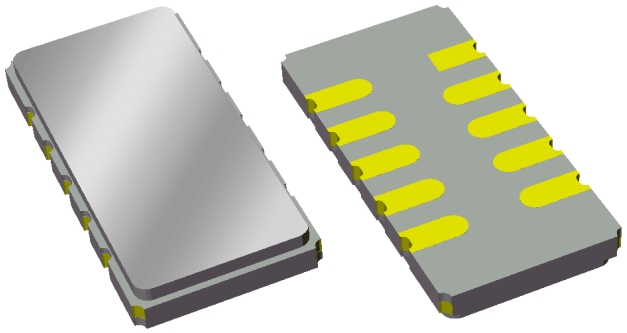
TriQuint SEMICONDUCTOR

Data Sheet

Part Number 856541
201 MHz SAW Filter

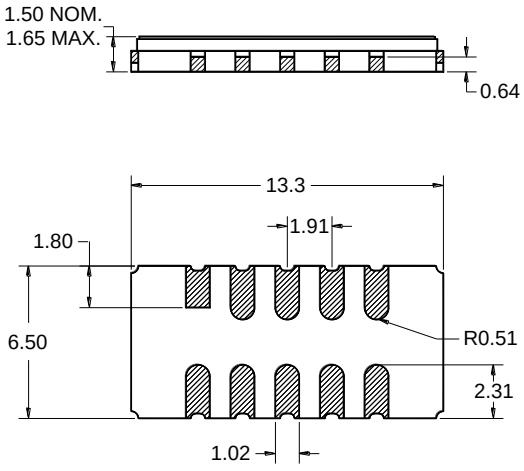
Features

- For GSM and EDGE applications
- Usable bandwidth 0.22 MHz
- Typical 1dB bandwidth of 0.34 MHz
- Low loss
- High attenuation
- Balanced operation at 200Ω or Single-ended operation at 50Ω (different matching required)
- Ceramic Surface Mount Package (SMP)
- Hermetic
- **RoHS** compliant (2002/95/EC), **Pb**-free



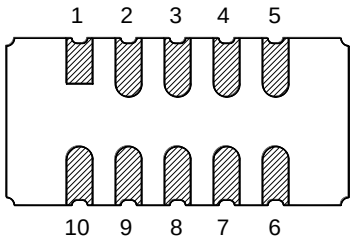
Package

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



Pin Configuration

Bottom View



Balanced Configuration

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

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

Body: Al_2O_3 ceramic
Lid: *Kovar*, *Ni* plated
Terminations: *Au* plating 0.5 - 1.0µm, over a 2 – 6µm *Ni* plating

Electrical Specifications [1]

Operating Temperature Range: [2] 0 to +70 °C

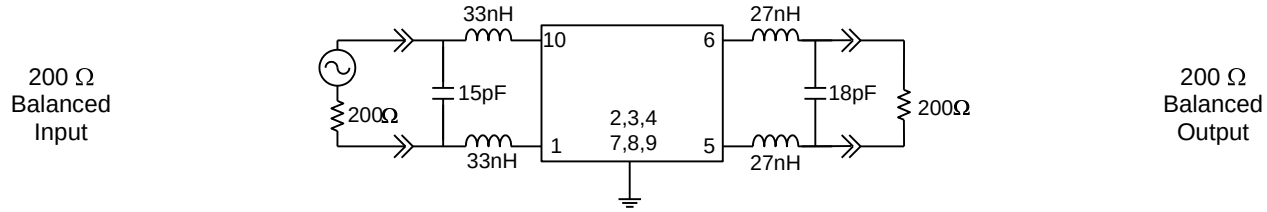
Parameter [3]	Minimum	Typical [4]	Maximum	Unit
Center Frequency (f_c)	-	201	-	MHz
Insertion Loss	-	6.1	7.0	dB
Lower 1 dB Band Edge	-	200.83	200.89	MHz
Upper 1 dB Band Edge	201.11	201.17	-	MHz
Amplitude Variation [5]				
200.89 – 201.11 MHz	-	0.6	1.0	dB p-p
Absolute Group Delay at f_c	2.05	2.3	2.55	µs
Group Delay Variation				
200.89 – 201.11 MHz	-	0.8	1.5	µs
Stopband Attenuation [6]				
fc ± 0.3 MHz to fc ± 0.4 MHz	16	25	-	dB
fc ± 0.4 MHz to fc ± 0.6 MHz	27	29	-	dB
fc ± 0.6 MHz to fc ± 0.8 MHz	28	32	-	dB
fc ± 0.8 MHz to fc ± 1.5 MHz	36	40	-	dB
fc ± 1.5 MHz to fc ± 35 MHz	38	40	-	dB
Source Impedance (Balanced) [7]	-	200	-	Ω
Load Impedance (Balanced) [7]	-	200	-	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 variation is defined as the difference between the lowest loss and the highest loss within defined frequency points
6. Relative to insertion loss at 201 MHz
7. 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



Electrical Specifications [1]

Operating Temperature Range: [2] -40 to +85 °C

Parameter [3]	Minimum	Typical [4]	Maximum	Unit
Center Frequency (f_c)	-	201	-	MHz
Insertion Loss	-	6.1	7.2	dB
Lower 1 dB Band Edge	-	200.83	200.89	MHz
Upper 1 dB Band Edge	201.081	201.17	-	MHz
Amplitude Variation [5]				
200.89 – 201.11 MHz	-	0.6	1.4	dB p-p
Absolute Group Delay at f_c	2.05	2.3	2.55	µs
Group Delay Variation				
200.89 – 201.11 MHz	-	0.8	1.5	µs
Stopband Attenuation [6]				
fc - 35 MHz to fc - 1.5 MHz	38	40	-	dB
fc - 1.5 MHz to fc - 0.8 MHz	35	40	-	dB
fc - 0.8 MHz to fc - 0.6 MHz	28	32	-	dB
fc - 0.6 MHz to fc - 0.4 MHz	25	29	-	dB
fc - 0.4 MHz to fc - 0.3 MHz	10.5	25	-	dB
fc + 0.3 MHz to fc + 0.4 MHz	16	25	-	dB
fc + 0.4 MHz to fc + 0.6 MHz	27	29	-	dB
fc + 0.6 MHz to fc + 0.8 MHz	28	32	-	dB
fc + 0.8 MHz to fc + 1.5 MHz	35	40	-	dB
fc + 1.5 MHz to fc + 35 MHz	38	40	-	dB
Source Impedance (Balanced) [7]	-	200	-	Ω
Load Impedance (Balanced) [7]	-	200	-	Ω

Notes:

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Test Circuit:

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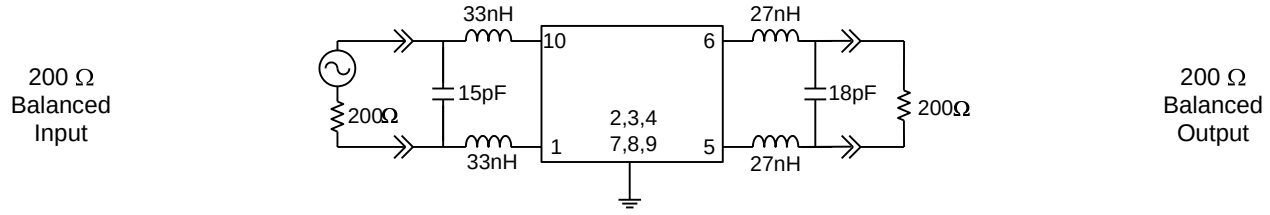
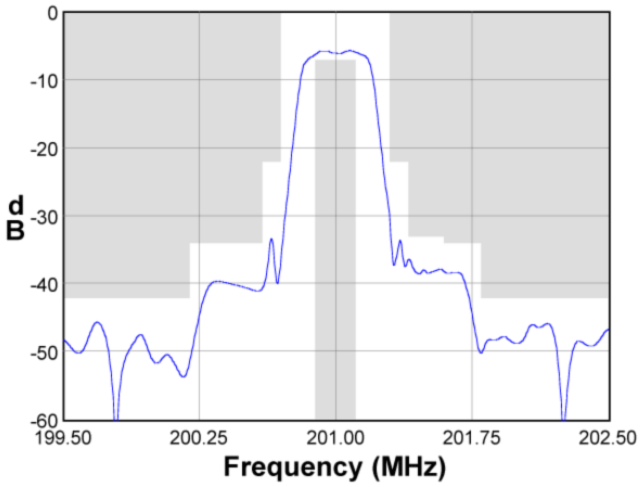
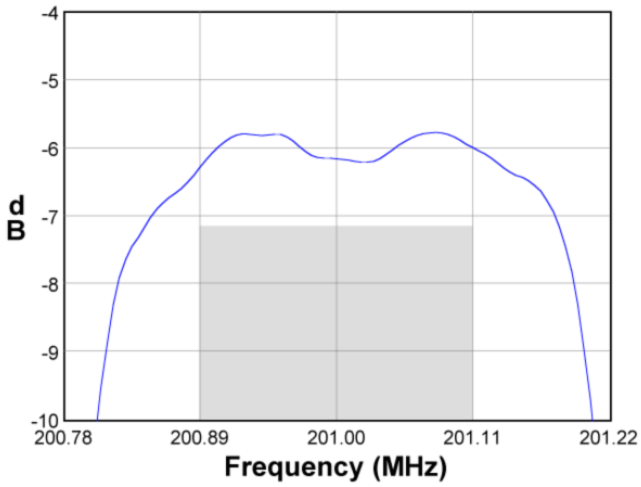


Typical Performance (at room temperature)

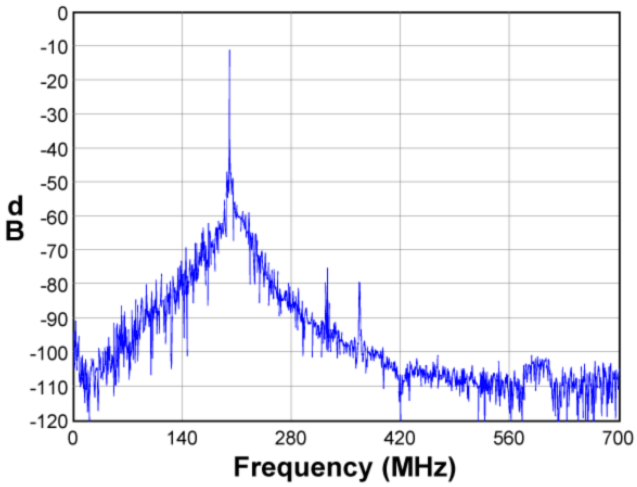
Frequency Response



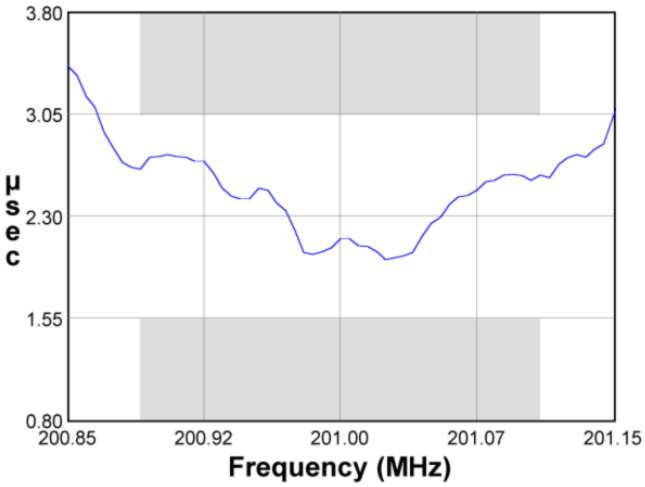
Passband Response



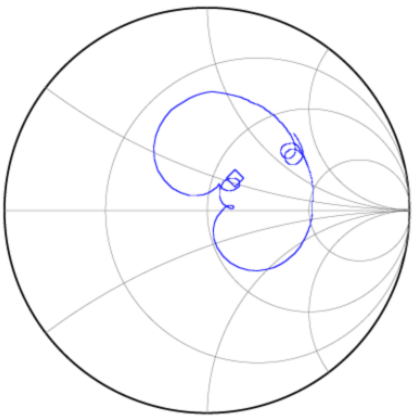
Wideband Response



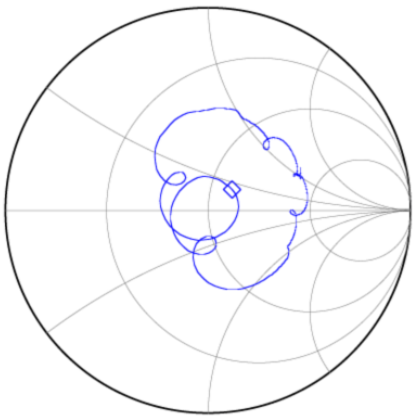
Group Delay Variation



Input Smith Chart



Output Smith Chart



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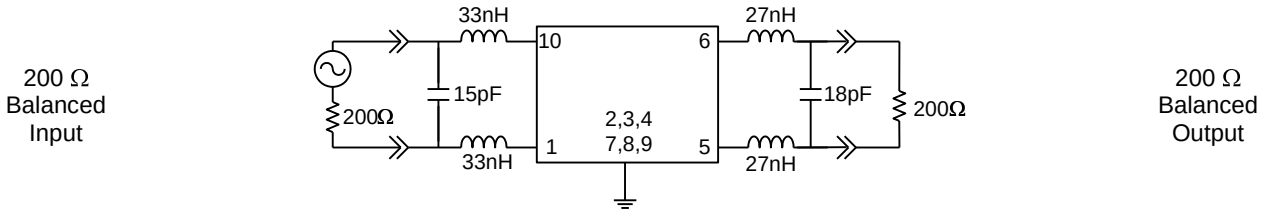
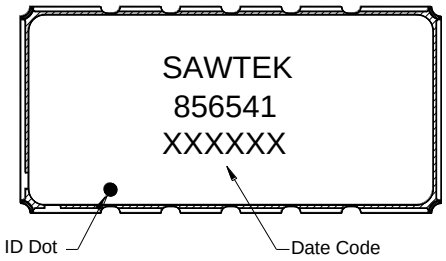
Matching Schematics

Actual matching values may vary due to PCB layout and parasitics

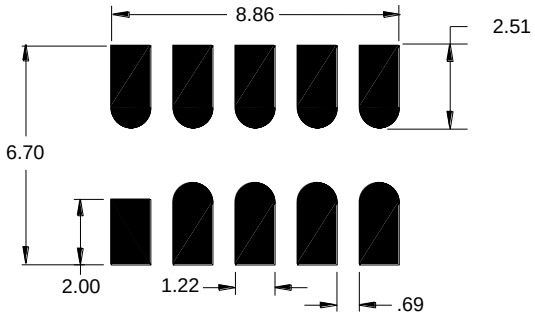


Marking



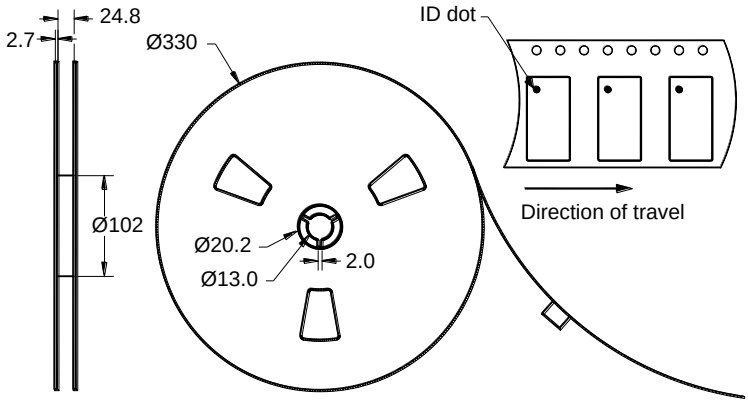
The date code consists of: day of the current year (Julian, 3 digits), last digit of the year (1 digit) and hour (2 digits)

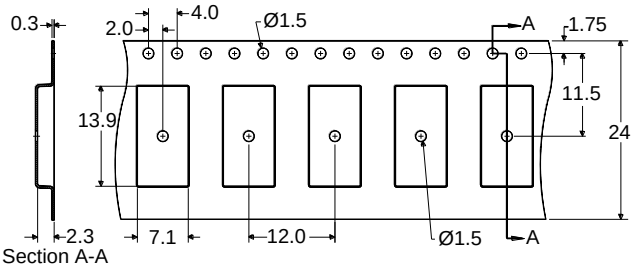
PCB Footprint



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

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Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	-40	+85	^{o}C
Storage Temperature Range	T_{stg}	-40	+85	^{o}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

Contact Information

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