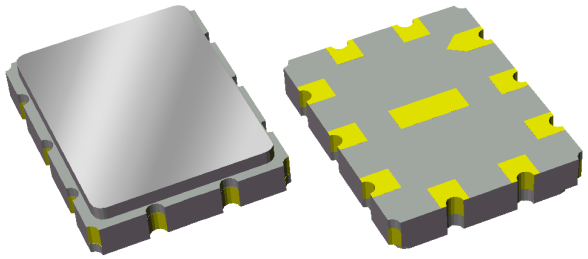
856074

140 MHz SAW Filter

Applications

- General Purpose
- For IF applications

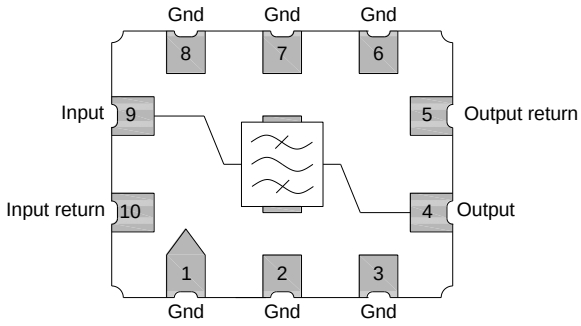


Product Features

- Typical 3dB Bandwidth of 57.0 MHz
- Low loss
- High attenuation
- Single-ended operation
- Replaces P/N 851947 (BW 3dB=56 MHz)
- Ceramic Surface Mount Package (SMP)
- Small Size
- Dimensions: 9.0 x 7.0 x 1.5mm
- Hermetically Sealed
- **RoHS** compliant, **Pb**-free

Functional Block Diagram

Top view



General Description

The 856074 is a high-performance IF SAW filter with a center frequency of 140 MHz and a 3 dB bandwidth of 57.0 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 # SE	Description
9	Input
10	Input Return
4	Output
5	Output Return
1,2,3,6,7,8	Case Ground

Ordering Information

Part No.	Description
856074	packaged part
856074-EVB	evaluation board

Standard T/R size = 2000 units/reel.

Specifications

Electrical Specifications [1]

Specified Temperature Range: [2] 0 to +70 ºC

Parameter [3]	Conditions	Min	Typical [4]	Max	Units
Center Frequency		-	140	-	MHz
Minimum Insertion Loss		-	18.65	19.5	dB
Lower 1dB Band Edge [5]		-	112.7	115.75	MHz
Upper 1dB Band Edge [5]		164.25	166.1	-	MHz
Lower 3dB Band Edge [5]		-	111.4	112.8	MHz
Upper 3dB Band Edge [5]		167.2	168.4	-	MHz
Lower 40dB Band Edge [5]		102.2	106.3	-	MHz
Upper 40dB Band Edge [5]		-	176.4	177.8	MHz
Amplitude Variation	115.75 – 164.25 MHz	-	0.60	1.15	dB p-p
Phase Linearity	115.75 – 164.25 MHz	-	4.07	7.75	deg p-p
Group Delay Variation	115.75 – 164.25 MHz	-	31	60	ns p-p
Group Delay	115.75 – 164.25 MHz	-	0.531	-	µs
Relative Attenuation [5]	10 – 27.5 MHz	49	58	-	dB
	27.5 –102 MHz	39	42	-	dB
	178 – 252.5 MHz	37	42	-	dB
	252.5 – 300 MHz	36	44	-	dB
Source Impedance (single-ended) [6]		-	50	-	Ω
Load Impedance (single-ended) [6]		-	50	-	Ω
Temperature Coefficient of Frequency		-	-74	-	ppm/ ºC

Notes:
1. All specifications are based on the TriQuint schematic for the main reference design shown on page 3
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. Typical values are based on average measurements at room temperature
5. Relative to minimum insertion loss
6. This is the optimum impedance in order to achieve the performance shown

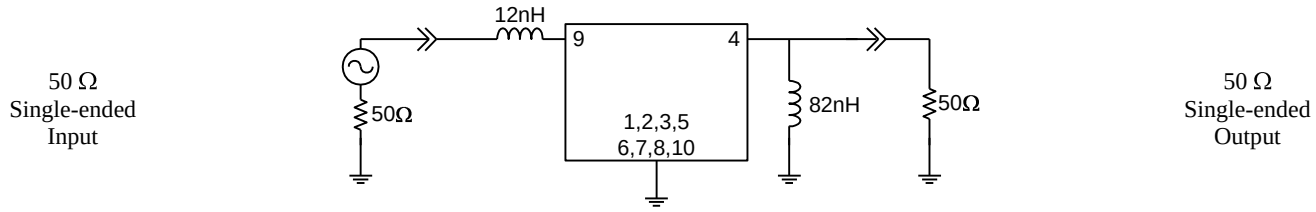
Absolute Maximum Ratings

Parameter	Rating
Operating Temperature	0 to +70 °C
Storage Temperature	-40 to +85 °C

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

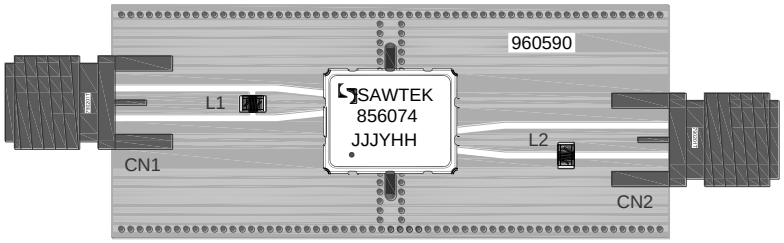
Reference Design – 50Ω SE Input, 50Ω SE Output

Schematic



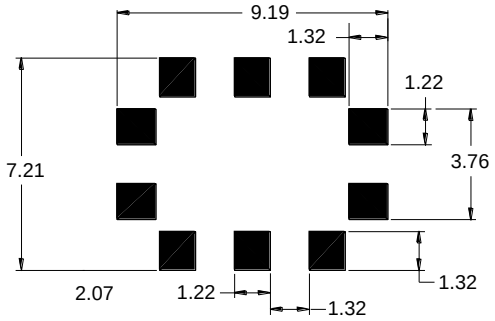
Notes:
1. Actual matching values may vary due to PCB layout and parasitics

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



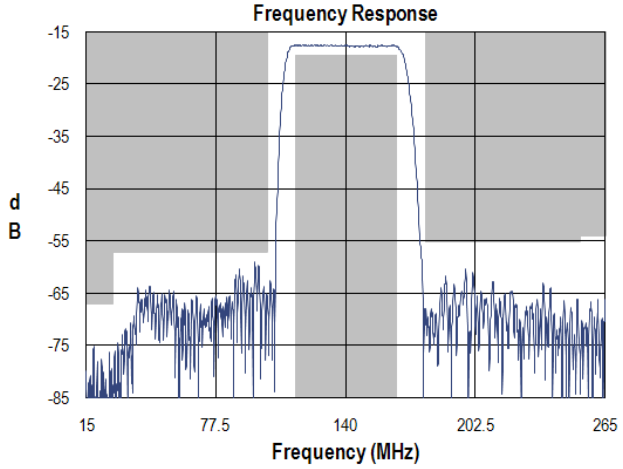
Notes:
1. All dimensions are in millimeters.
2. This footprint represents a recommendation only.

Bill of Material

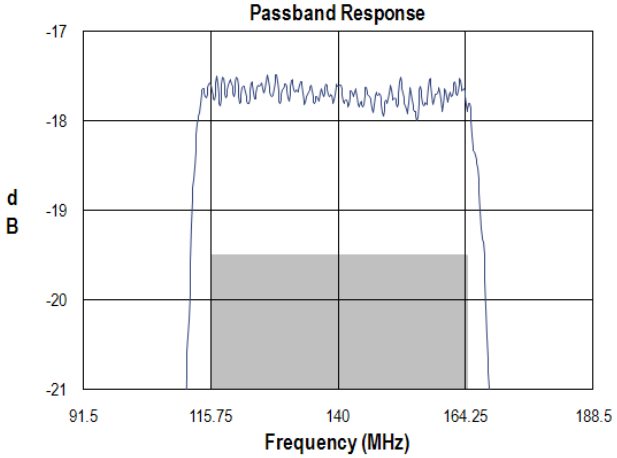
Reference Desg.	Value	Description	Manufacturer	Part Number
L1	12nH	Coil Wire-wound, 0603, 5%	MuRata	LQW18AN12NJ10
L2	82nH	Coil Wire-wound, 0603, 5%	MuRata	LQW18AN82NJ10
SMA	N/A	SMA connector	Radiall USA Inc.	9602-1111-018
PCB	N/A	3-layer	multiple	960590

Typical Performance (at room temperature)

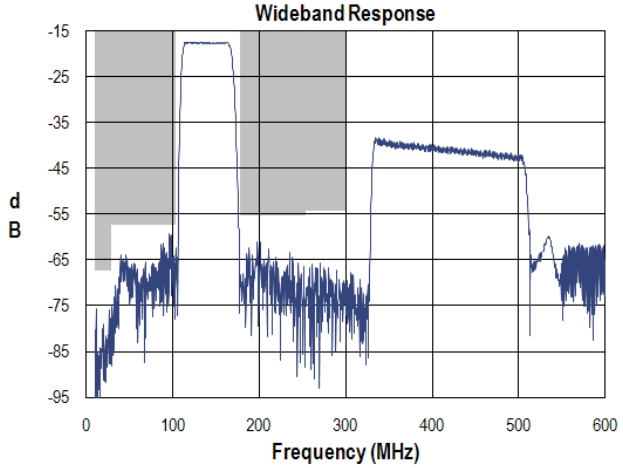
Frequency Response



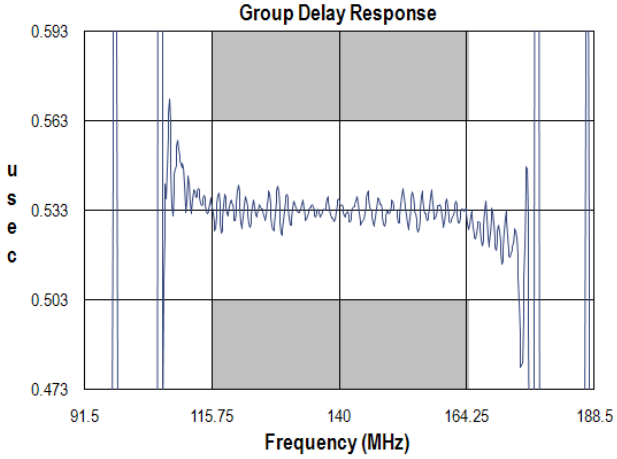
Passband Response



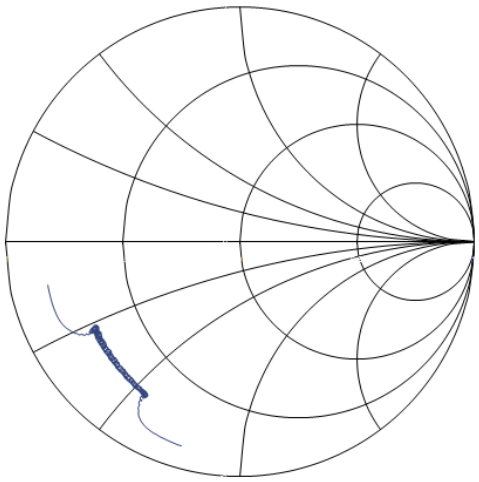
Wideband Response



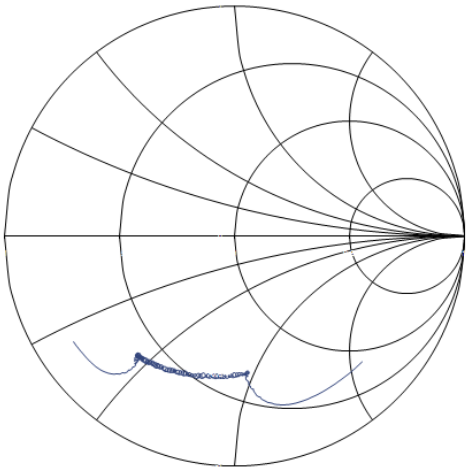
Group Delay Response



Input Smith Chart

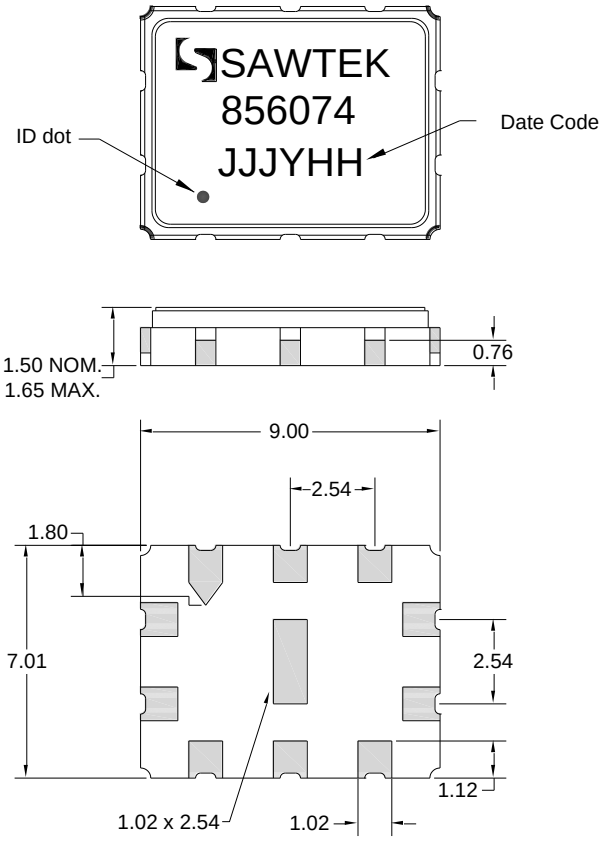


Output Smith Chart



Mechanical Information

Package Information, Dimensions and Marking



Package Style: SMP-35B
Dimensions: 9.00 x 7.01 x 1.50 mm

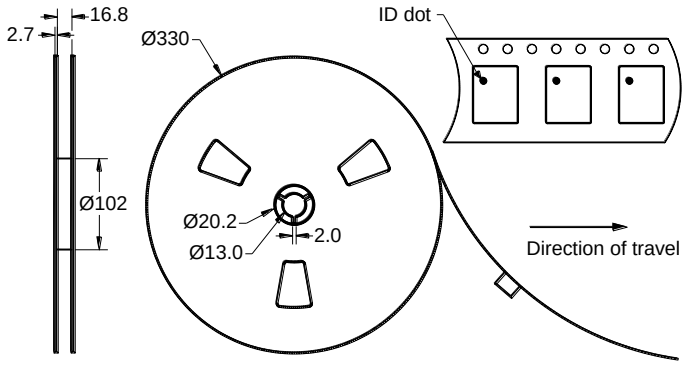
Body: Al_2O_3 ceramic
Lid: *Kovar, Ni* plated
Terminations: *Au* plating 0.5 - 1.0µm, over a 2-6µm *Ni* plating

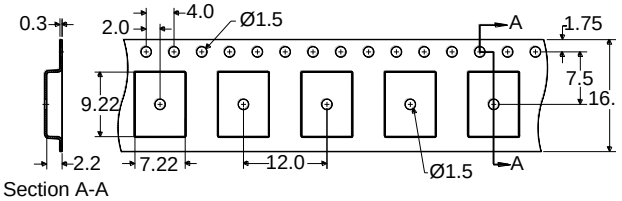
All dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width ±0.10mm

The date code consists of: day of the current year (Julian, 3 digits), last digit of the year (1 digit) and hour (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: 1B
Value: Passes ≥ 650 V min.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: B
Value: Passes ≥ 300 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 ($C_{15}H_{12}Br_4O_2$) Free
- PFOS Free
- SVHC Free

Contact Information

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