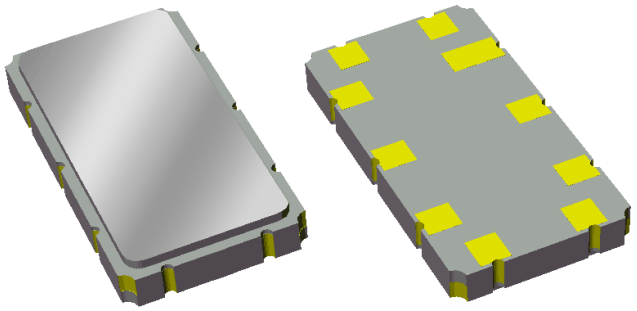
TriQuint SEMICONDUCTOR

Data Sheet

Part Number 856698
140 MHz SAW Filter

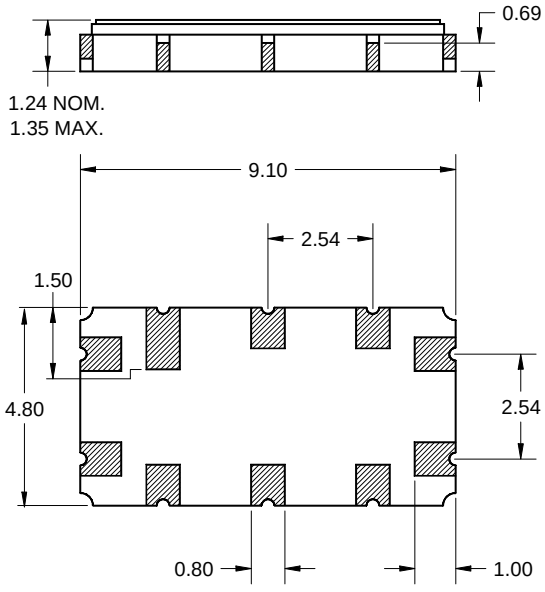
Features

- For multiple applications
- Usable bandwidth 28 MHz
- High attenuation
- Balanced or single-ended operation
- Ceramic Surface Mount Package (SMP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free



Package

Surface Mount 9.10 x 4.80 x 1.24 mm
SMP-35C

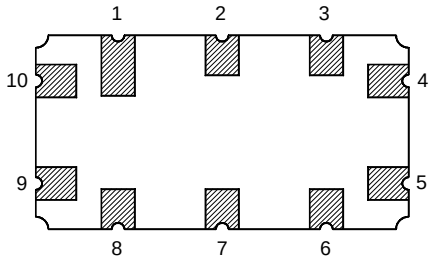


Dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width ±0.10mm

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. Balanced	Description
9	Input +
10	Input -
4	Output +
5	Output -
1,2,3,6,7,8	Case Ground

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

Electrical Specifications [1]

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

Parameter [3]	Minimum	Typical [5]	Maximum	Unit
Center Frequency	-	140	-	MHz
Insertion Loss @ Center Frequency	-	18.0	20	dB
Amplitude Variation				
126 – 154 MHz	-	0.6	1.2	dB p-p
Phase Linearity				
129 – 151 MHz	-	3.0	6	º p-p
126 – 154 MHz	-	3.5	7	º p-p
Average Group Delay				
126 – 154 MHz	0.55	0.60	0.65	µs
Input/Output Return Loss				
126 – 154 MHz	10	13	-	dB
Relative Attenuation [4]				
10 – 112 MHz	38	41	-	dB
168 – 198 MHz	35	42	-	dB
198 – 225 MHz	40	47	-	dB
225 – 250 MHz	35	41	-	dB
Triple Transit Suppression	45	50	-	dB
Source Impedance (balanced or single-ended) [6]	-	50	-	Ω
Load Impedance (balanced or single-ended) [6]	-	50	-	Ω

Notes:

1. All specifications are based on the TriQuint matching schematics shown on page 5
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. Relative to insertion loss at center frequency
5. Typical values are based on average measurements at room temperature
6. This is the optimum impedance in order to achieve the performance shown

Electrical Specifications [1]

Operating Temperature Range: [2] -20 to +85 °C

Parameter [3]	Minimum	Typical [5]	Maximum	Unit
Center Frequency	-	140	-	MHz
Insertion Loss @ Center Frequency	-	18.0	20	dB
Amplitude Variation				
126 – 154 MHz	-	0.6	1.2	dB p-p
Phase Linearity				
129 – 151 MHz	-	3.0	5	º p-p
126 – 154 MHz	-	3.5	7	º p-p
Average Group Delay				
126 – 154 MHz	0.55	0.60	0.65	µs
Input/Output Return Loss				
126 – 154 MHz	10	13	-	dB
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4. Relative to insertion loss at center frequency
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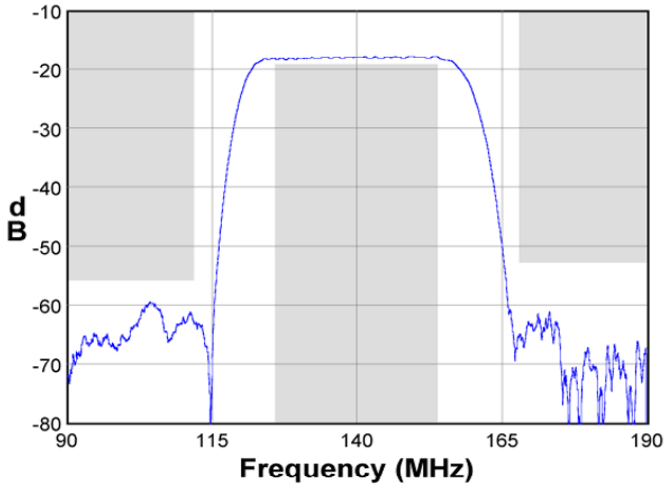
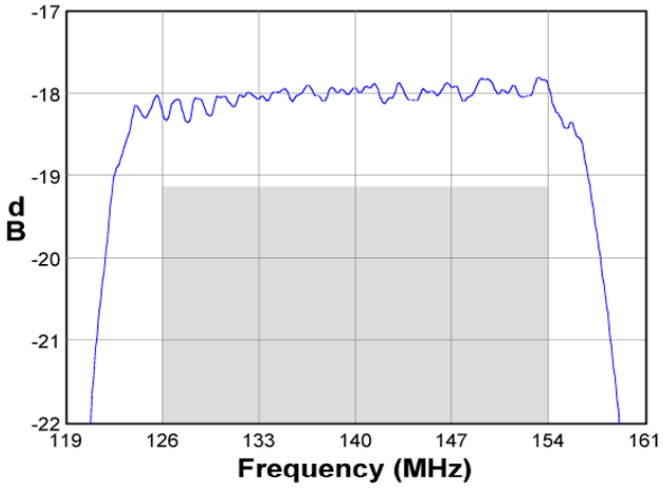
Typical Performance (at room temperature)

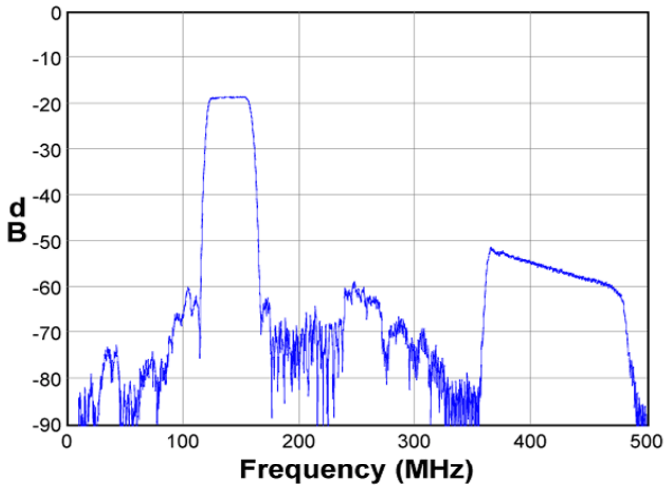
Frequency Response



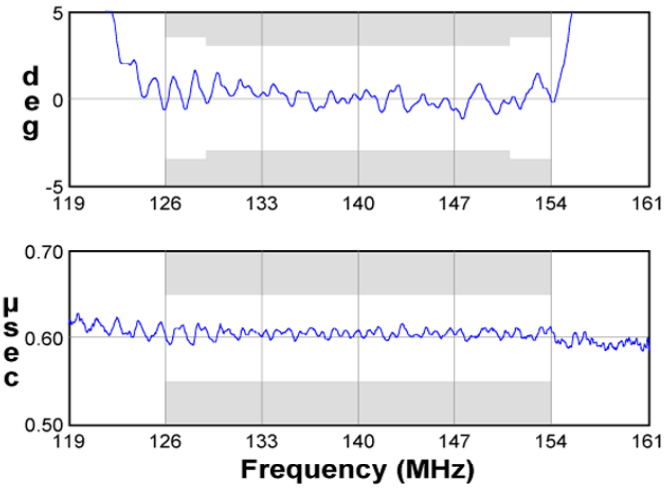
Passband Response



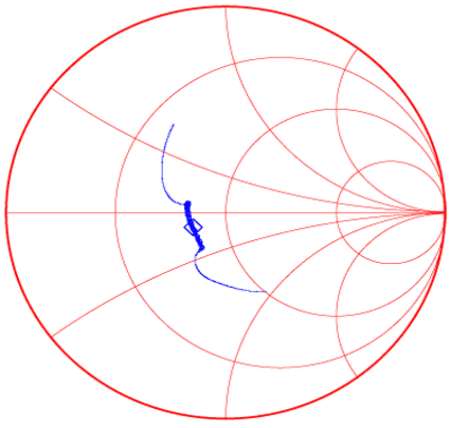
Wideband Response



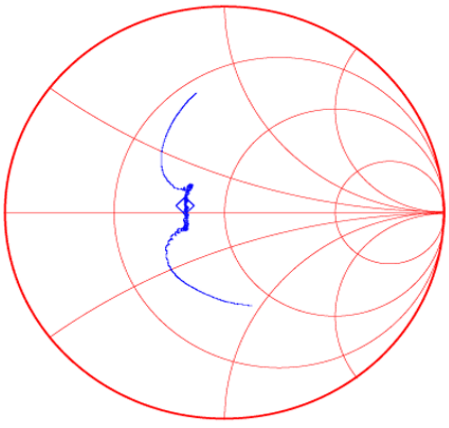
Phase / Group Delay



Input Smith Chart



Output Smith Chart



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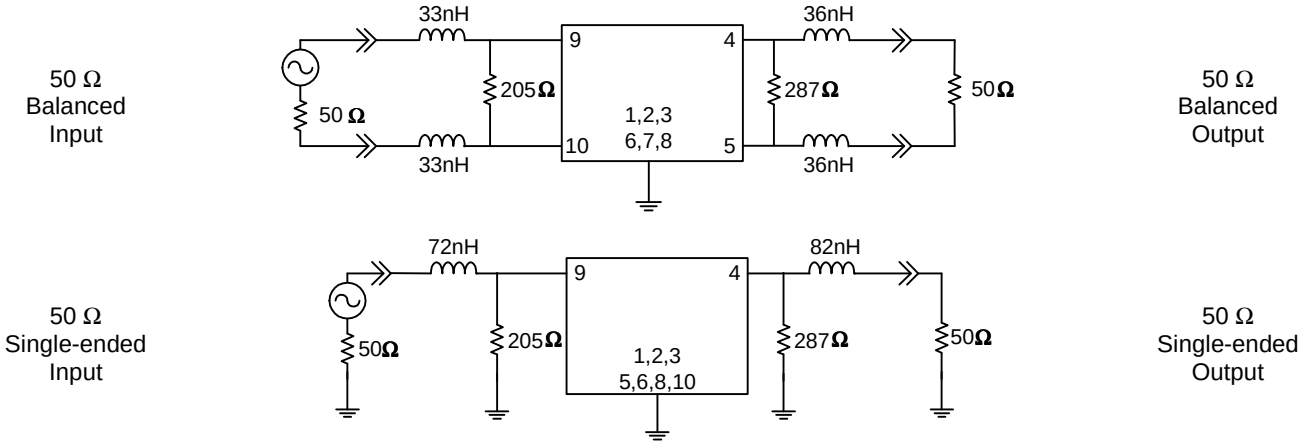
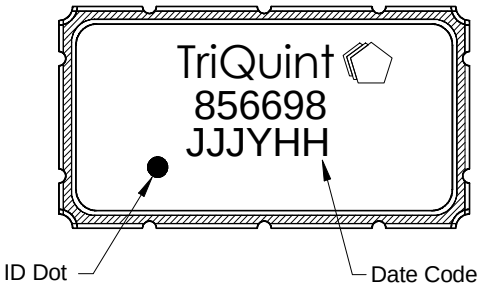
140 MHz SAW Filter

Matching Schematics

Actual matching values may vary due to PCB layout and parasitics

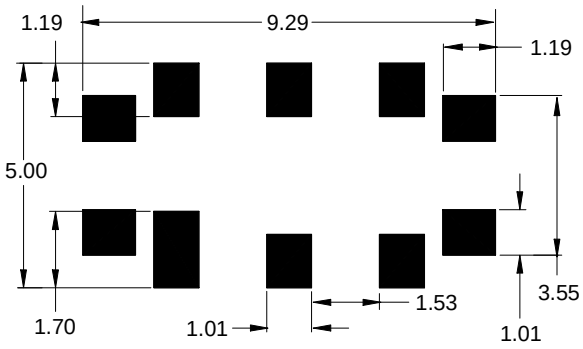


Marking



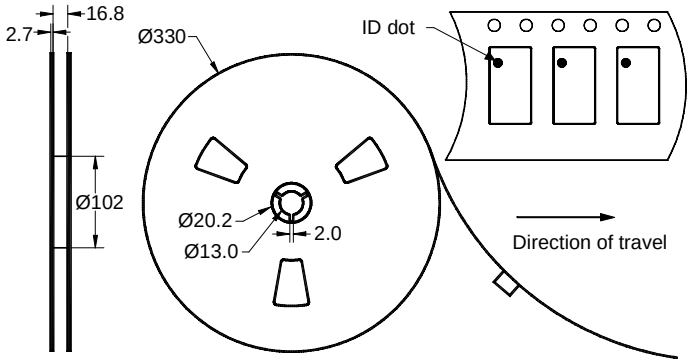
The date code consists of: day of the current year (Julian, 3 digits), last digit of the year (1 digit) and hour (2 digits)

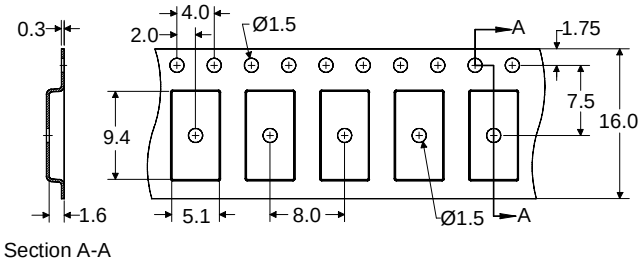
PCB Footpint



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

TriQuint SEMICONDUCTOR

Data Sheet

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140 MHz SAW Filter

Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	-40	+85	^{o}C
Storage Temperature Range	T_{stg}	-55	+125	^{o}C
Pyroelectric Voltage	V_{Pyro}	-	50	mV p-p
Input Power	P_{in}	-	+10	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℃** 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

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