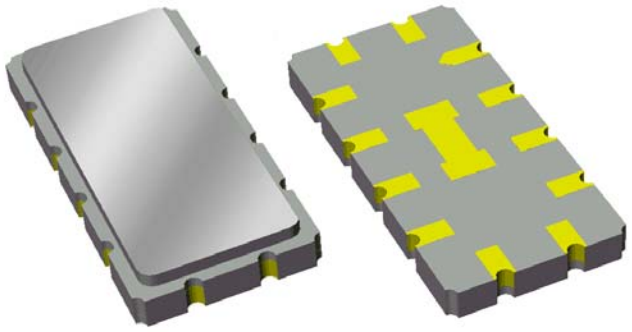
SAWTEK a TriQuint company

Data Sheet

Part Number 854919
140 MHz SAW Filter

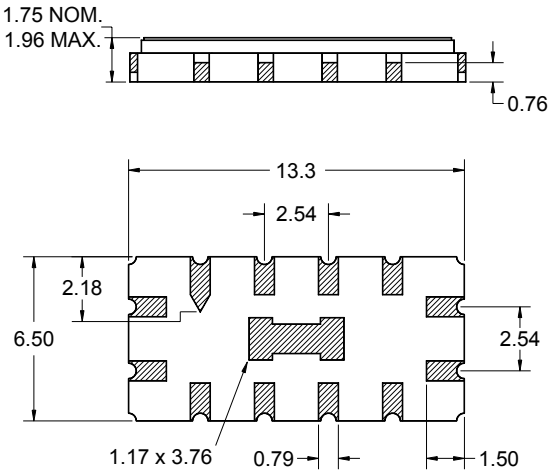
Features

- For GPS applications
- Usable bandwidth of 16 MHz
- Typical 3 dB bandwidth at 16.9 MHz
- Low loss
- High attenuation
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free



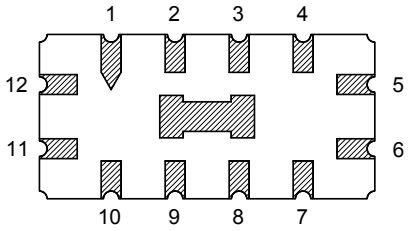
Package

Surface Mount 13.30 x 6.50 x 1.75 mm



Pin Configuration

Bottom View



Pin No.	Description
5	Output
11	Input
1,2,3,4,6	Case ground
7,8,9,10,12	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] +25 °C

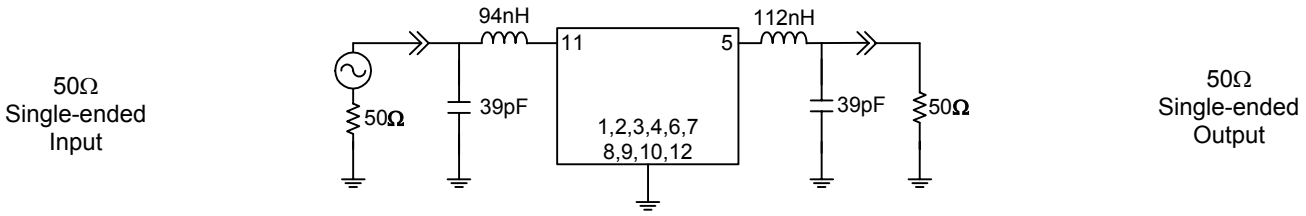
Parameter	Minimum	Typical	Maximum	Unit
Center Frequency, f_0	139.6	140	140.4	MHz
Minimum Insertion Loss at Fo	-	8.4	11	dB
1 dB Bandwidth	15	16	-	MHz
3 dB Bandwidth	16	16.9	-	MHz
35 dB Bandwidth	-	21.17	22	MHz
Passband Ripple 133.6 - 146.4 MHz	-	0.6	1	dB
Phase Linearity 133.6 - 146.4 MHz	-	10	14	deg
Group Delay Variation 133.6 - 146.4 MHz	-	60	160	ns
Absolute Group Delay	-	1.02	-	µs
Temperature Shift	-	-94	-	ppm/°C
Source Impedance [4]	-	50	-	Ω
Load Impedance [4]	-	50	-	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 is available on the next page
3. Electrical margin has been built into the design to account for the variations due to manufacturing tolarences
4. 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

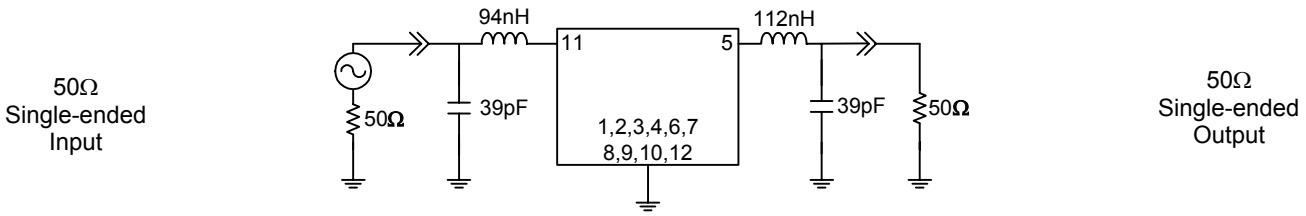
Parameter [3]	Minimum	Typical	Maximum	Unit
Center Frequency, f_0	139.6	140	140.4	MHz
Minimum Insertion Loss at Fo	-	8.9	11	dB
Lower 1 dB Bandedge	-	132.1	132.9	MHz
Upper 1 dB Bandedge	147.1	148.2	-	MHz
Lower 3 dB Bandedge	-	131.7	132.6	MHz
Upper 3 dB Bandedge	147.6	148.7	-	MHz
Lower 35 dB Bandedge	128.6	130.2	-	MHz
Upper 35 dB Bandedge	-	151.3	154.0	MHz
Passband Ripple 133.6 - 146.4 MHz	-	0.6	1	dB
Phase Linearity 133.6 - 146.4 MHz	-	10	14	deg
Group Delay Variation 133.6 - 146.4 MHz	-	60	160	ns
Absolute Group Delay	-	1.02	-	µs
Source Impedance [4]	-	50	-	Ω
Load Impedance [4]	-	50	-	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 in order to achieve the performance shown

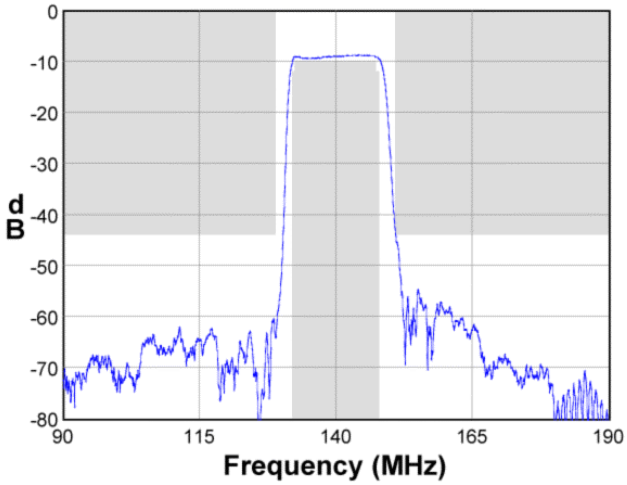
Test Circuit:

Actual matching values may vary due to PCB layout and parasitics

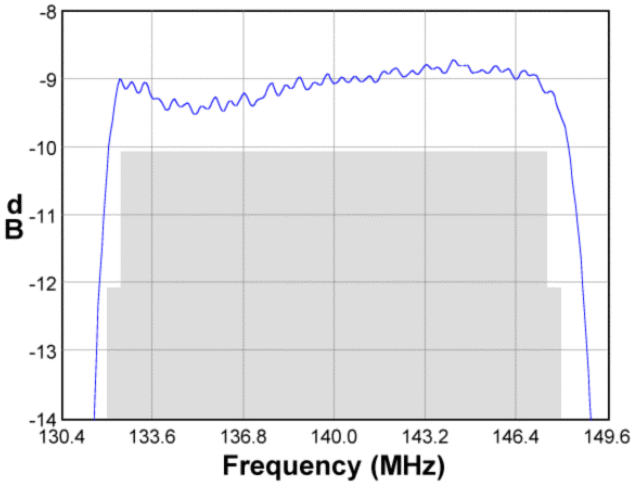


Typical Performance (at +25°C)

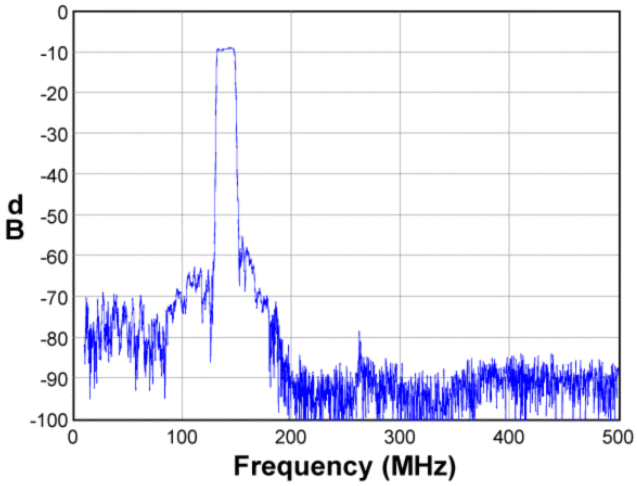
Frequency Response



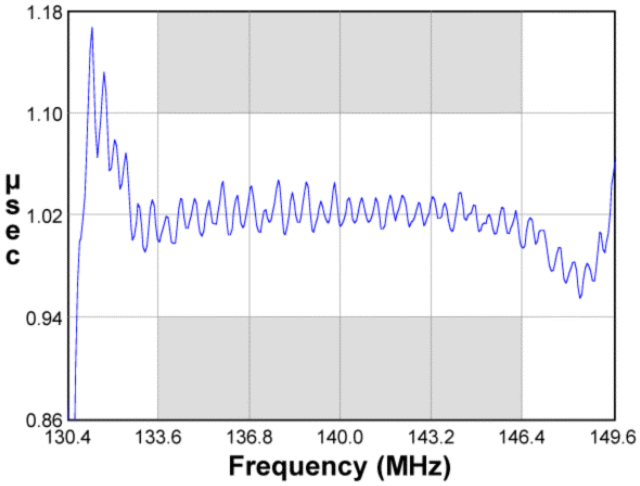
Passband Response



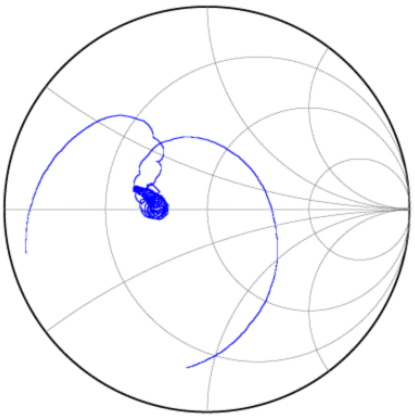
Wideband Response



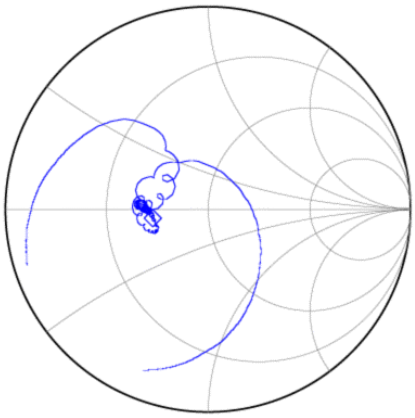
Group Delay Variation



Input Smith Chart



Output Smith Chart



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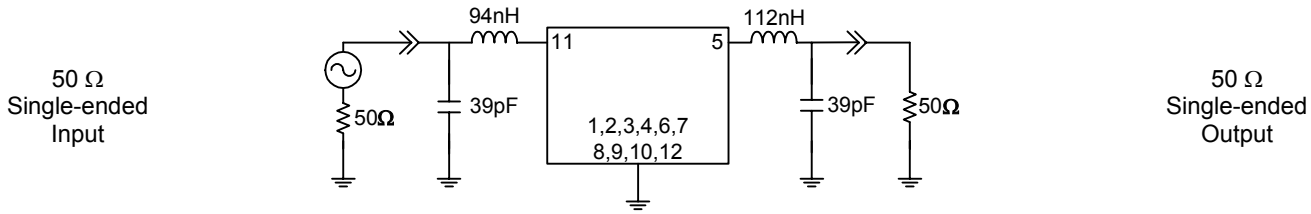
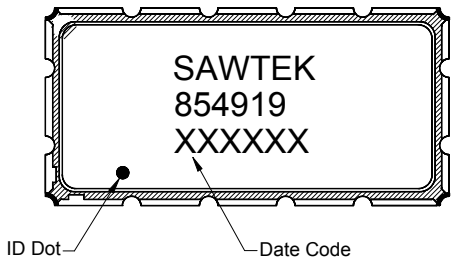
Data Sheet

Matching Schematics

Actual matching values may vary due to PCB layout and parasitics

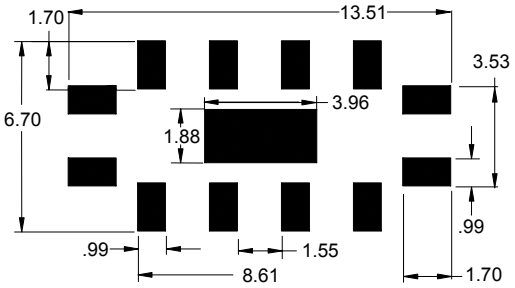


Marking



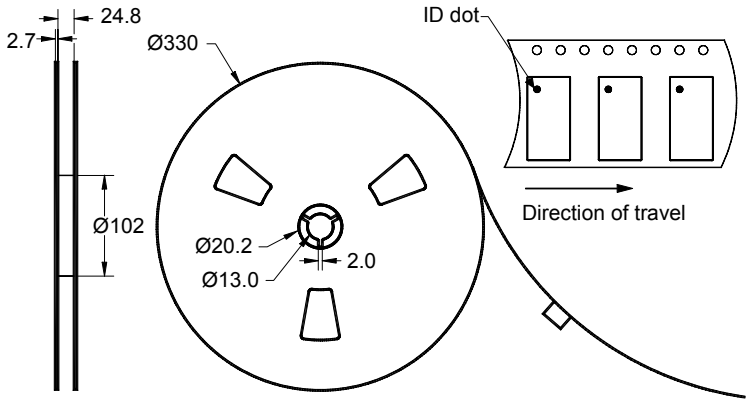
The date code consists of: day of the current year (Julian, 3 digits), last digit of the year (1 digit) and hour (2 digits)

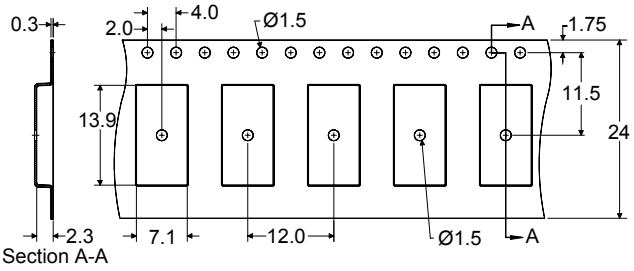
PCB Footprint



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

Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	-40	+85	°C
Storage Temperature Range	T_{stg}	-40	+85	°C
ESD HBM (per JESD22-A114)	V_{ESD}	200	-	V
ESD MM (per JESD22-A115)	V_{ESD}	150	-	V

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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