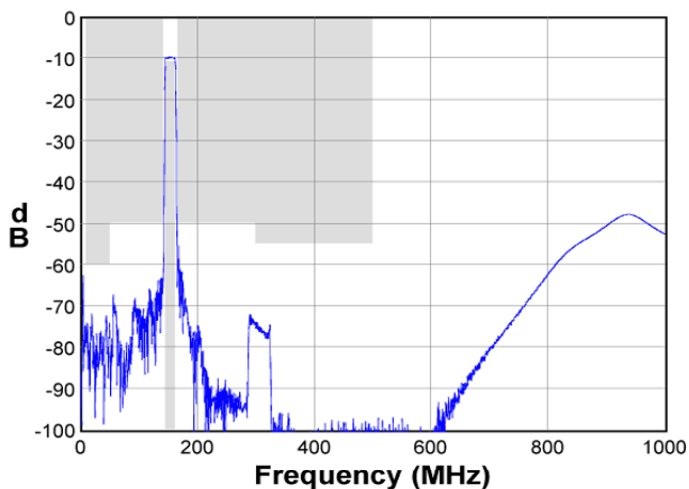
Frequency Response



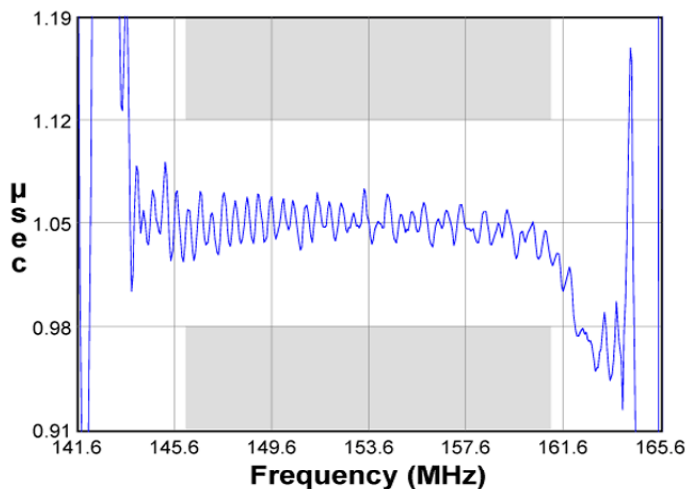
Passband Response



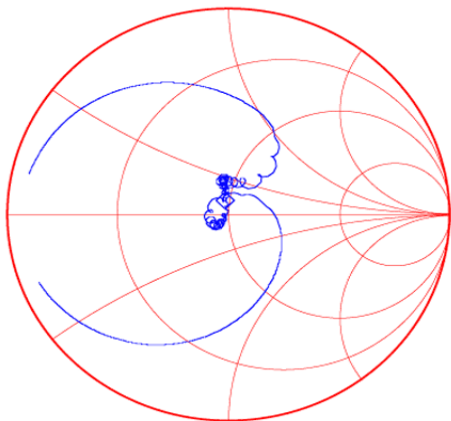
Wideband Response



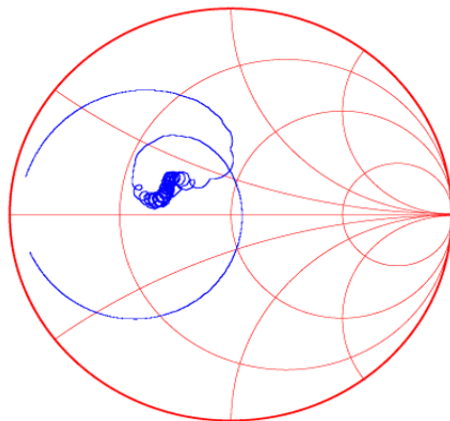
Group Delay Response



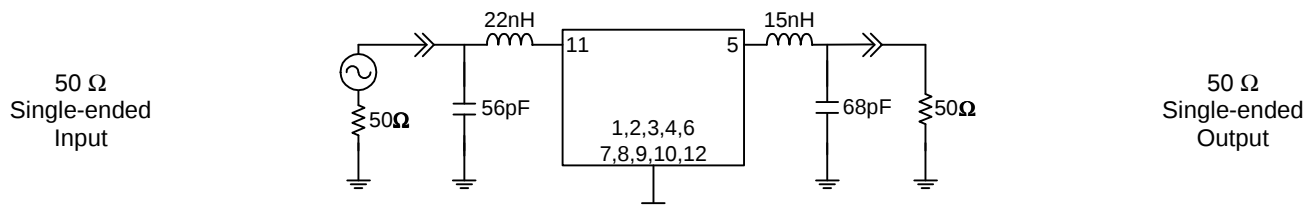
Input Smith Chart



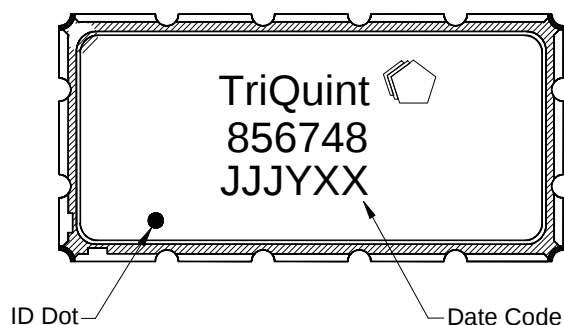
Output Smith Chart



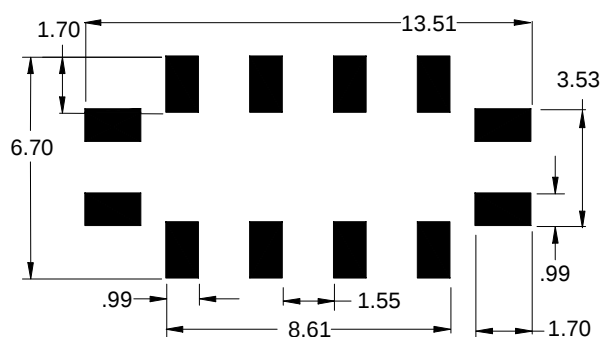
Actual matching values may vary due to PCB layout and parasitics



PCB Footprint

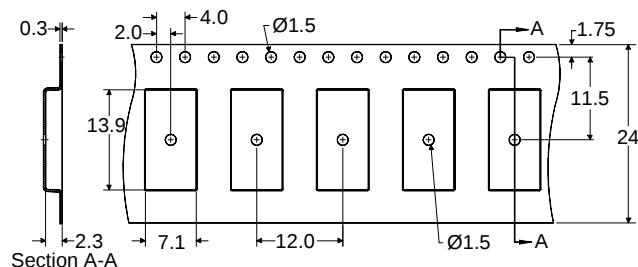


The date code consists of: day of the current year (Julian, 3 digits), last digit of the year (1 digit) and hour (2 digits)



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

Technical drawing of a circular component. The main view shows a circle with a diameter of $\varnothing 330$. A central feature has a diameter of $\varnothing 20.2$ and a width of 2.0 . A smaller feature has a diameter of $\varnothing 13.0$. A detail view on the right shows a rectangular component with three vertical slots and an "ID dot" at the top left. An arrow indicates the "Direction of travel". Dimensions on the left include 24.8 and 2.7 for the top section, and $\varnothing 102$ for the bottom section.



Dimensions shown are nominal in millimeters
Packaging quantity: 2000 units/reel

Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	-40	+85	°C
Storage Temperature Range	T _{stg}	-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
Web: www.triquint.com

Or contact one of our worldwide
Network of [sales offices](#),
[Representatives or distributors](#)