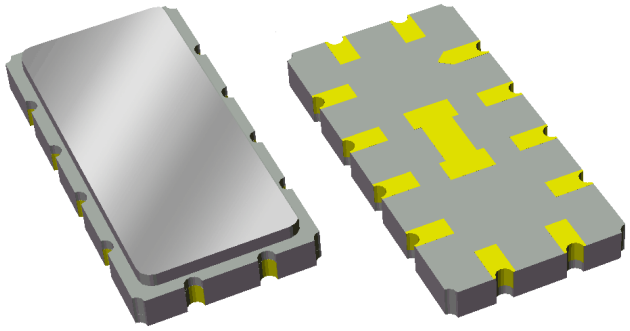
TriQuint SEMICONDUCTOR

Data Sheet

Part Number 854661
70 MHz SAW Filter

Features

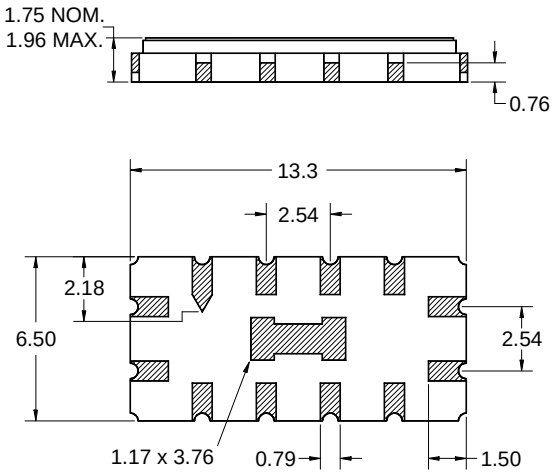
- Usable bandwidth 6.0 MHz
- Typical 3dB bandwidth of 6.35 MHz
- Low loss
- High attenuation
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Hermetic
- **RoHS** compliant (2002/95/EC), **Pb**-free



Package

Surface Mount 13.30 x 6.50 x 1.75 mm

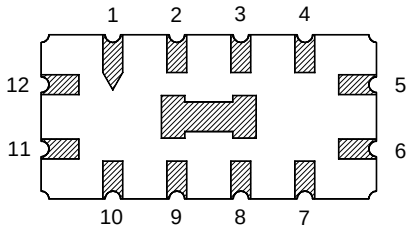
SMP-53



Pin Configuration

Bottom View

This package includes a center pad.
Soldering of the center pad to PCB is not recommended and not required.



Single-ended Configuration

Pin No.	Description
5	Output
11	Input
6,12	Ground
1,2,3,4	Case Ground
7,8,9,10	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

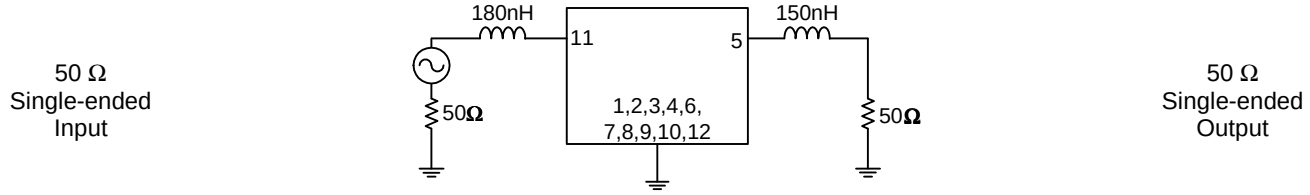
Parameter [3]	Minimum	Typical [4]	Maximum	Unit
Center Frequency	69.8	70	70.2	MHz
Insertion Loss at Center Frequency	-	7.5	8.5	dB
1 dB Bandwidth	5.1	5.35	-	MHz
3 dB Bandwidth	6	6.35	-	MHz
40 dB Bandwidth	-	10.2	10.65	MHz
Passband Ripple 67.6 – 72.4 MHz	-	0.7	1.0	dB p-p
Phase Linearity 67.6 – 72.4 MHz	-	8.2	9.75	° p-p
Group Delay Variation 67.5 – 72.4 MHz	-	85	110	ns p-p
Absolute Delay	-	1.01	-	µsec
Temperature Coefficient	-	-94	-	ppm/°C
Source Impedance (single-ended) [5]	-	50	-	Ω
Load Impedance (single-ended) [5]	-	50	-	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. 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

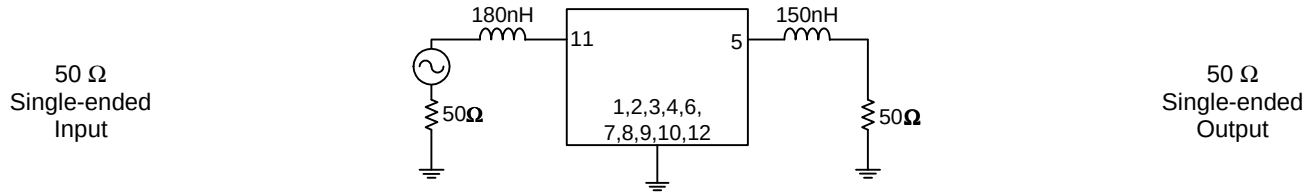
Parameter [3]	Minimum	Typical [4]	Maximum	Unit
Center Frequency	-	70	-	MHz
Insertion Loss at 70 MHz	-	7.5	8.8	dB
Lower 1 dB Band Edge [5]	-	66.98	68	MHz
Upper 1 dB Band Edge [5]	72	72.59	-	MHz
Lower 3 dB Band Edge [5]	-	66.64	67.5	MHz
Upper 3 dB Band Edge [5]	72.5	73.09	-	MHz
Lower 40 dB Bandwidth [5]	-	10.2	11.5	MHz
Passband Ripple [6] 67.6 – 72.4 MHz	-	0.7	1.2	dB p-p
Phase Linearity 67.6 – 72.4 MHz	-	8.2	12	º p-p
Group Delay Variation 67.5 – 72.4 MHz	-	85	150	ns p-p
Absolute Delay 67.5 – 72.4 MHz	-	1.01	-	µsec
Source Impedance (single-ended) [7]	-	50	-	Ω
Load Impedance (single-ended) [7]	-	50	-	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. Relative to insertion loss at 70MHz
6. Passband Ripple is defined as the worst case peak to adjacent valley within the passband. The edge of the passband is the point where the amplitude begins a downward trend that does not reverse until the stopband
7. This is the optimum impedance in order to achieve the performance shown

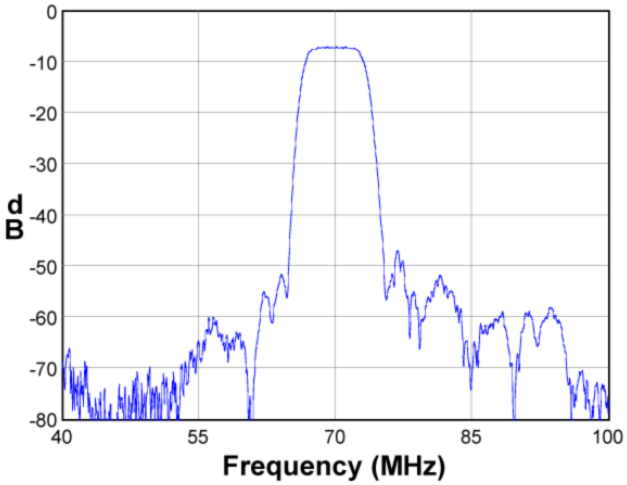
Test Circuit:

Actual matching values may vary due to PCB layout and parasitics

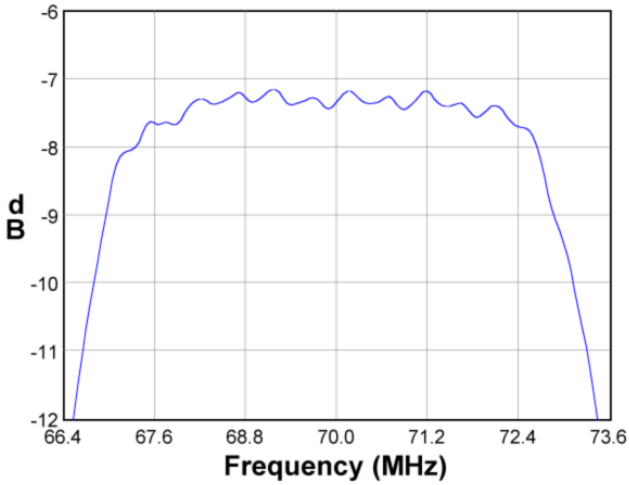


Typical Performance (at room temperature)

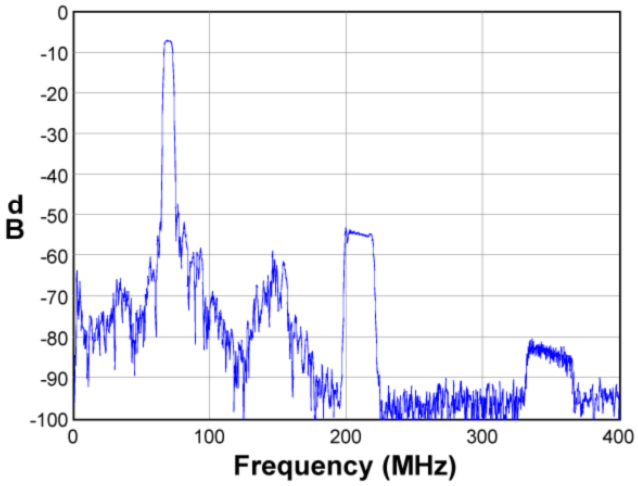
Frequency Response



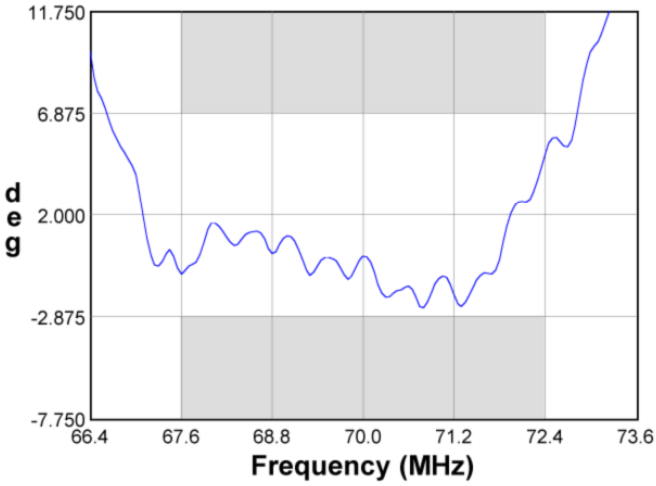
Passband Response



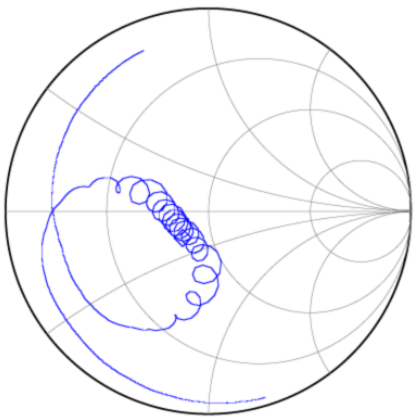
Wide Response



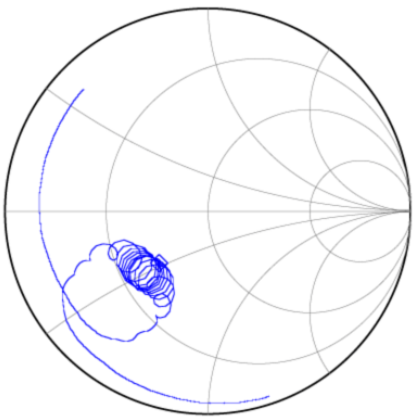
Phase Linearity



Input Smith Chart



Output Smith Chart



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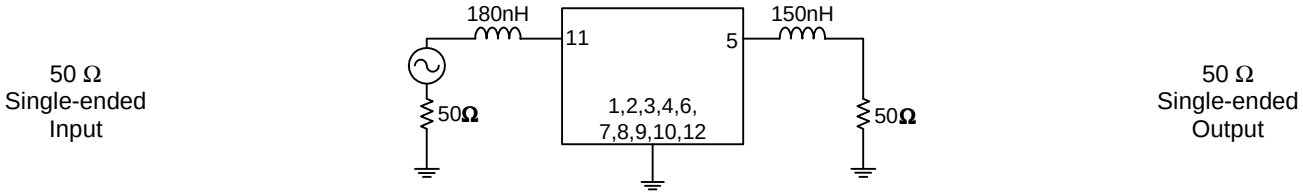
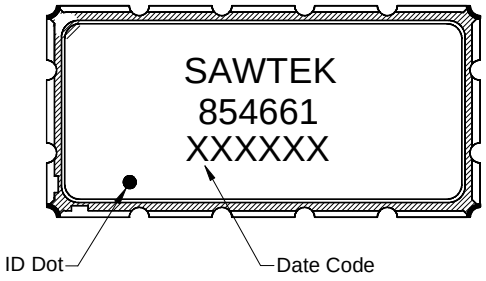
70 MHz SAW Filter

Matching Schematics

Actual matching values may vary due to PCB layout and parasitics

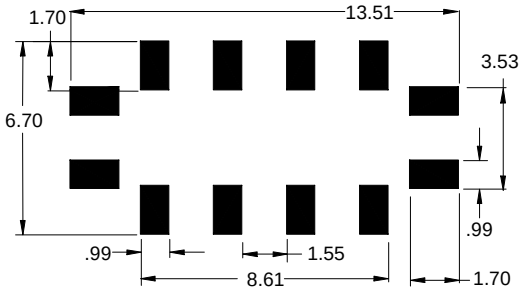


Marking



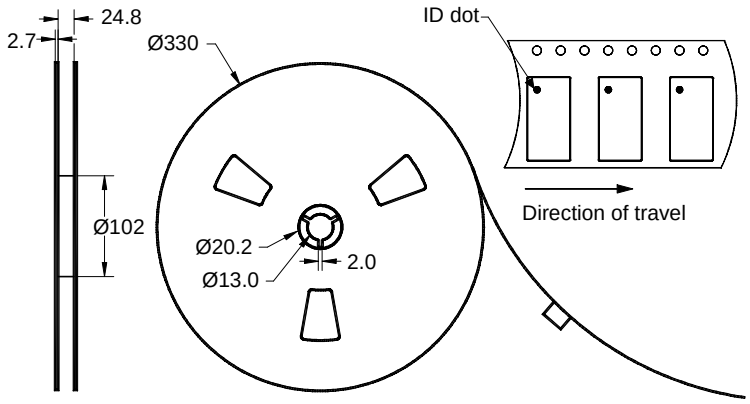
The date code consists of: day of the current year (Julian, 3 digits), last digit of the year (1 digit) and hour (2 digits)

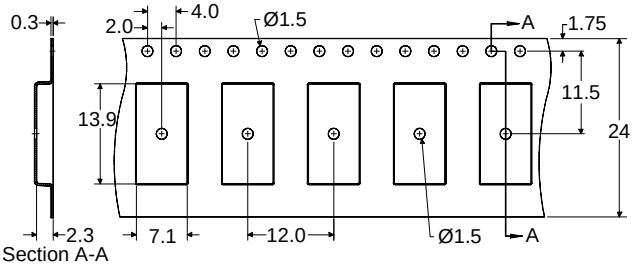
PCB Footprint



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	^{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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