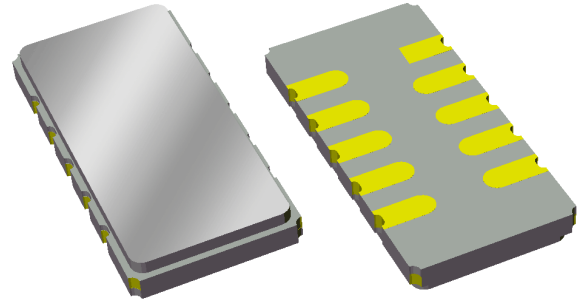


856980

70 MHz SAW Filter

Applications

- General Purpose
- For IF applications

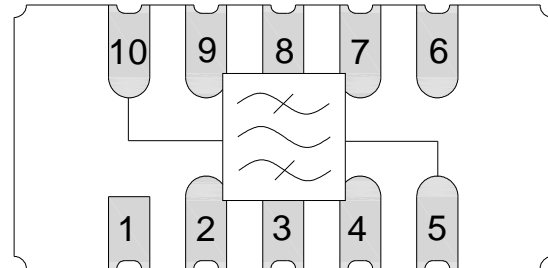


Product Features

- Usable bandwidth 2.4 MHz
- Low loss
- High Attenuation
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Small Size
- Dimensions: 13.30 x 6.50 x 1.5mm
- Hermetic **RoHS** compliant, **Pb-free**

Functional Block Diagram

Top view



General Description

The 856980 is a high-performance IF SAW filter with a center frequency of 70 MHz and a usable bandwidth of 2.4 MHz. It is suitable for a wide variety of applications, including wireless data transceivers.

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

The device is RoHS compliant and Pb-free.

Pin Configuration

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

Ordering Information

Part No.	Description
856980	packaged part
856980-EVB	evaluation board

Standard T/R size = 2000 units/reel.

Specifications

Electrical Specifications ⁽¹⁾

Specified Temperature Range: ⁽²⁾ -55 to +85 °C

Parameter ⁽³⁾	Conditions	Min	Typical ⁽⁴⁾	Max	Units
Center Frequency		-	70	-	MHz
Insertion Loss	at 70 MHz	-	9	10	dB
3 dB Bandwidth ⁽⁷⁾		2.4	2.5	-	MHz
Passband Ripple ⁽⁵⁾	69.3 – 70.7 MHz	-	0.2	0.7	dB p-p
Phase Ripple	69.3 – 70.7 MHz	-	2	5	deg p-p
Absolute Group Delay at 70 MHz		-	1.22	-	µs
Group Delay Variation	69.3 – 70.7 MHz	-	58.4	130	ns
Stopband Attenuation ⁽⁷⁾	5 – 30 MHz	65	72	-	dB
	30 – 50 MHz	50	56	-	dB
	50 – 63 MHz	40	47	-	dB
	77 – 85 MHz	35	43	-	dB
	85 – 105 MHz	45	48	-	dB
	105 – 130 MHz	55	58	-	dB
	130 – 150 MHz	30	33	-	dB
	150 – 200 MHz	70	74	-	dB
Source Impedance (single-ended) ⁽⁸⁾	-	-	50	-	Ω
Load Impedance (single-ended) ⁽⁸⁾	-	-	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
- Is defined as the peak to adjacent valley change in amplitude.
- An external impedance matching network +/- 2% tolerance will be necessary to achieve proposed return loss
- Relative to 0 dB.
- This is the optimum impedance in order to achieve the performance shown

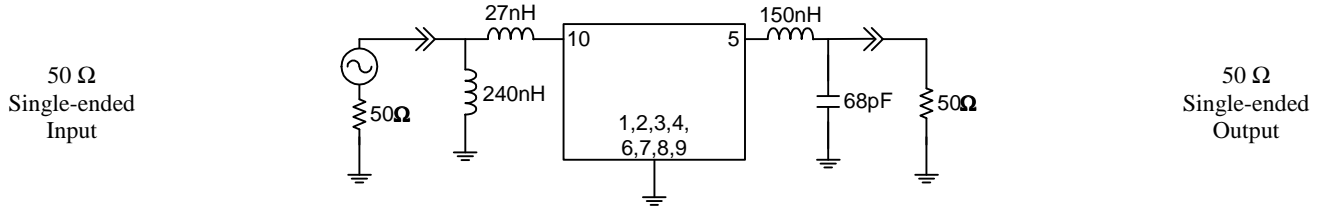
Absolute Maximum Ratings

Parameter	Rating
Operating Temperature	-55 to +85 °C
Storage Temperature	-55 to +85 °C

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

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

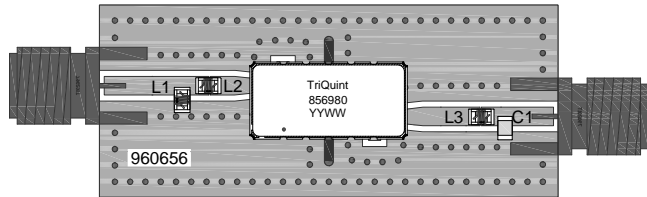
Schematic



Notes:

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

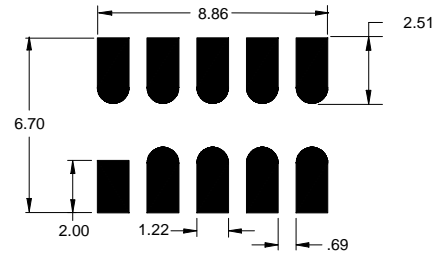
PC Board



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



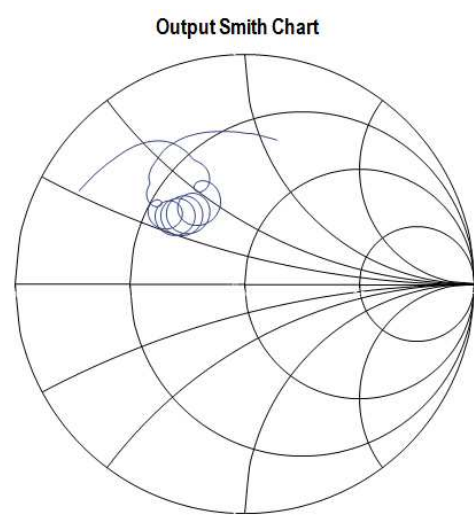
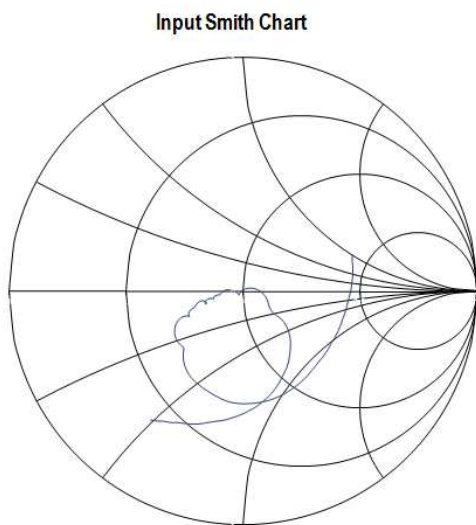
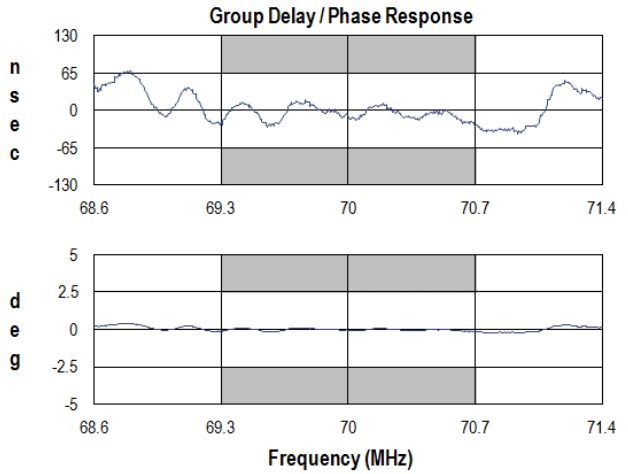
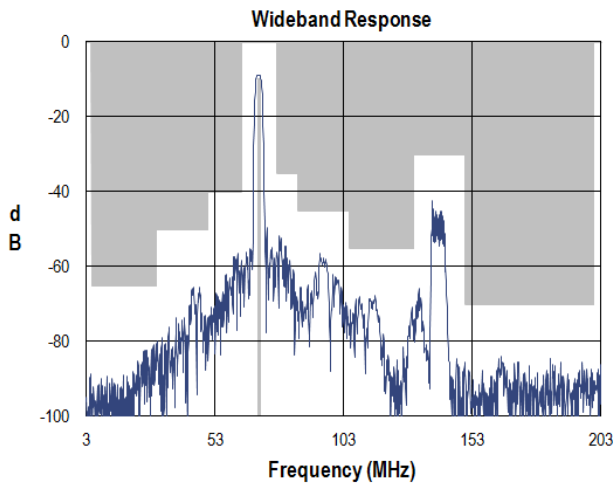
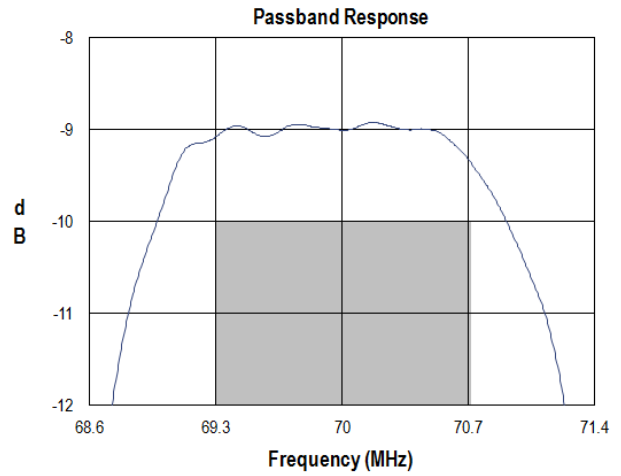
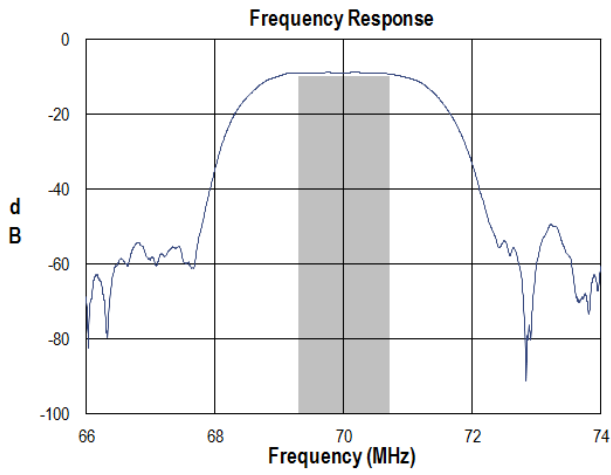
Notes:

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

Bill of Material

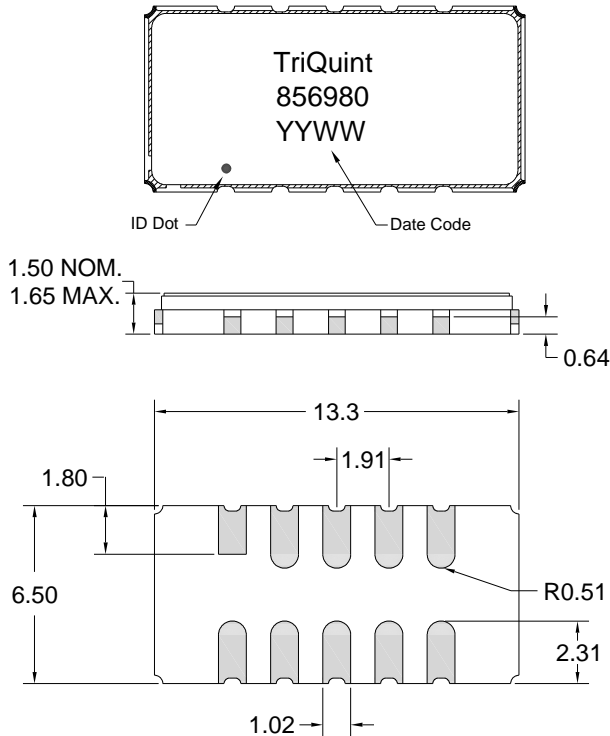
Reference Desg.	Value	Description	Manufacturer	Part Number
L1	240nH	Coil Wire-wound, 0805, 5%	CoillCraft	0805CS-241XJLC
L2	27nH	Coil Wire-wound, 08053, 5%	CoillCraft	0805CS-270XJLC
L3	150nH	Coil Wire-wound, 0805, 5%	CoillCraft	0805CS-151XJLC
C1	68pF	Chip Capacitor, 0805, 5%	Murata	GRM2165C1H680JZ01
SMA	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-53C
 Dimensions: 13.3 x 6.50 x 1.50 mm

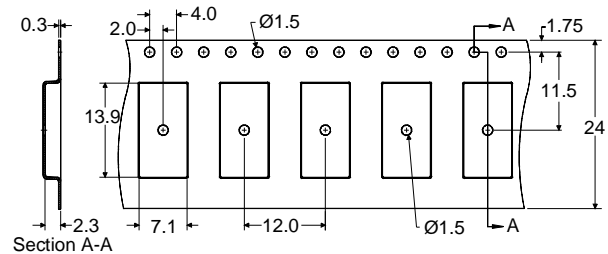
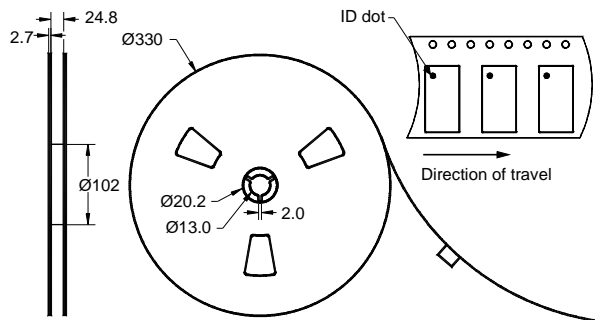
Body: Al_2O_3 ceramic
 Lid: Kovar, Ni plated
 Terminations: Au plating 0.5 - 1.0 μ m, over a 2-6 μ m Ni plating

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

The date code consists of: YY = The last two digits of the year (2 Digits), WW = the calendar week of the year (2 Digits)

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

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