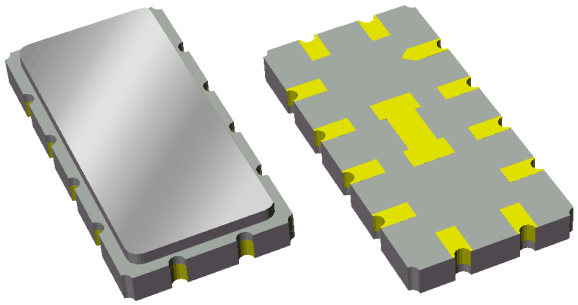
854916

140 MHz SAW Filter

Applications

- General Purpose
- For IF applications



Product Features

- Typical 3 dB bandwidth of 10.59 MHz
- Low loss
- High Attenuation
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Small Size
- Dimensions: 13.30 x 6.50 x 1.75mm
- Hermetic **RoHS** compliant, **Pb**-free

General Description

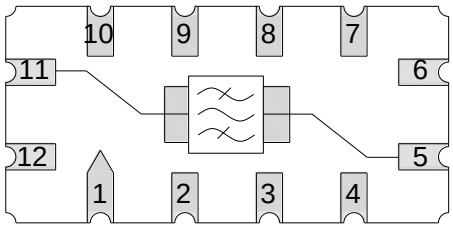
The 854916 is a high-performance IF SAW filter with a center frequency of 70 MHz and a 3.0 dB bandwidth of 16.5 MHz.

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.

Functional Block Diagram

Top view



Pin Configuration

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

Ordering Information

Part No.	Description
854916	packaged part
854916-EVB	evaluation board

Standard T/R size = 2000 units/reel.

Specifications

Electrical Specifications [1]

Specified Temperature Range: [2] +25 ºC

Parameter [3]	Conditions	Min	Typical [4]	Max	Units
Center Frequency		136.9	140	140.4	MHz
Insertion Loss	At Center Frequency	-	8.3	10	dB
1 dB Bandwidth[5]		9.1	9.6	-	MHz
3 dB Bandwidth[5]		10	10.59	-	MHz
35 dB Bandwidth[5]		-	13.9	14	MHz
Passband Ripple	136 – 144 MHz	-	0.4	1.0	dB p-p
Phase Linearity	136 – 144 MHz	-	9.0	15	° p-p
Group Delay Variation	136 – 144 MHz	-	50	120	ns p-p
Absolute Delay Variation	136 – 144 MHz	-	1.062	-	µs
Temperature Coefficient		-	-94	-	ppm/ ºC
Source Impedance single-ended [6]		-	50	-	Ω
Load Impedance single-ended [6]		-	50	-	Ω

Notes:
1. All specifications are based on the TriQuint schematic for the main reference design shown on page 3
2. All specifications are tested at room temperature only
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 Insertion loss at center frequency
6. This is the optimum impedance in order to achieve the performance shown

Absolute Maximum Ratings

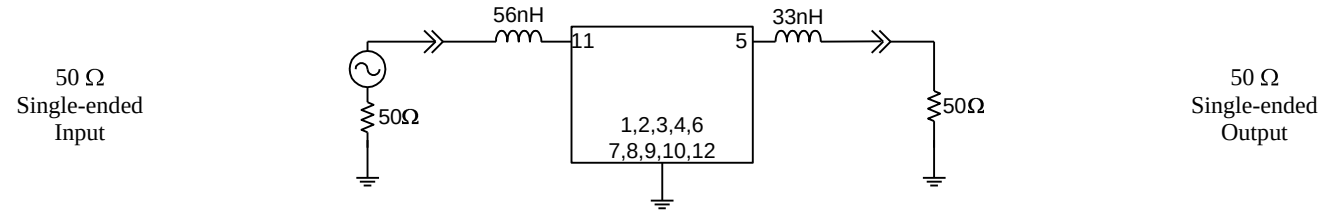
Parameter	Rating
Operating Temperature [6]	-40 to +85 °C
Storage Temperature	-40 to +85 °C
Input Power (at +55°C for 10K hours max)	+20dBm

7. Device may operate over this range with degraded Electrical Specifications

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

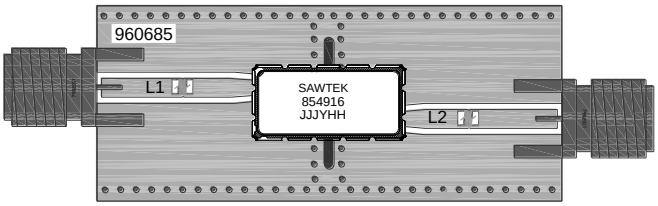
Reference Design – 50Ω SE Input, 50Ω SE Output

Schematic



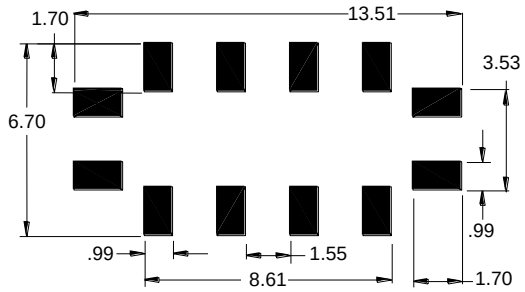
Notes:
1. Actual matching values may vary due to PCB layout and parasitic

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



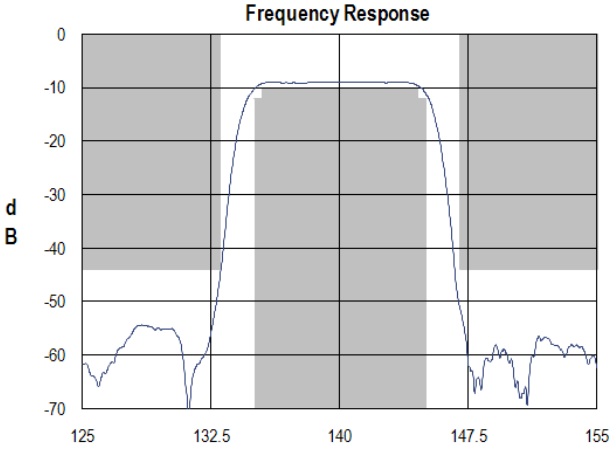
Notes:
1. All dimensions are in millimeters.
2. This footprint represents a recommendation only.
3. This part includes a center pad. Soldering it to PCB is neither recommended nor required.

Bill of Material

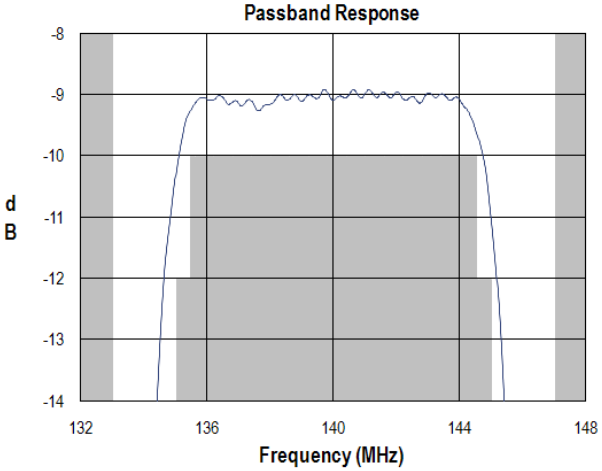
Reference Desg.	Value	Description	Manufacturer	Part Number
L1	56 H	Coil Wire-wound, 0805, 5%	Coilcraft	0805CS-560XJBC
L2	33nH	Coil Wire-wound, 0805, 5%	Coilcraft	0805CS-330XJBC
SMA	N/A	SMA connector	Radiall USA Inc.	9602-1111-018
PCB	N/A	3-layer	multiple	960685

Typical Performance (at room temperature)

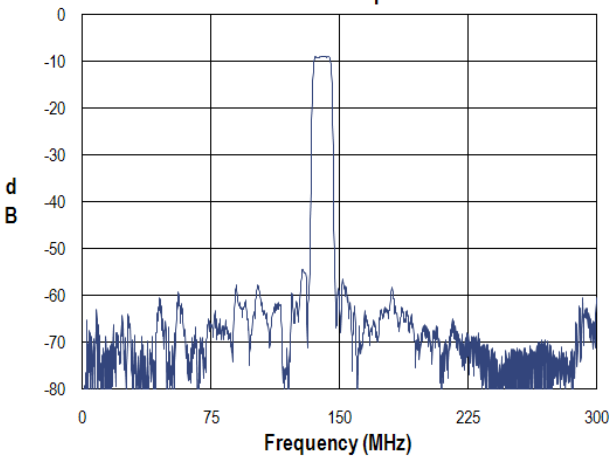
Frequency Response



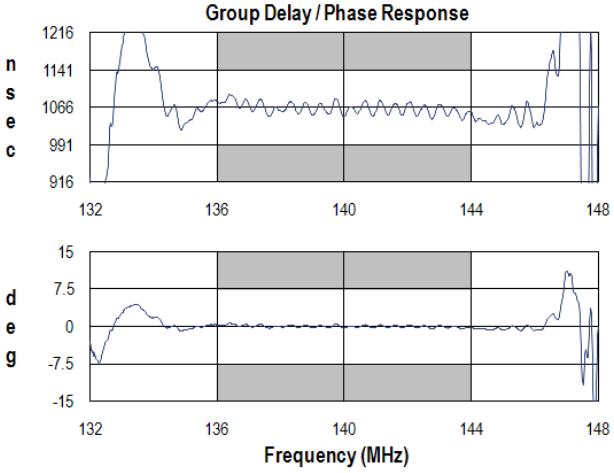
Passband Response



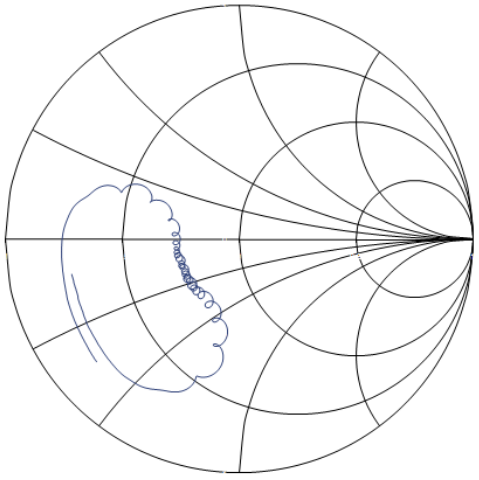
Wideband Response



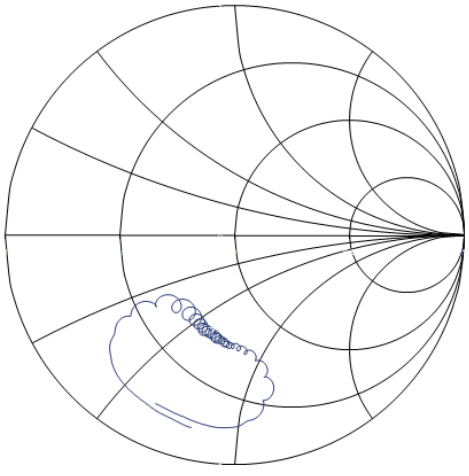
Group Delay / Phase Response



Input Smith Chart

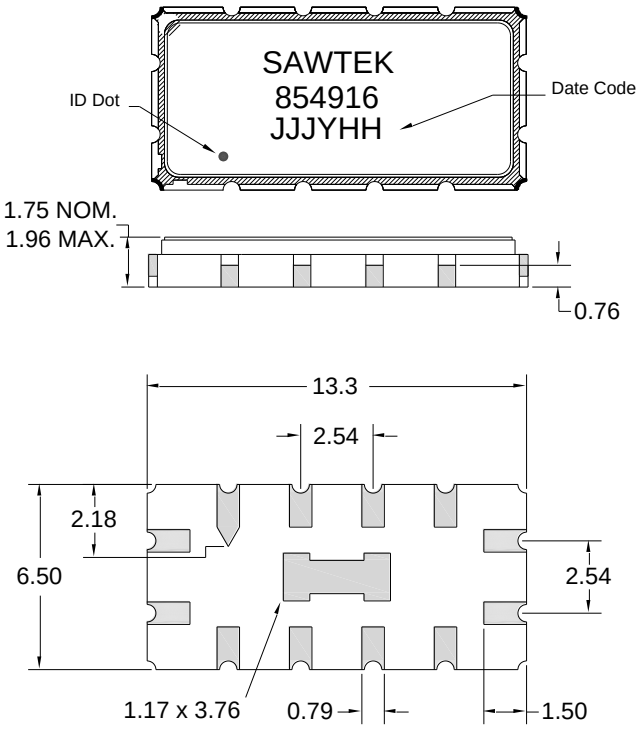


Output Smith Chart



Mechanical Information

Package Information, Dimensions and Marking



Package Style: SMP-53A
Dimensions: 13.30 x 6.50 x 1.75 mm

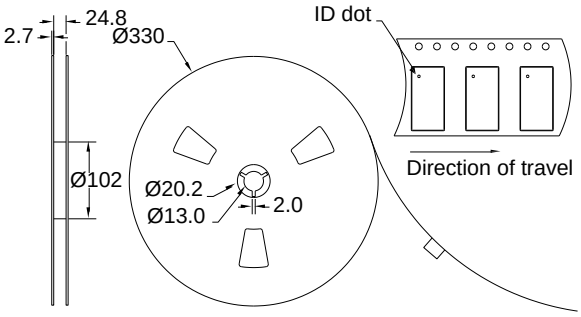
Body: Al_2O_3 ceramic
Lid: *Kovar*, *Ni* plated
Terminations: *Au* plating 0.5 - 1.0µm, over a 2-6µm *Ni* plating

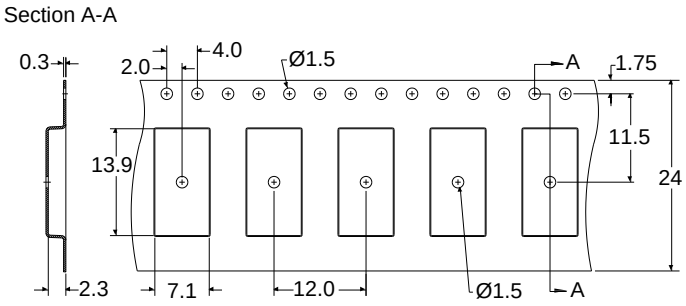
All dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width ±0.10mm

The date code consists of: day of the current year (Julian, 3 digits), Y = last digit of the year (1 digit), and HH = 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: 1C
Value: Passes ≥ 1000 V min.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: C
Value: Passes ≥ 400 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 ($C_{15}H_{12}Br_40_2$) Free
- PFOS Free
- SVHC Free

Contact Information

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

Web: www.triquint.com **Tel:** +1.407.886.8860
Email: info-sales@tqs.com **Fax:** +1.407.886.7061

For technical questions and application information:

Email: flapplication.engineering@tqs.com

Important Notice

The information contained herein is believed to be reliable. TriQuint makes no warranties regarding the information contain herein. TriQuint assumes no responsibility or liability whatsoever for any of the information contained herein. TriQuint assumes no responsibility or liability whatsoever for the use of the information contained herein. The information contained herein is provided "AS IS, WHERE IS" and with all faults, and the entire risk associated with such information is entirely with the user. All information contained herein is subject to change without notice. Customers should obtain and verify the latest relevant information before placing orders for TriQuint products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information.

TriQuint products are not warranted or authorized for use as critical components in medical, life-saving, or life-sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.