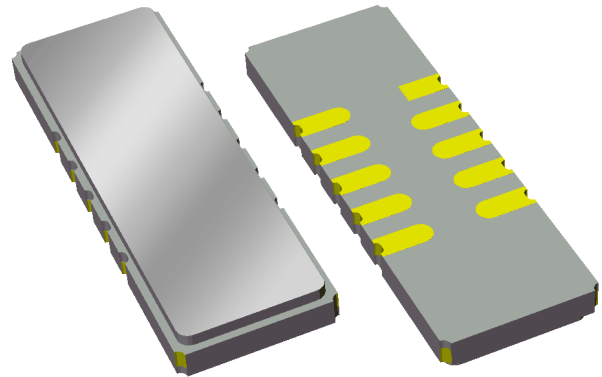


857177

140 MHz SAW Filter

Applications

- For Military applications



Product Features

- Typical 3 dB bandwidth of 1.5 MHz
- Low loss
- High Attenuation
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Small Size
- Dimensions: 19.00 x 6.50 x 1.75mm
- **RoHS** compliant, **Pb-free**

General Description

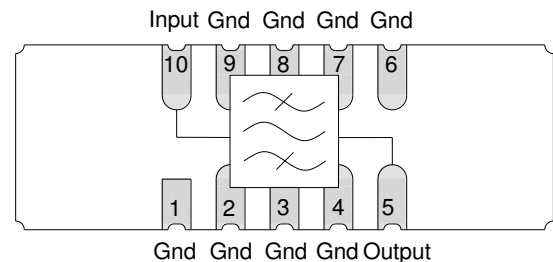
The 857177 is a high-performance IF SAW filter with a center frequency of 140 MHz and a 3 dB bandwidth of 1.5 MHz.

It features low loss with excellent attenuation, and is designed to be used with a single ended input and output.

This device is RoHS compliant and Pb-free.

Functional Block Diagram

Top view



Pin Configuration

Pin #	SE	Description
10		RF Input
5		RF Output
1,6		Ground
2,3,4,7,8,9		Case ground

Ordering Information

Part No.	Description
857177	packaged part
857177-EVB	evaluation board

Standard T/R size = 2000 units/reel.

Specifications

Electrical Specifications ⁽¹⁾

Specified Temperature Range: ⁽²⁾ -55 to +105 °C

Parameter ⁽³⁾	Conditions	Min	Typical ⁽⁴⁾	Max	Units
Center Frequency		-	140	-	MHz
Insertion Loss	at minimum	-	23.5	25	dB
Lower 1.0 dB Bandedge		-	-	139.55	MHz
Upper 1.0 dB Bandedge ⁽⁵⁾		140.45	-	-	MHz
Lower 3.0 dB Bandedge		-	-	139.4	MHz
Upper 3.0 dB Bandedge ⁽⁵⁾		140.6	-	-	MHz
Lower 40.0 dB Bandedge		138.6	-	-	MHz
Upper 40.0 dB Bandedge ⁽⁵⁾		-	-	141.4	MHz
Amplitude Variation ⁽⁶⁾	139.55 – 140.45 MHz	-	0.35	1.0	dB p-p
Phase Linearity	139.55 – 140.45 MHz	-	3.0	6.0	deg p-p
Group Delay Variation	139.55 – 140.45 MHz	-	80	200	ns p-p
Relative Attenuation	15 – 138.3 MHz	50	-	-	dB
	141.7 – 145 MHz	45	-	-	dB
	145 – 155 MHz	43	-	-	dB
	155 – 220 MHz	50	-	-	dB
	220 – 240 MHz	30	-	-	dB
	240 – 252 MHz	50	-	-	dB
	252 – 270 MHz	20	-	-	dB
	270 – 350 MHz	50	-	-	dB
Source Impedance (single-ended) ⁽⁷⁾	-	-	50	-	Ω
Load Impedance (single-ended) ⁽⁷⁾	-	-	50	-	Ω

Notes:

- All specifications are based on the TriQuint schematic for the main reference design shown on page 3
- In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
- Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances
- Typical values are based on average measurements at room temperature
- Relative to insertion loss at center frequency
- Is defined as the difference between the maximum and minimum loss within the specified frequency range
- This is the optimum impedance in order to achieve the performance shown

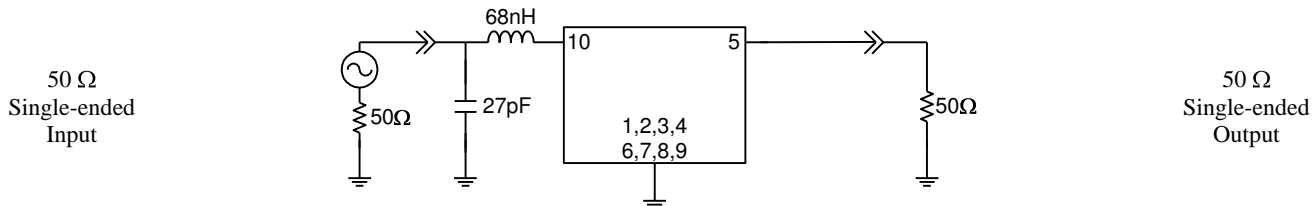
Absolute Maximum Ratings

Parameter	Rating
Operating Temperature	-55 to +105 °C
Storage Temperature	-55 to +105 °C

Operation of this device outside the parameter ranges given above may cause permanent damage.

Reference Design – 50Ω SE Input, 50Ω SE Output

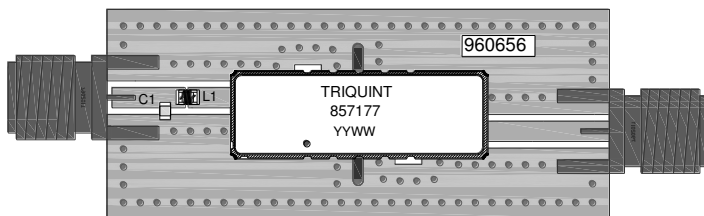
Schematic



Notes:

1. Actual matching values may vary due to PCB layout and parasitics

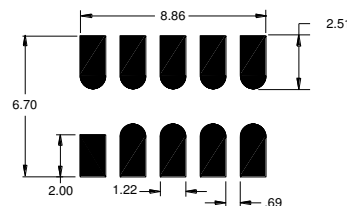
PC Board



Notes:

- Top, middle & bottom layers: 1 oz copper
- Substrates: FR4 dielectric, .031" thick
- Finish plating: Nickel: 3-8μm thick, Gold: .03-.2μm thick
- Hole plating: Copper min .0008μm thick

Mounting Configuration



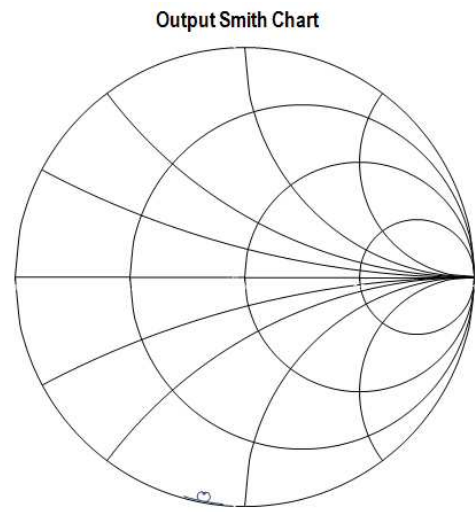
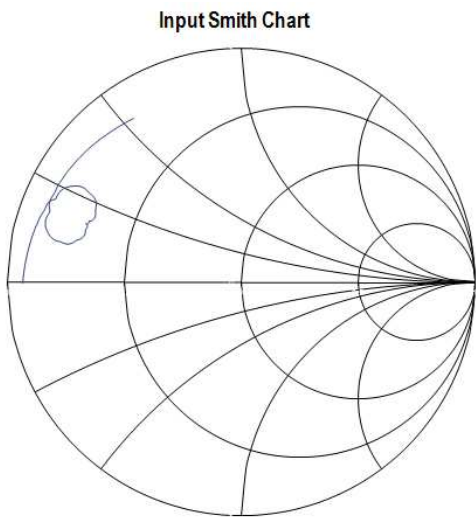
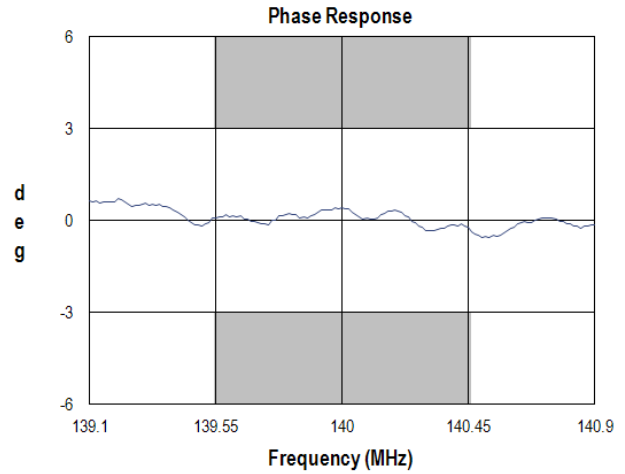
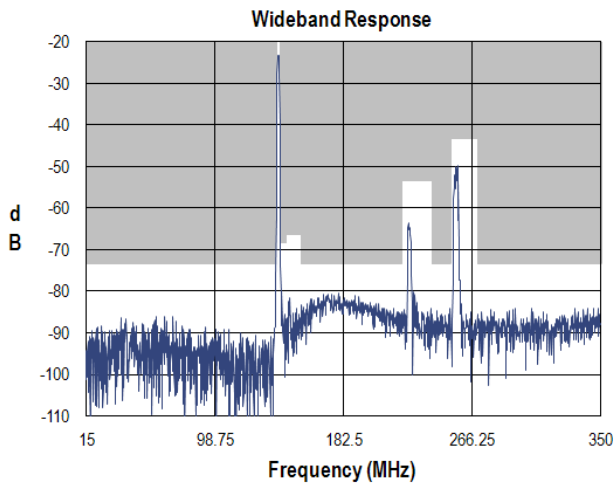
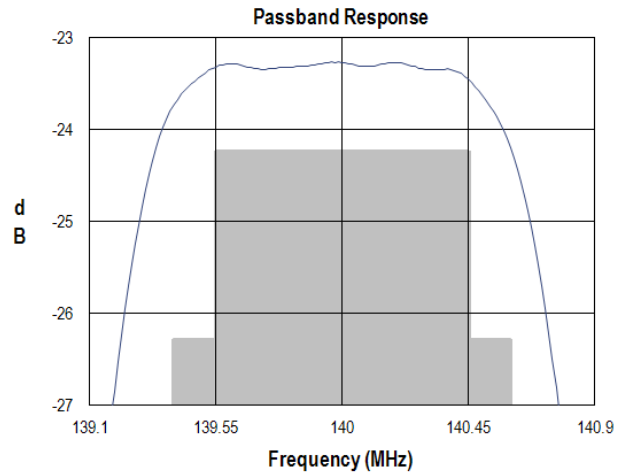
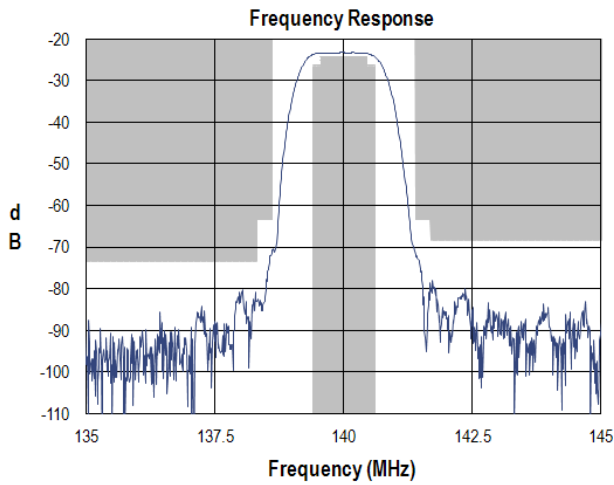
Notes:

1. All dimensions are in millimeters.
2. This footprint represents a recommendation only.

Bill of Material

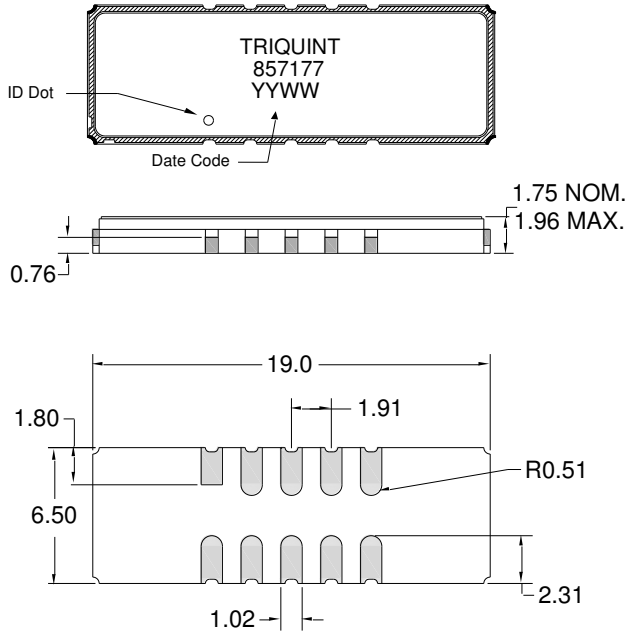
Reference Desg.	Value	Description	Manufacturer	Part Number
L1	68nH	Coil Wire-wound, 0805, 5%	Coilcraft	0805CS-680XJLC
C1	27pF	Chip Capacitor, 0603, 5%	MuRata	GRM1885C1H270JA01
SMA	N/A	SMA connector	Radiall USA Inc.	9602-1111-018
PCB	N/A	3-layer	multiple	960656

Typical Performance (at room temperature)



Mechanical Information

Package Information, Dimensions and Marking



Package Style: SMP-75
 Dimensions: 19.00 x 6.50 x 1.75mm

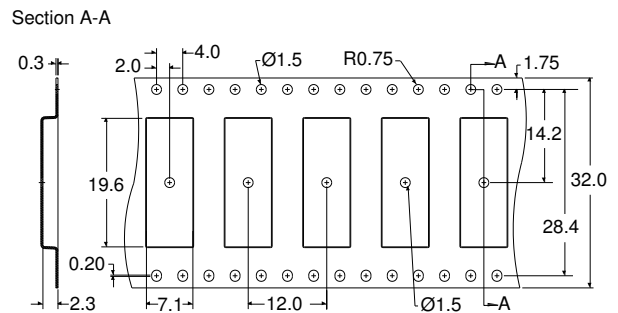
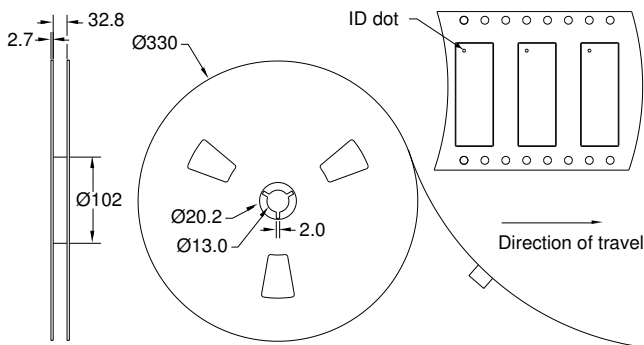
Body: Al₂O₃ ceramic
 Lid: Kovar, Ni plated
 Terminations: Au plating 0.5 - 1.0µm, over a 2-6µm Ni plating

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

The date code consists of: YY = last two digits of the year,
 WW = work week

Tape and Reel Information

Standard T/R size = 2000 units/reel. All dimensions are in millimeters



Product Compliance Information

ESD Information



Caution! ESD-Sensitive Device

ESD Rating: TBD

Value: Passes \geq TBD V min.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: TBD

Value: Passes \geq TBD V min.
Test: Machine Model (MM)
Standard: JEDEC Standard JESD22-A115

MSL Rating

Devices are Hermetic, therefore MSL is not applicable.

Solderability

Compatible with the latest version of J-STD-020, lead free solder, 260°C

Refer to [Soldering Profile](#) for recommended guidelines.

This part is compliant with EU 2002/95/EC RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment).

This product also has the following attributes:

- Halogen Free (Chlorine, Bromine)
- Antimony Free
- TBBP-A (C₁₅H₁₂Br₄O₂) Free
- PFOS Free
- SVHC Free

Contact Information

For the latest specifications, additional product information, worldwide sales and distribution locations, and information about TriQuint:

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Email: info-sales@tqs.com Fax: +1.407.886.7061

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Email: applications.engineering@tqs.com

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