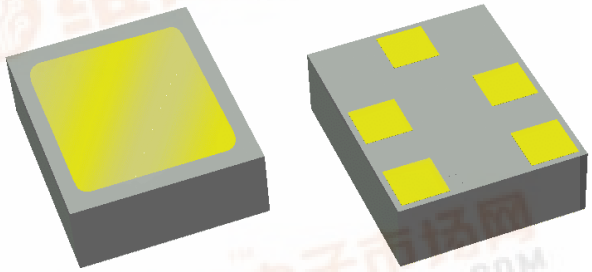
SAWTEK a TriQuint company

Part Number 856134
1575.42 MHz SAW Filter

Preliminary Data Sheet

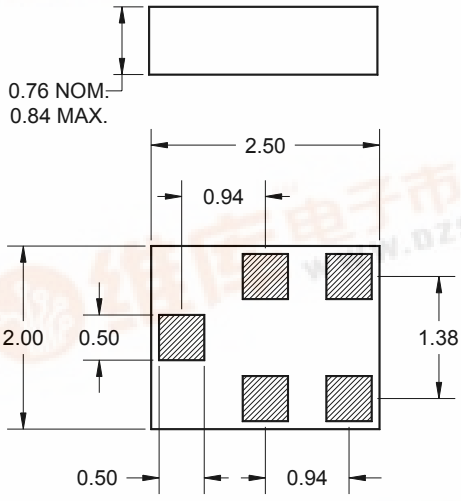
Features

- For GPS applications
- Usable bandwidth 2 MHz
- Super low loss
- High attenuation
- No impedance matching required for operation at 100 Ω
- Single-ended input
- Balanced output
- Superior amplitude and phase balance
- Ceramic Surface Mount Package (SMP)
- Small size



Package

Surface Mount 2.50 x 2.00 x 0.76 mm

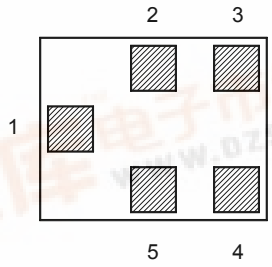


Dimensions shown are nominal in millimeters
All tolerances are ±0.10mm

Body: Al_2O_3 ceramic
Lid: *Kovar* or *Alloy 42*, *Au* over *Ni* plated
Terminations: *Au* plating 0.5 - 1.0µm,
over a 2 - 6µm *Ni* plating

Pin Configuration

Bottom View



Pin No.	Description
1	Input
2,5	Case ground
3,4	Balanced output

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Electrical Specifications [1]

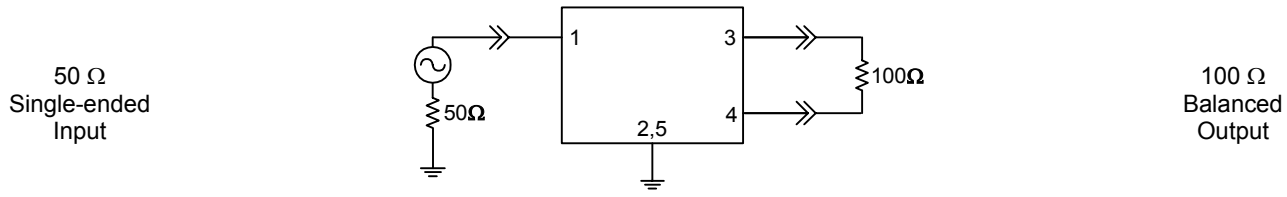
Operating Temperature: [2] +25 °C

Parameter [3]	Minimum	Typical	Maximum	Unit
Center Frequency	-	1575.42	-	MHz
Maximum Insertion Loss				
1574.42 - 1576.42 MHz	-	1.4	1.5	dB
Absolute Attenuation				
DC - 1450 MHz	30	38	-	dB
1450 - 1475 MHz	27	31	-	dB
1475 - 1525 MHz	15	26	-	dB
1625 - 1675 MHz	12	14	-	dB
1675 - 1775 MHz	20	22	-	dB
1775 - 3155 MHz	30	35	-	dB
3155 - 6000 MHz	35	45	-	dB
Input/Output Return Loss				
1574.42 - 1576.42 MHz	10	16	-	dB
Output Amplitude Balance ($\|S_{31}/S_{21}\|$)				
1574.42 - 1576.42 MHz	-	0.5	0.75	dB
Output Phase Balance $\phi(S_{31})$- $\phi(S_{21})$				
1574.42 - 1576.42 MHz	180	185	190	degree
Nominal Source Impedance	-	50	-	Ω
Optimal Load Impedance (balanced) [4]	-	120 + j35	-	Ω

Notes:

1. All specifications are based on the test circuit shown below
2. This specification is valid for room temperature only. The specification over the full temperature range(s) is available on the next page(s)
3. Electrical margin has been built into the design to account for the variations due to manufacturing tolerances
4. This is the optimum impedance for maximum power transfer over passband

Test Circuit:



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Preliminary Data Sheet

Part Number 856134
1575.42 MHz SAW Filter

Electrical Specifications [1]

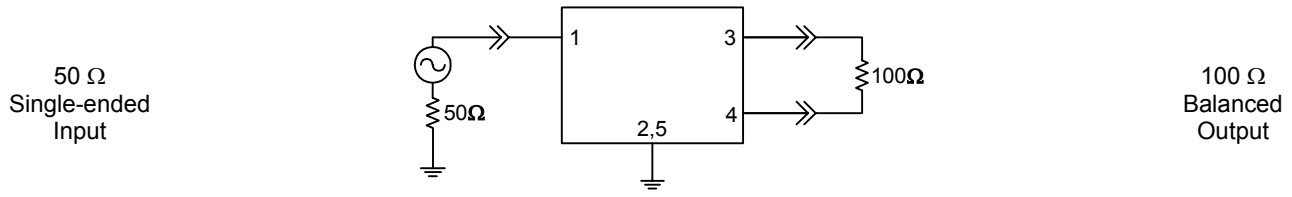
Operating Temperature Range: [2] -30 to +85 °C

Parameter [3]	Minimum	Typical	Maximum	Unit
Center Frequency	-	1575.42	-	MHz
Maximum Insertion Loss				
1574.42 - 1576.42 MHz	-	1.4	1.7	dB
Absolute Attenuation				
DC - 1450 MHz	30	38	-	dB
1450 - 1475 MHz	27	31	-	dB
1475 - 1525 MHz	14	20	-	dB
1625 - 1675 MHz	10	13	-	dB
1675 - 1775 MHz	20	22	-	dB
1775 - 3155 MHz	30	35	-	dB
3155 - 6000 MHz	35	45	-	dB
Input/Output Return Loss				
1574.42 - 1576.42 MHz	10	16	-	dB
Output Amplitude Balance ($\|S_{31}/S_{21}\|$)				
1574.42 - 1576.42 MHz	-	0.6	1	dB
Output Phase Balance $\phi(S_{31})$- $\phi(S_{21})$				
1574.42 - 1576.42 MHz	180	187.5	195	degree
Nominal Source Impedance	-	50	-	Ω
Optimal Load Impedance (balanced) [4]	-	120 + j35	-	Ω

Notes:

1. All specifications are based on the 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. This is the optimum impedance for maximum power transfer over passband

Test Circuit:



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Preliminary Data Sheet

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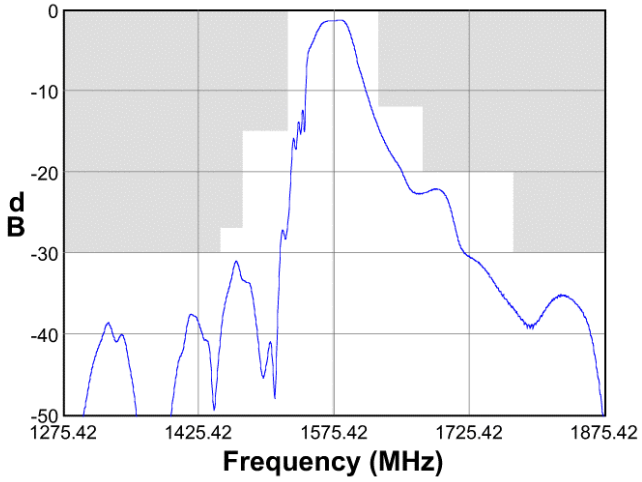
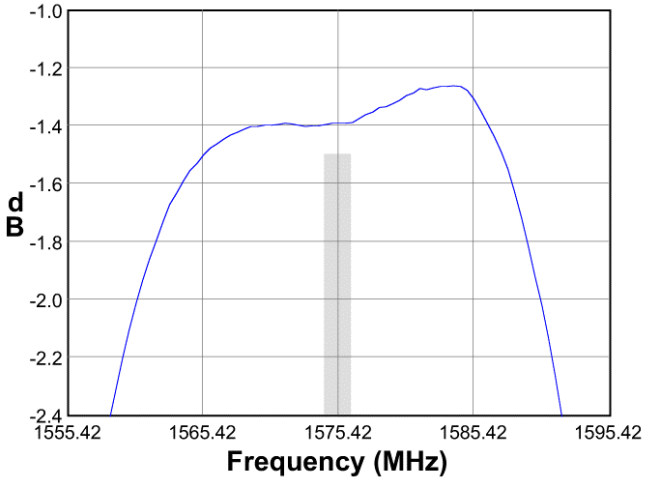
Typical Performance (at +25°C)

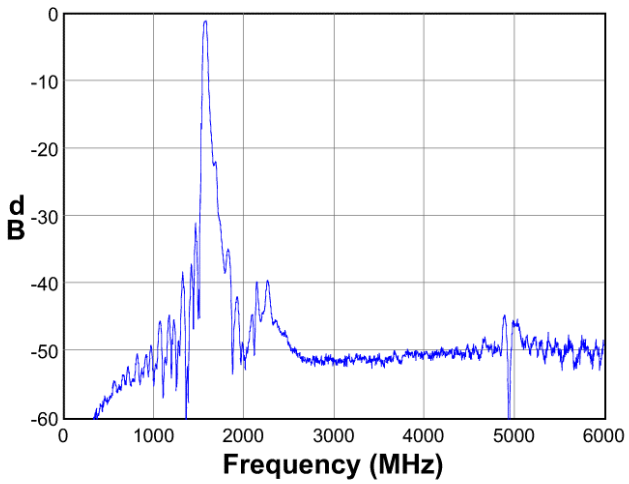
Frequency Response



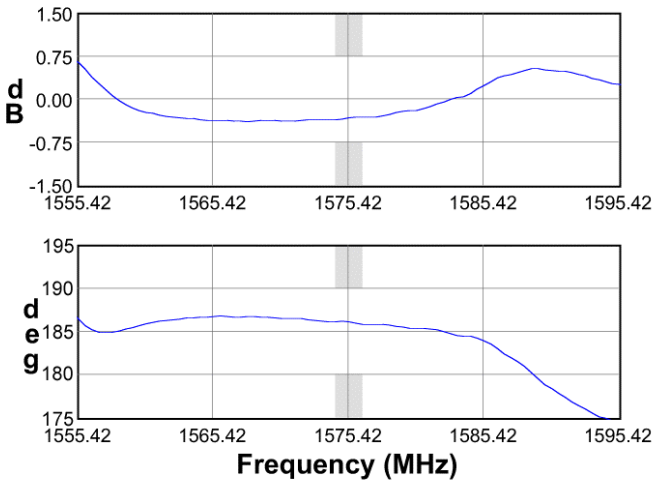
Passband Response



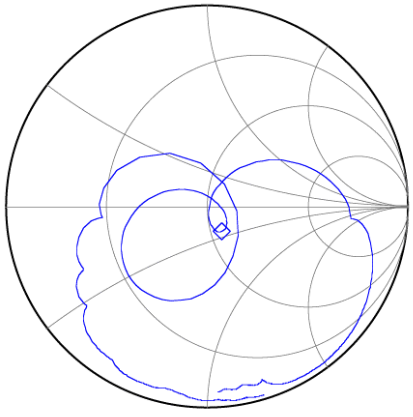
Wideband Response



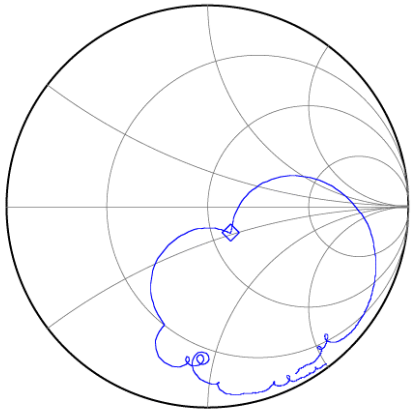
Amplitude/Phase Balance



Input Smith Chart



Output Smith Chart



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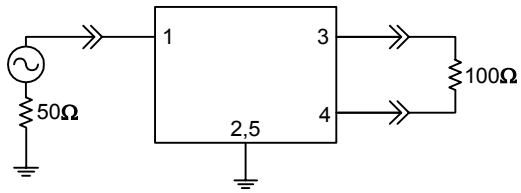
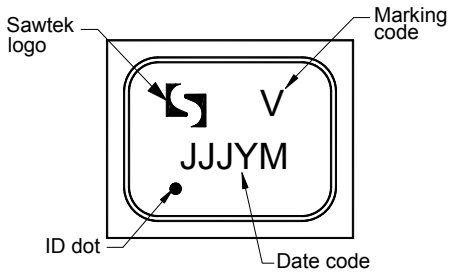
Matching Schematics

50 Ω
Single-ended
Input



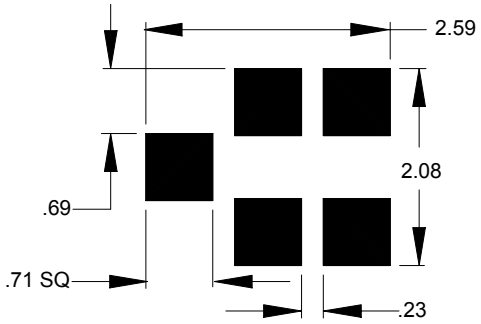
100 Ω
Balanced
Output

Marking



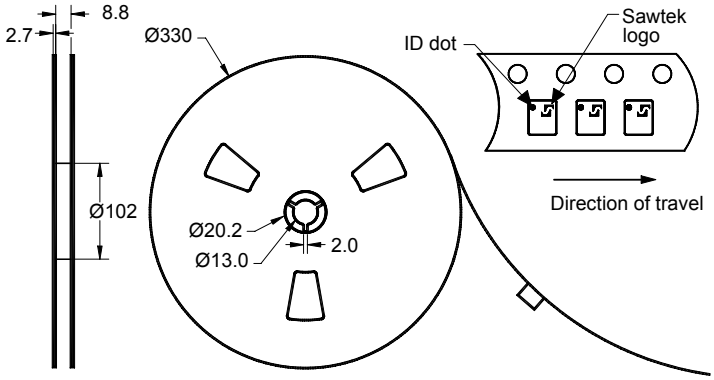
The date code consists of: JJJ = Julian day,
Y = last digit of year, M = manufacturing site code

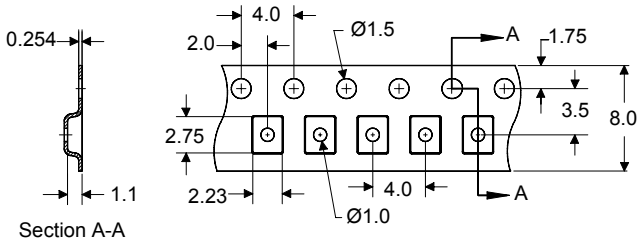
PCB Footprint



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

Tape and Reel





Dimensions shown are nominal in millimeters
Packaging quantity: 10000 units/reel

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Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	-30	+85	°C
Storage Temperature Range	T_{stg}	-40	+85	°C

Warnings

- Electrostatic Sensitive Device (ESD) 
- Avoid ultrasonic exposure

Links to Additional Technical Information

PCB Layout Tips | Qualification Flowchart | Soldering Profile

S-Parameters | Other Technical Information

Contact Information

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