TriQuint SEMICONDUCTOR

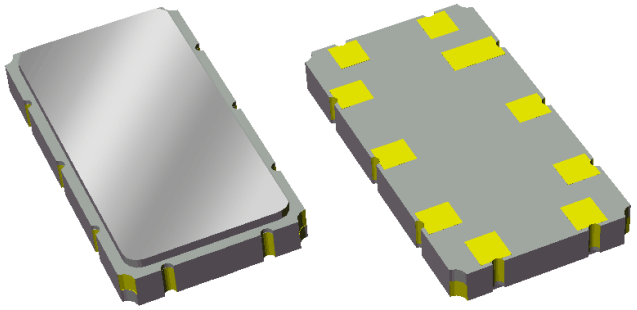
Data Sheet

Part Number 856695

140 MHz SAW Filter

Features

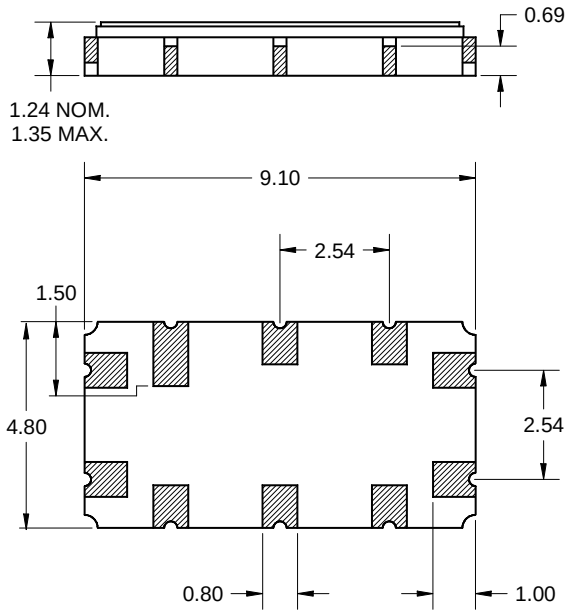
- For multiple applications
- Usable bandwidth 10 MHz
- Low loss
- High attenuation
- Balanced operation
- Ceramic Surface Mount Package (SMP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free



Package

Surface Mount 9.10 x 4.80 x 1.24 mm

SMP-35C

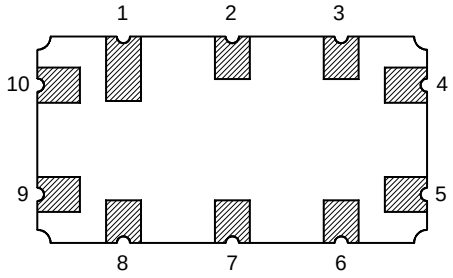


Dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width ±0.10mm

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.	Description
9	Input +
10	Input -
4	Output +
5	Output -
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
Minimum Insertion Loss	-	10	11.5	dB
Amplitude Variation				
135 – 145 MHz	-	0.4	0.9	dB p-p
Phase Linearity				
136 – 144 MHz	-	2.0	6	º p-p
135 – 145 MHz	-	2.2	8	º p-p
Average Group Delay				
135 – 145 MHz	0.72	0.77	0.82	µs
Relative Attenuation [4]				
10 – 116 MHz	48	52	-	dB
116 – 125 MHz	40	45	-	dB
125 – 127.5 MHz	33	41	-	dB
152.5 – 158 MHz	31	41	-	dB
158 – 177 MHz	35	45	-	dB
177 – 280 MHz	40	50	-	dB
Triple Transit Suppression	30	45	-	dB
Source Impedance (balanced) [6]	-	50	-	Ω
Load Impedance (balanced) [6]	-	50	-	Ω

Notes:

1. All specifications are based on the TriQuint matching schematic 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 minimum insertion loss
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

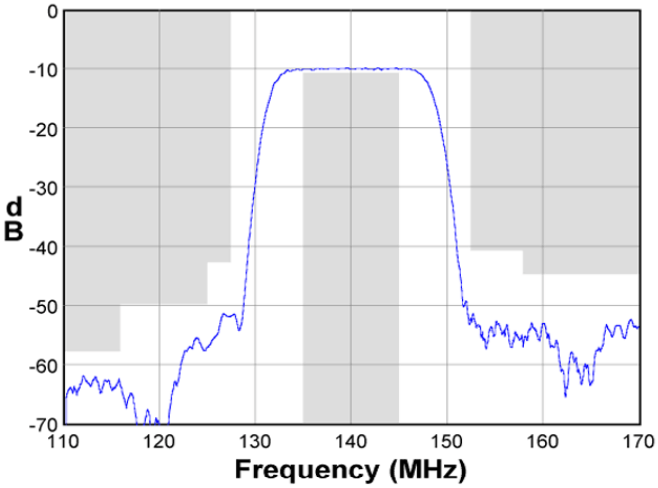
Parameter [3]	Minimum	Typical [5]	Maximum	Unit
Center Frequency	-	140	-	MHz
Minimum Insertion Loss	-	10	11.5	dB
Amplitude Variation				
135 – 145 MHz	-	0.4	0.9	dB p-p
Phase Linearity				
136 – 144 MHz	-	2.0	4	º p-p
135 – 145 MHz	-	2.2	8	º p-p
Average Group Delay				
135 – 145 MHz	0.72	0.77	0.82	µs
Relative Attenuation [4]				
10 – 116 MHz	48	52	-	dB
116 – 125 MHz	40	45	-	dB
125 – 127.5 MHz	33	41	-	dB
152.5 – 158 MHz	31	41	-	dB
158 – 177 MHz	35	45	-	dB
177 – 280 MHz	40	50	-	dB
Triple transit suppression	30	45	-	dB
Source Impedance (balanced) [6]	-	50	-	Ω
Load Impedance (balanced) [6]	-	50	-	Ω

Notes:

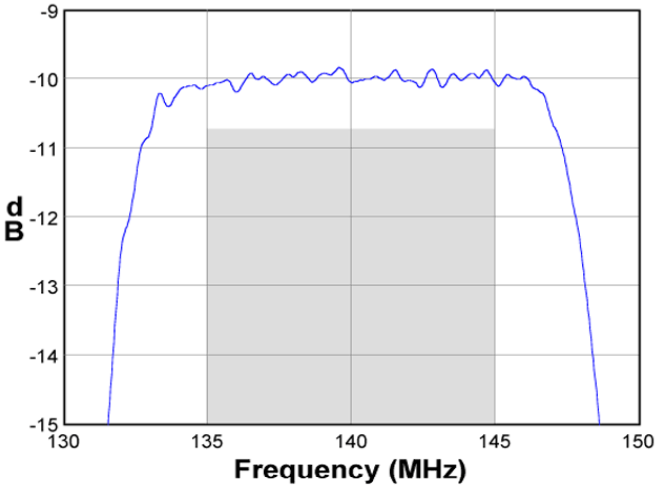
1. All specifications are based on the TriQuint matching schematic shown on page 5
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
3. Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances
4. Relative to minimum insertion loss
5. Typical values are based on average measurements at room temperature
6. This is the optimum impedance in order to achieve the performance shown

Typical Performance (at room temperature)

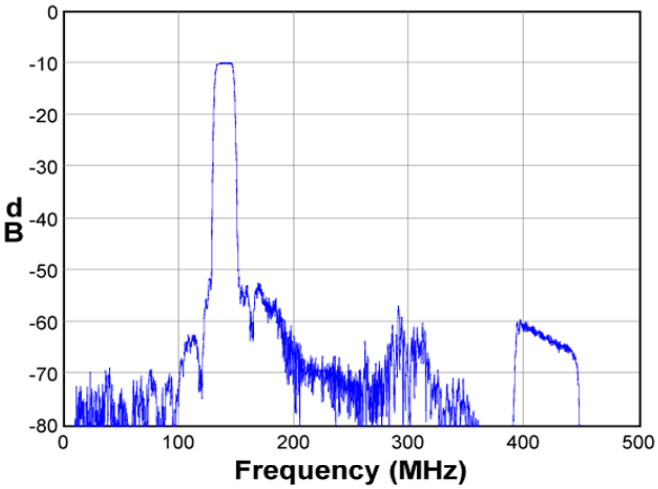
Frequency Response



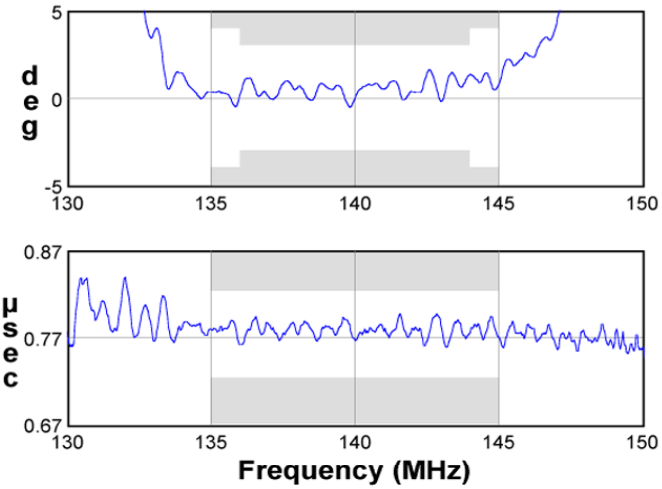
Passband Response



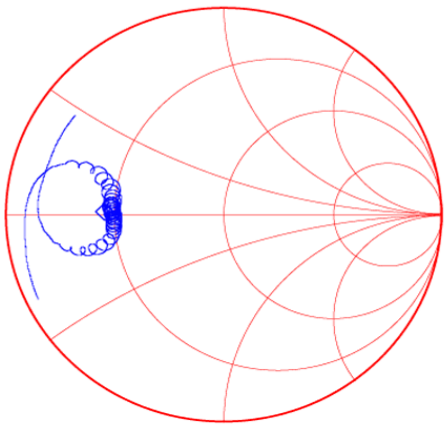
Wideband Response



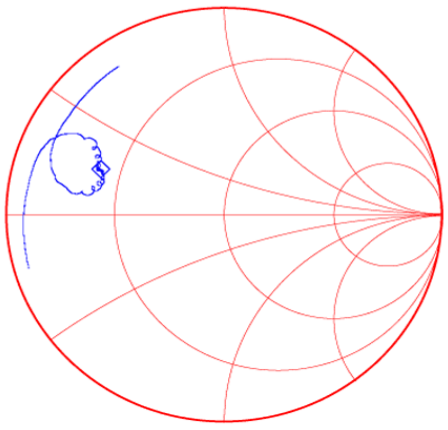
Phase / Group Delay



Input Smith Chart



Output Smith Chart



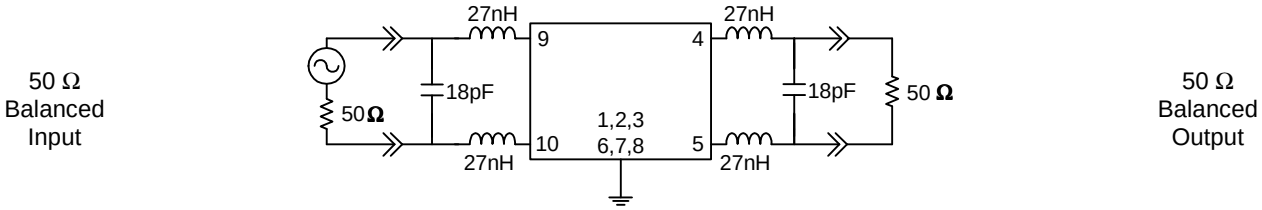
TriQuint SEMICONDUCTOR

Data Sheet

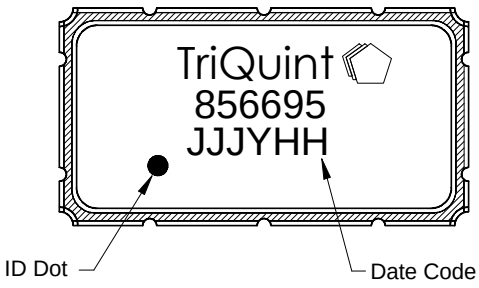
Part Number 856695
140 MHz SAW Filter

Matching Schematic

Actual matching values may vary due to PCB layout and parasitics

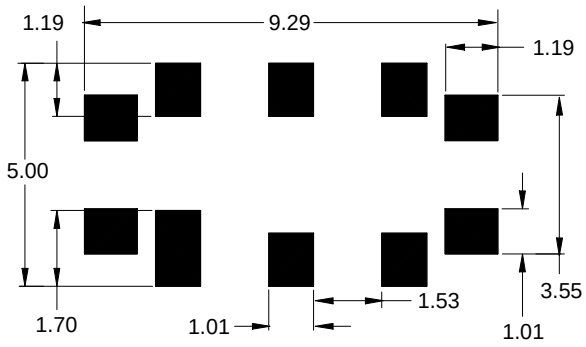


Marking



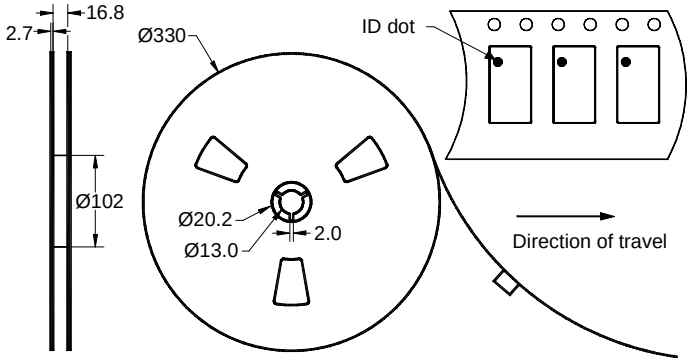
The date code consists of: day of the current year (Julian, 3 digits), last digit of the year (1 digit) and hour (2 digits)

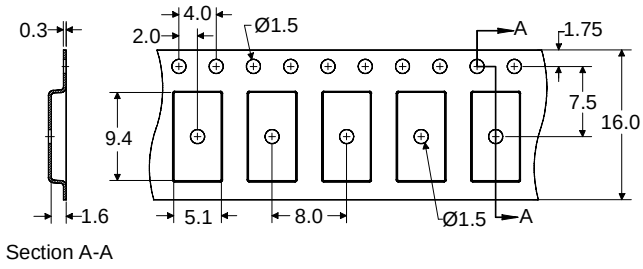
PCB Footprint



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

Tape and Reel





Dimensions shown are nominal in millimeters
Packaging quantity: 4000 units/reel

TriQuint SEMICONDUCTOR

Data Sheet

Part Number 856695
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}	-	+20	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

Contact Information

TriQuint SEMICONDUCTOR
PO Box 609501
Orlando, FL 32860-9501
USA

Phone: +1 (407) 886-8860
Fax: +1 (407) 886-7061
Email: info-product@tqs.com
Web: www.triquint.com

Or contact one of our worldwide Network of sales offices, Representatives or distributors