TriQuint SEMICONDUCTOR

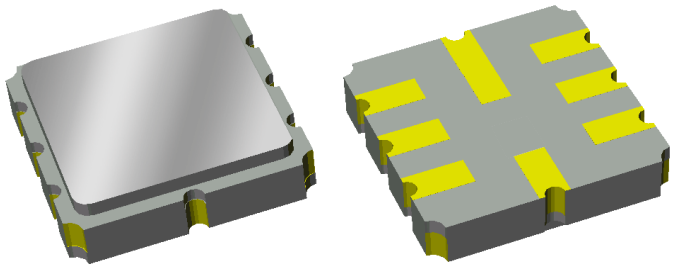
Data Sheet

Part Number 856638

456 MHz SAW Filter

Features

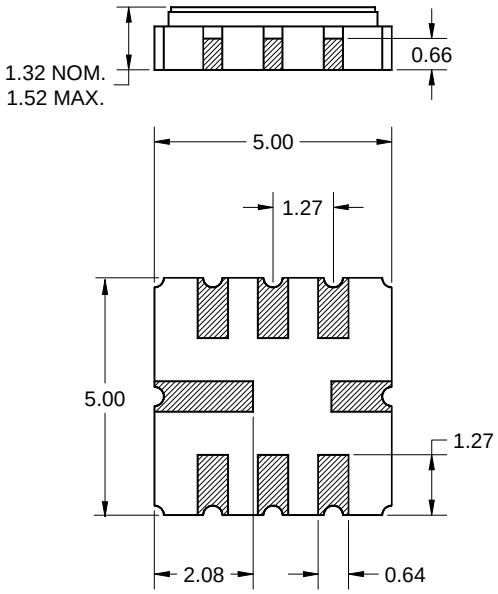
- For WiBro and WiMAX applications
- Usable bandwidth 10 MHz
- High attenuation
- Balanced operation
- Ceramic Surface Mount Package (SMP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free



Package

Surface Mount 5.00 x 5.00 x 1.32 mm

SMP-20

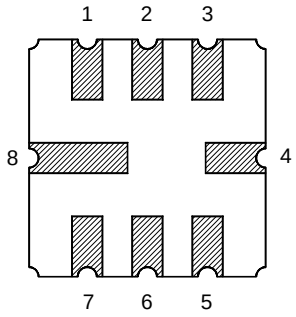


Dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width +0.15/-0.10mm

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

Pin Configuration

Bottom View



Pin No.	Description
1	Input
2	Input return
5	Output
6	Output return
3,4,7,8	Case ground

Target Electrical Specifications [1]

Operating Temperature Range: [2] -20 to +60 °C

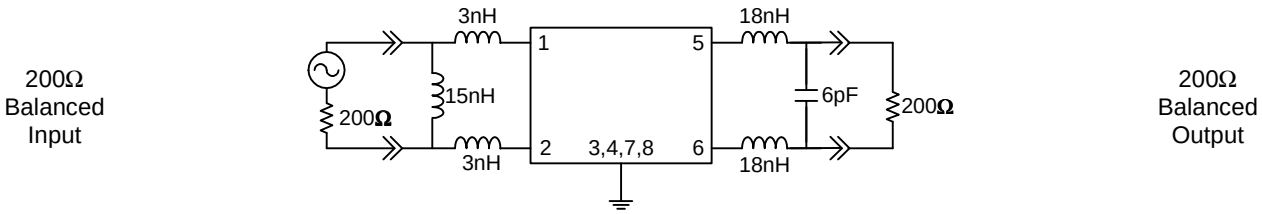
Parameter [3]	Minimum	Typical	Maximum	Unit
Center Frequency	-	456	-	MHz
Minimum Insertion Loss				
451 - 461 MHz	-	8.3	9.5	dB
Amplitude Variation				
451 - 461 MHz	-	0.4	1.25	dB
30 dB Bandwidth [4]	-	20.1	20.55	MHz
Relative Attenuation [4]				
10 - 256 MHz	45	70	-	dB
256 - 360 MHz	40	65	-	dB
360 - 421 MHz [5]	45	50	-	dB
421 - 440 MHz	37	40	-	dB
472.4 - 491 MHz	39	42	-	dB
491 - 552 MHz [5]	45	50	-	dB
552 - 656 MHz	40	55	-	dB
656 - 946 MHz	45	60	-	dB
Absolute Group Delay at Center Frequency	-	0.43	0.45	µsec
Group Delay Variation				
451 - 461 MHz	-	35	65	ns
Input/Output Return Loss				
451 - 461 MHz	9	14	-	dB
Optimal Source Impedance (Balanced) [6]	-	200	-	Ω
Optimal Load Impedance (Balanced) [6]	-	200	-	Ω

Notes:

1. All specifications are based on 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. Referenced to minimum insertion loss
5. The rejection "floor" in specified ranges allows for 100KHz wide spurious responses at a max peak of 40dB below 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



Target Electrical Specifications [1]

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

Parameter [3]	Minimum	Typical	Maximum	Unit
Center Frequency	-	456	-	MHz
Minimum Insertion Loss				
451 - 461 MHz	-	8.3	9.75	dB
Amplitude Variation				
451 - 461 MHz	-	0.4	1.25	dB
30 dB Bandwidth [4]	-	20.1	20.6	MHz
Relative Attenuation [4]				
10 - 256 MHz	45	70	-	dB
256 - 360 MHz	40	65	-	dB
360 - 421 MHz [5]	45	50	-	dB
421 - 440 MHz	37	40	-	dB
472.4 - 491 MHz	38	42	-	dB
491 - 552 MHz [5]	45	50	-	dB
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451 - 461 MHz	-	35	70	ns
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Test Circuit:

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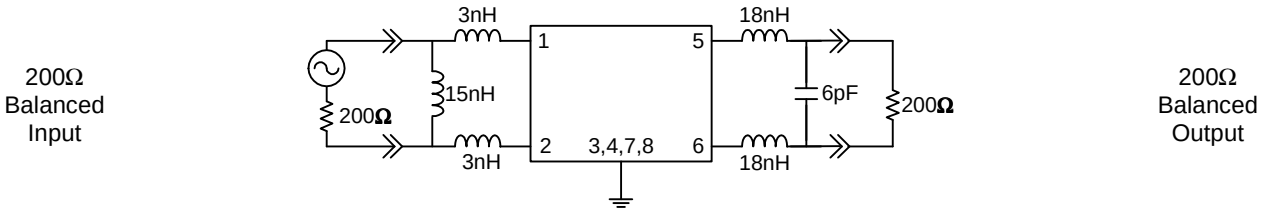
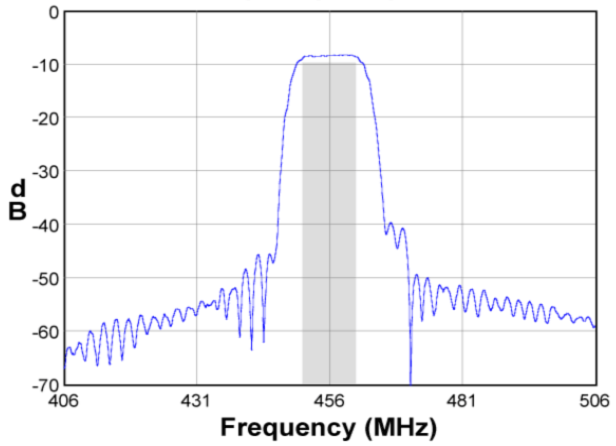
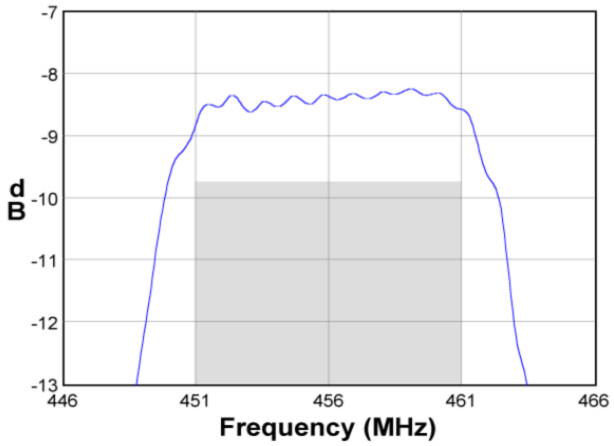


Typical Performance (at +25°C)

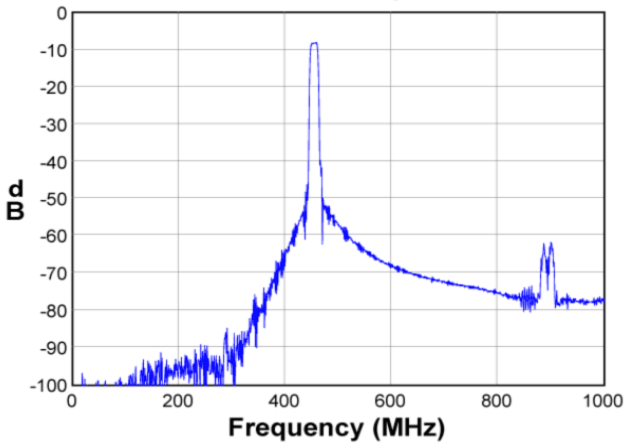
Frequency Response



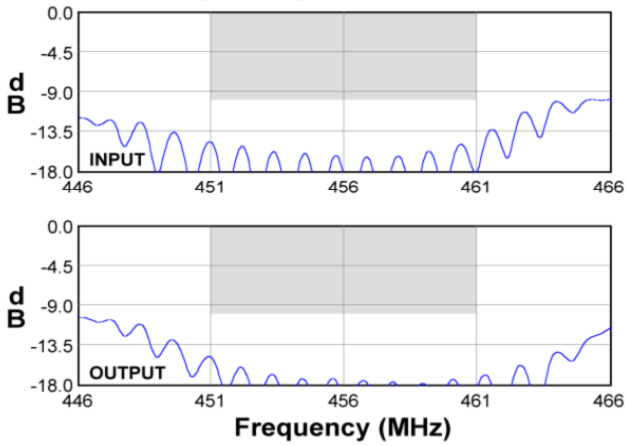
Passband Response



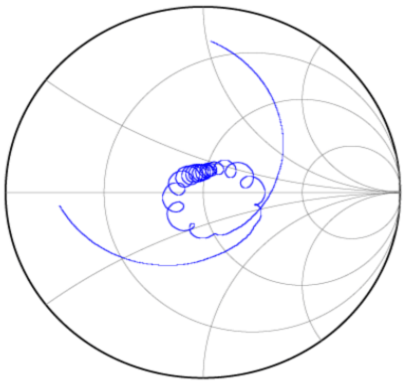
Wideband Response



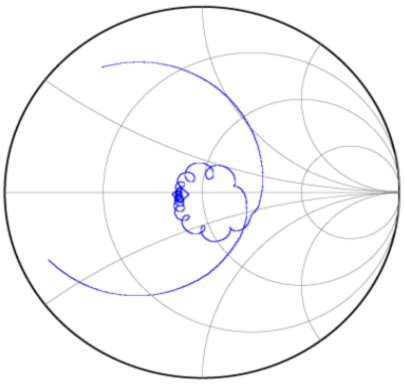
Input/Output Return Loss



Input Smith Chart



Output Smith Chart



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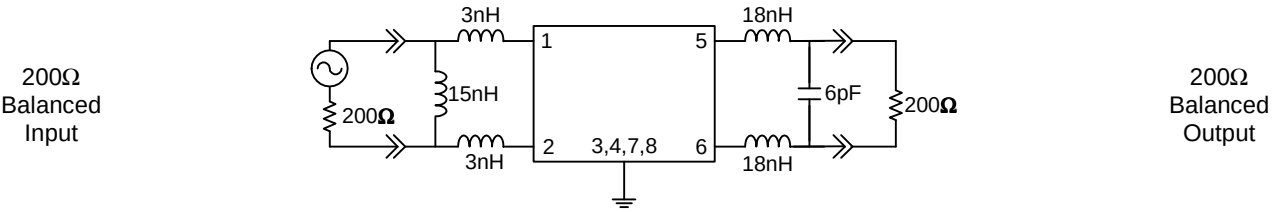
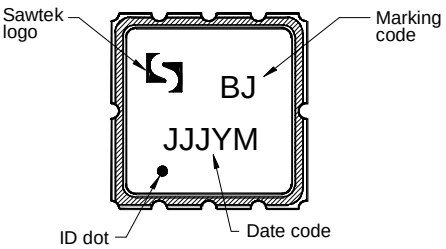
Matching Schematics

Actual matching values may vary due to PCB layout and parasitics

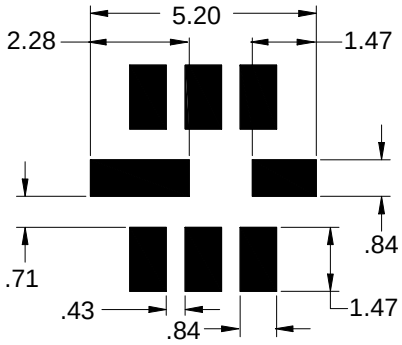


Marking



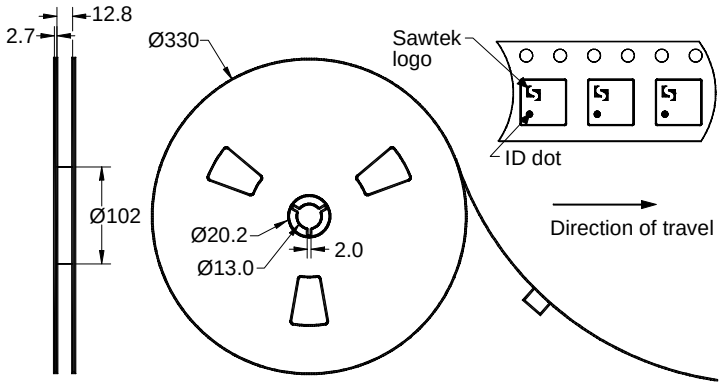
The date code consists of: JJJ = Julian day,
Y = last digit of year, M = manufacturing site code

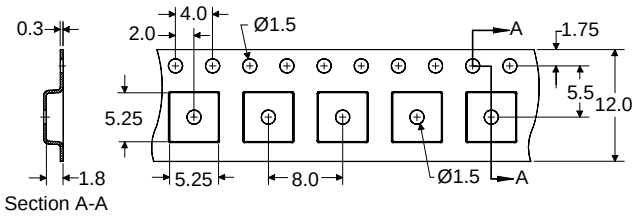
PCB Footprint



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

Tape and Reel





Dimensions shown are nominal in millimeters
Packaging quantity: 4000 units/reel

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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

Contact Information

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