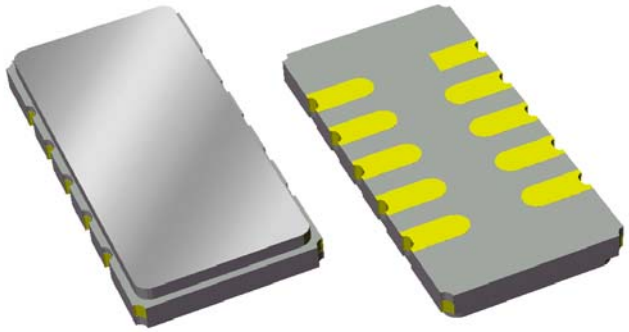
TriQuint SEMICONDUCTOR

Preliminary Data Sheet

Part Number 856378
211 MHz SAW Filter

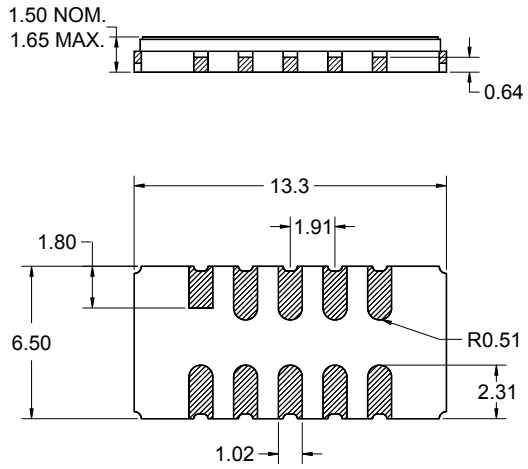
Features

- For GSM/EDGE applications
- Usable bandwidth of 0.2 MHz
- Low loss
- High attenuation
- Single ended operation, 50Ω
- Ceramic Surface Mount Package (SMP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free



Package

Surface Mount 13.3 x 6.50 x 1.50 mm
(SMP-53C)

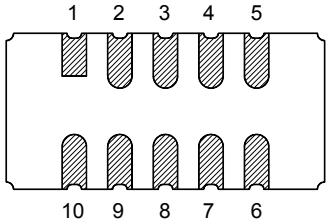


Dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width ±0.10mm

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

Pin Configuration

Bottom View



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

Electrical Specifications [1]

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

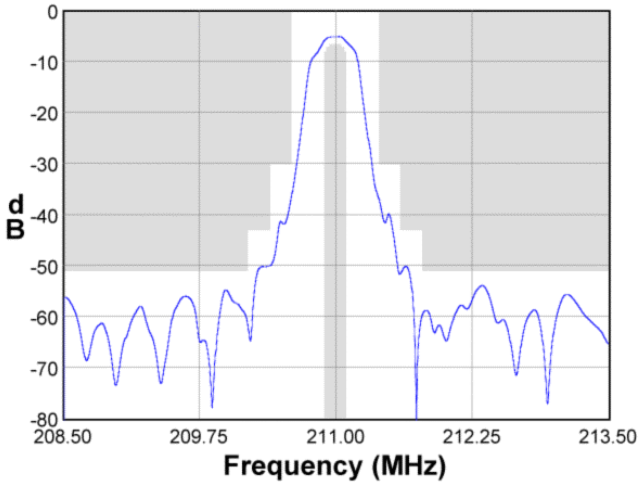
Parameter [3]	Minimum	Typical	Maximum	Unit
Insertion Loss at 211 MHz (fc)	-	5.2	6.5	dB
Center Frequency at 3dB				
At 25 ºC	210.975	211	211.025	MHz
0 to 70 ºC	210.969	211	211.031	MHz
Lower 1.5 dB Bandedge [4]	-	210.88	210.95	MHz
Upper 1.5 dB Bandedge	211.05	211.12	-	MHz
Lower 2.0 dB Bandedge	-	210.86	210.92	MHz
Upper 2.0 dB Bandedge	211.08	211.14	-	MHz
Lower 3.0 dB Bandedge	-	210.83	210.90	MHz
Upper 3.0 dB Bandedge	211.10	211.17	-	MHz
Relative Attenuation [4]				
fc – 20 MHz to fc – 0.8 MHz	45	50	-	dB
fc – 0.8 MHz to fc – 0.6 MHz	38	45	-	dB
fc – 0.6 MHz to fc – 0.4 MHz	25	30	-	dB
fc + 0.4 MHz to fc + 0.6 MHz	25	33	-	dB
fc + 0.6 MHz to fc + 0.8 MHz	38	44	-	dB
fc + 0.8 MHz to fc + 2.85 MHz	46	49	-	dB
fc + 2.85 MHz to fc + 3.10 MHz	44	48	-	dB
fc + 3.10 MHz to fc + 20.0 MHz	45	49	-	dB
Absolute Group Delay				
210.9 - 211.1 MHz	-	2.4	5	µs
Group Delay Variation				
210.9 - 211.1 MHz	-	370	500	ns
EVM [5]	-	2	-	%
Input\Output Return Loss				
fc ± 0.05 MHz	10	15	-	dB
fc ± 0.1 MHz	8	10	-	dB
Out-of-Band Modulation [5]				
Input signals + 10 dBm @ 209.4 & 210.2 MHz	-	-65	-60	dBm
Input signals + 10 dBm @ 211.8 & 212.6 MHz	-	-65	-60	dBm
Source Impedance [6]	-	50	-	Ω
Load Impedance [6]	-	50	-	Ω

Notes:

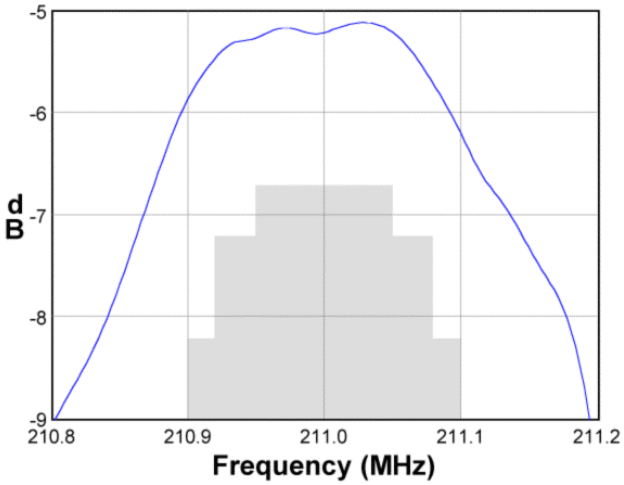
1. All specifications are based on the test circuit shown on page 4
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature. The guardbanded specification includes the 3 dB center frequency correlation factor between customer board and Sawtek test fixture
3. Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances
4. All bandedge and relative attenuation measurements are referenced to the minimum insertion loss
5. EVM and out-of-band modulation will not be tested in production due to the complexity of test. Compliance guaranteed by design
6. This is the optimum impedance in order to achieve the performance shown

Typical Performance (at +25°C)

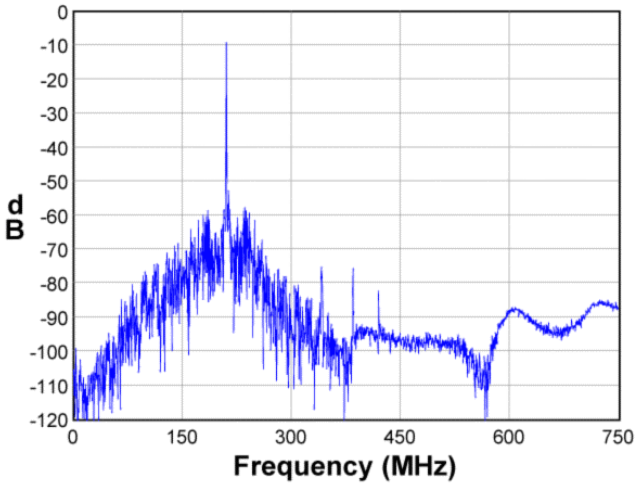
Frequency Response



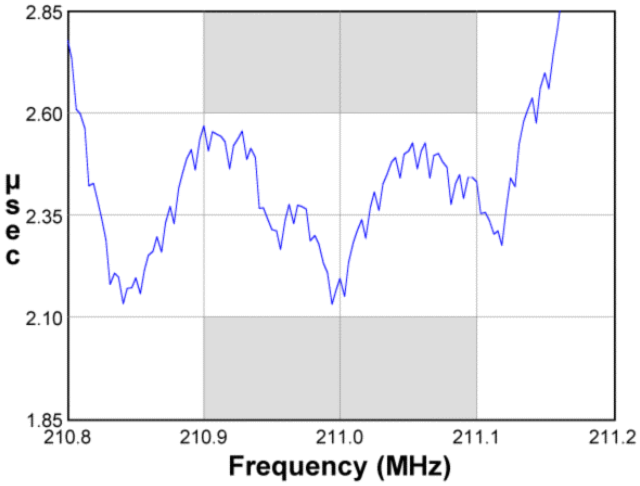
Passband Response



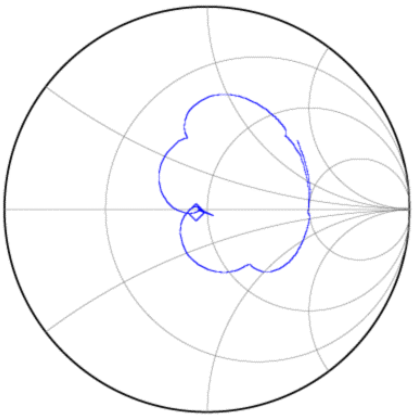
Wideband Response



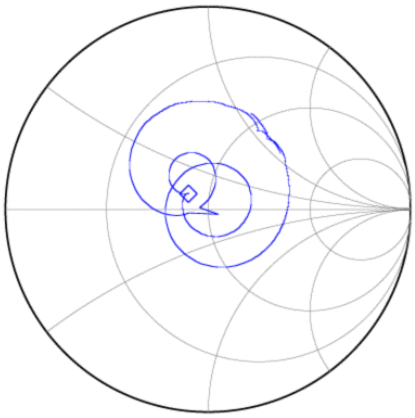
Group Delay Variation



Input Smith Chart



Output Smith Chart



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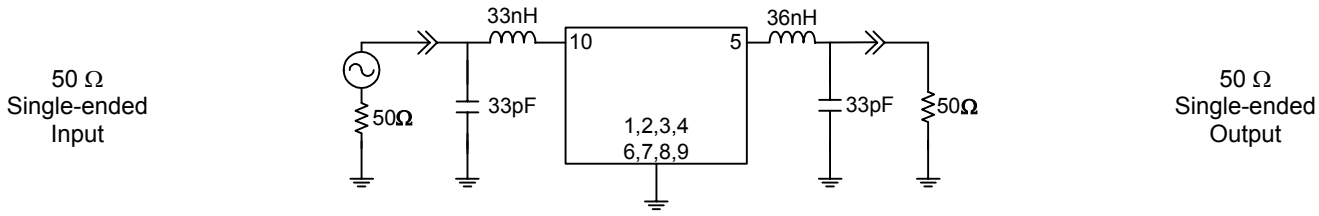
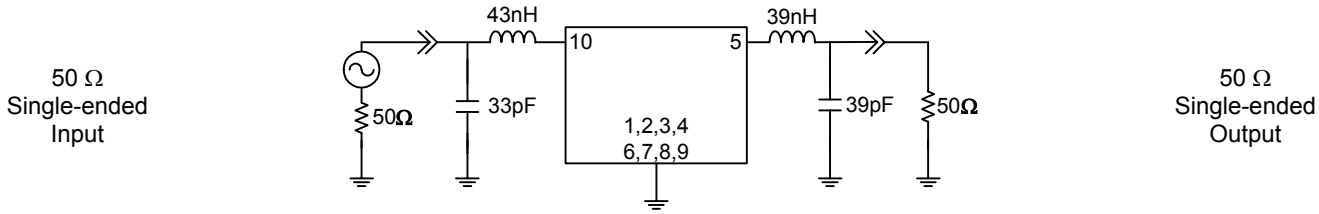
Test Circuit

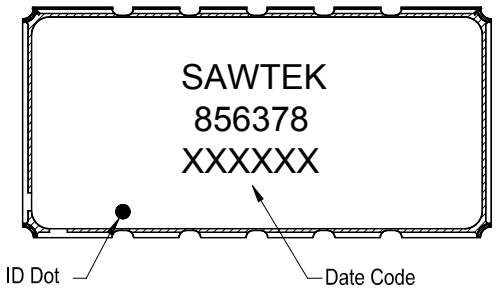


Matching Schematics

Actual matching values may vary due to PCB layout and parasitics

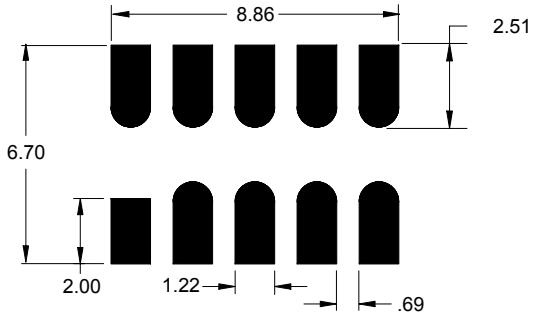


Marking



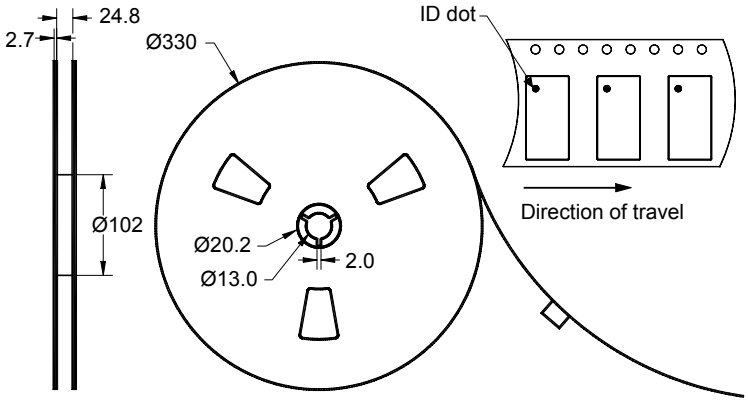
The date code consists of: day of the current year (Julian, 3 digits), last digit of the year (1 digit) and hour (2 digits)

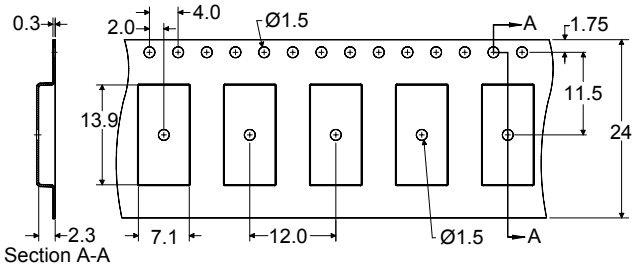
PCB Footprint



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	0	+70	°C
Storage Temperature Range	T_{stg}	-40	+85	°C
RF Power	P_{in}	-	+14.5	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 JEDEC J-STD-020C **Pb**-free process, **260°C** 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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