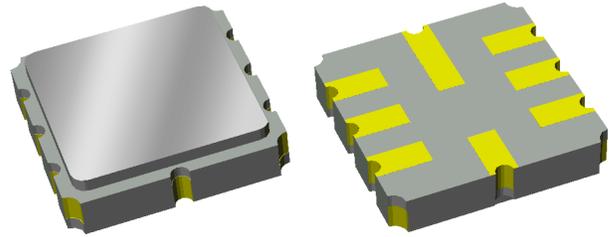


856140

310.7 MHz SAW Filter

Applications

- General Purpose
- For IF applications

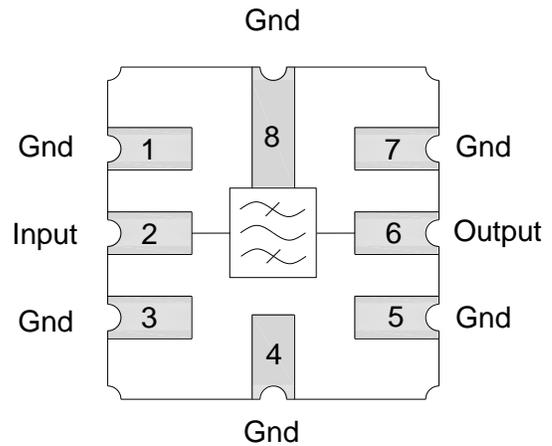


Product Features

- Usable bandwidth 3 MHz
- Low loss
- High attenuation
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Dimensions: 5.0 x 5.0 x 1.3mm
- Hermetic **RoHS** compliant, **Pb-free** 

Functional Block Diagram

Top view



General Description

The 856140 is a high-performance IF SAW filter with a center frequency of 310.7 MHz and a usable bandwidth of 3 MHz.

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 #	Single-end	Description
2		Input
6		Output
1,3,4,5,7,8		Case Ground

Ordering Information

Part No.	Description
856140	packaged part
856140-EVB	evaluation board

Standard T/R size = 4000 units/reel.

Specifications

Electrical Specifications ⁽¹⁾

Specified Temperature Range: ⁽²⁾ -30 to +95 °C

Parameter ⁽³⁾	Conditions	Min	Typical ⁽⁴⁾	Max	Units
Center Frequency		-	310.7	-	MHz
Insertion Loss	at 310.7 MHz	-	3.0	6.5	dB
Lower 25dB Band Edge ⁽⁵⁾		295	304.9	-	MHz
Upper 25dB Band Edge ⁽⁵⁾		-	317.1	325	MHz
Rejection ⁽⁵⁾	100 – 295 MHz	25	59.0	-	dB
	289.9 – 301.5 MHz	20	48.5	-	dB
	319.9 – 325 MHz	20	46.0	-	dB
	325 – 500 MHz	25	67.0	-	dB
Attenuation ⁽⁵⁾	289.3 MHz	42	62.0	-	dB
	305.35 MHz	4	18.8	-	dB
Gaussian Ripple	309.2 – 312.2 MHz	-	0.1	0.3	dB p-p
Source Impedance (single-ended) ⁽⁶⁾		-	50	-	Ω
Load Impedance (single-ended) ⁽⁶⁾		-	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
- This is the optimum impedance in order to achieve the performance shown

Absolute Maximum Ratings

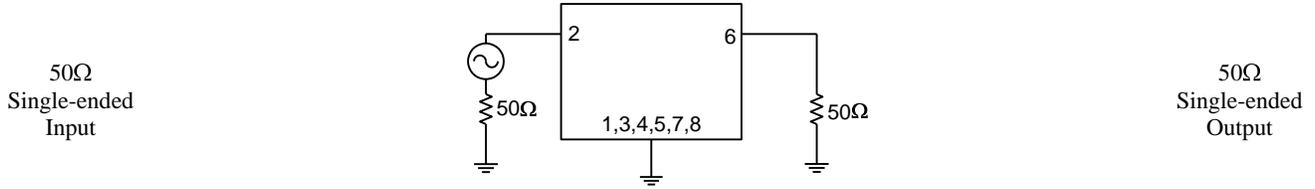
Parameter	Rating
Operating Temperature	-30 to +95 °C
Storage Temperature	-40 to +85 °C
Input Power ⁽⁷⁾	+9dBm

- Device is measured for equivalent 10K hours @ +55 °C [CW Signal]

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

Reference Design

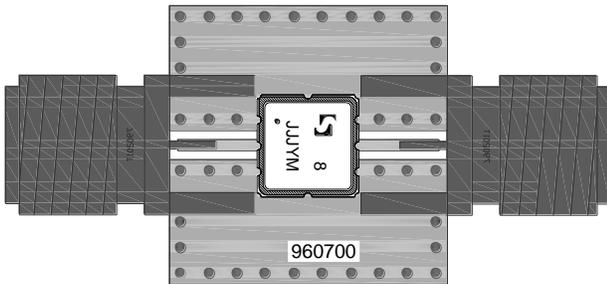
Schematic



Notes:

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

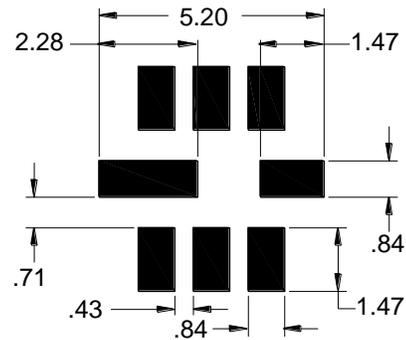
PC Board



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



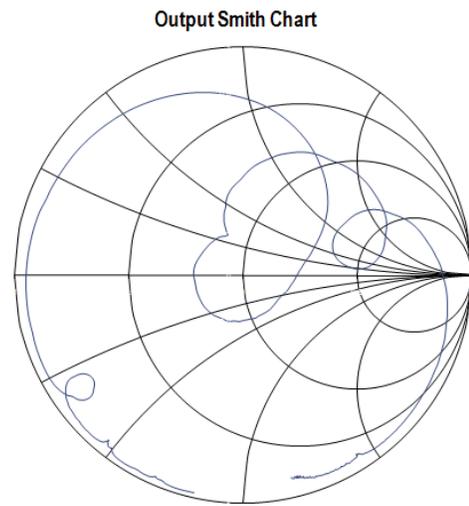
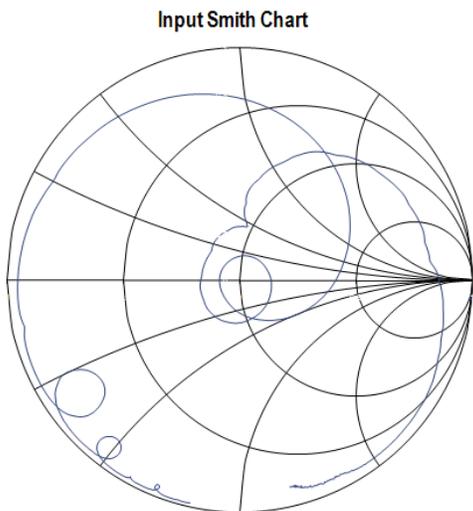
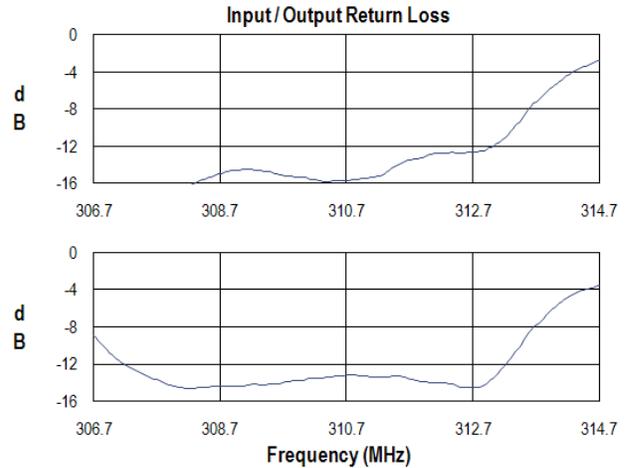
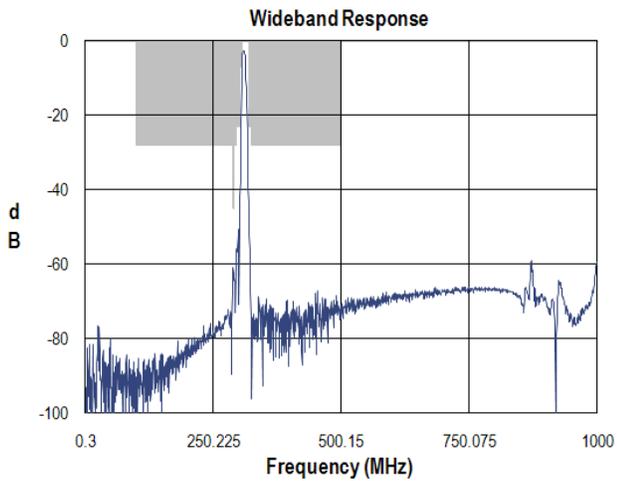
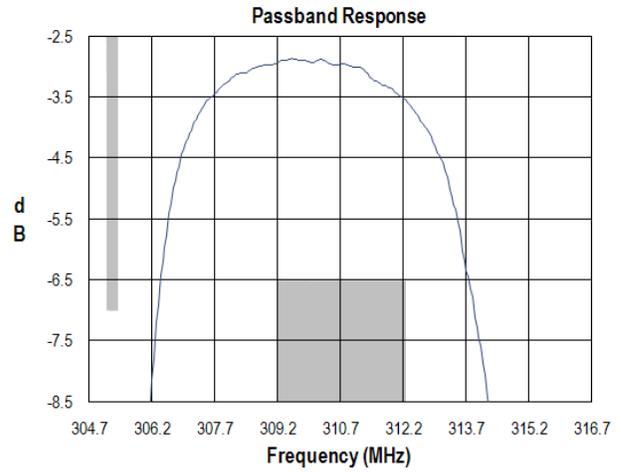
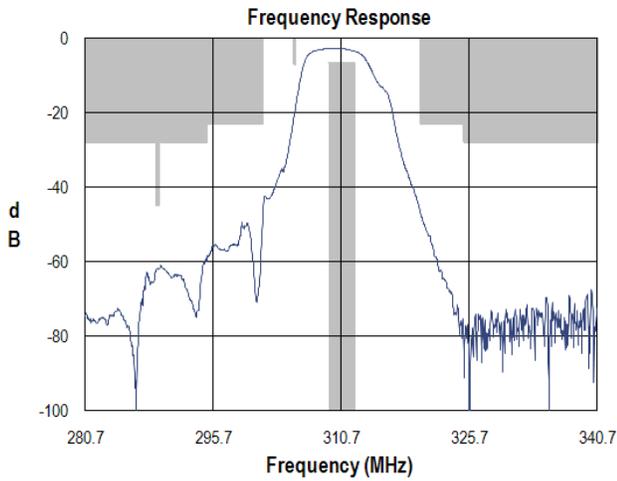
Notes:

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

Bill of Material

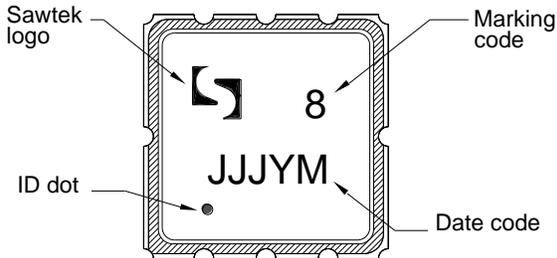
Reference Desg.	Value	Description	Manufacturer	Part Number
SMA	N/A	SMA connector	Radiall USA Inc.	9602-1111-018
PCB	N/A	3-layer	multiple	960700

Typical Performance (at room temperature)



Mechanical Information

Package Information, Dimensions and Marking

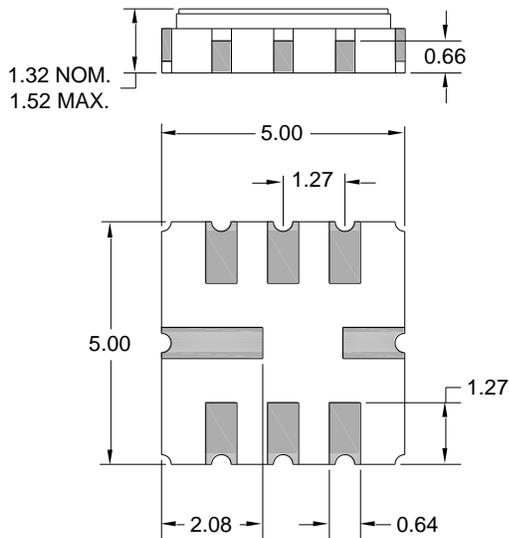


Package Style: SMP-20A
 Dimensions: 5.00 x 5.00 x 1.32 mm

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

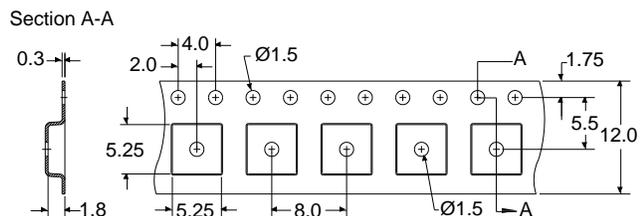
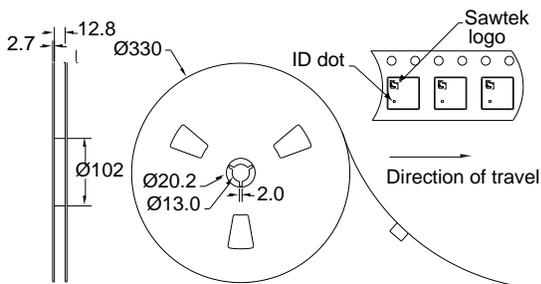
All dimensions shown are nominal in millimeters
 All tolerances are ± 0.15 mm except overall length and width ± 0.10 mm

The date code consists of: day of the current year (Julian, 3 digits), Y = last digit of the year, and M = manufacturing site code



Tape and Reel Information

Standard T/R size = 4000 units/reel. All dimensions are in millimeters



856140

310.7 MHz SAW Filter

Product Compliance Information

ESD Information



Caution! ESD-Sensitive Device

ESD Rating: 1B

Value: Passes ≥ 700 V min.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: B

Value: Passes ≥ 200 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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