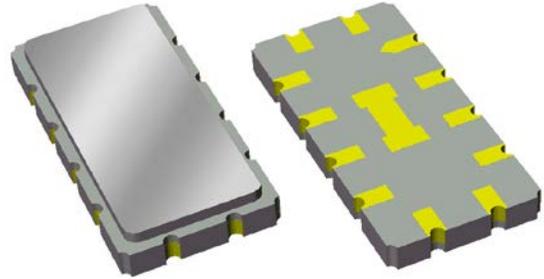


Applications

- For Wideband Filter Applications

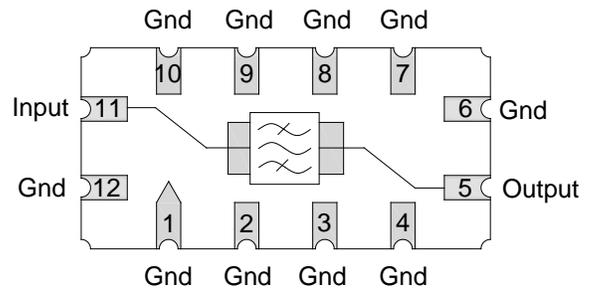


SMP-53, 13.30 x 6.50 x 1.75 mm

Product Features

- Usable bandwidth 36 MHz
- Typical 3 dB bandwidth of 36.2 MHz
- High attenuation
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Small size: 13.30 x 6.50 x 1.75 mm
- Hermetic RoHS compliant, Pb-free 

Functional Block Diagram



General Description

The 854678 is an IF SAW filter with a center frequency of 70 MHz and a minimum 3 dB bandwidth of 36 MHz. It features excellent passband response, very good rejection, and low group delay ripple. The small size of this surface mounted filter makes it an economical choice for demanding applications for high data rate communications standards.

Pin Configuration - Single Ended

Pin No.	Label
11	Input
5	Output
6,12	Ground
1,2,3,4,7,8, 9,10	Case Ground

Ordering Information

Part No.	Description
854678	Packaged Part
854678-EVB	Evaluation board

Standard T/R size = 2,000 units/reel

Absolute Maximum Ratings

Parameter	Rating
Storage Temperature ⁽¹⁾	-40 to +85°C
Operable Temperature ⁽²⁾	-0 to +70°C
RF Input Power ⁽³⁾	+10 dBm

1. Operation of this device outside the parameter ranges given may cause permanent damage.
2. Specifications are not guaranteed over all operable conditions.
3. Input Power with applied CW signal at 55°C for 10,000 hours

Electrical Specifications ⁽¹⁾

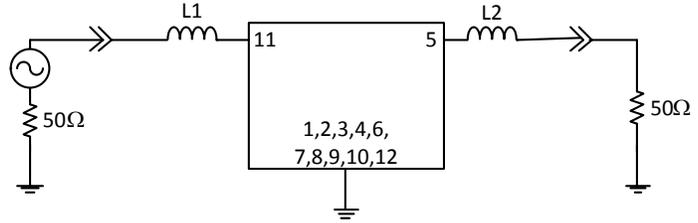
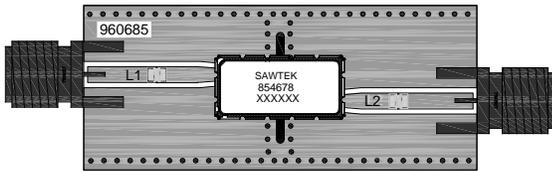
Specified Temperature Range: ⁽²⁾ +25 °C

Parameter ⁽³⁾	Conditions	Min	Typ ⁽⁴⁾	Max	Units
Center Frequency		69.8	70	70.2	MHz
Insertion Loss	70 MHz	-	20.2	21.5	dB
1 dB Bandwidth ⁽⁵⁾		35.1	35.7	-	MHz
3 dB Bandwidth ⁽⁵⁾		36	36.2	-	MHz
40 dB Bandwidth ⁽⁵⁾		-	43.3	45	MHz
Passband Ripple	53.8 – 86.2 MHz	-	1.25	2	dB p-p
Phase Linearity	53.8 – 86.2 MHz	-	9.0	13.0	deg p-p
Group Delay Variation	53.8 – 86.2 MHz	-	52	80	ns p-p
Absolute Delay		-	1.08	-	µs
Temperature Coefficient		-	-94	-	ppm/deg C
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

Evaluation Board



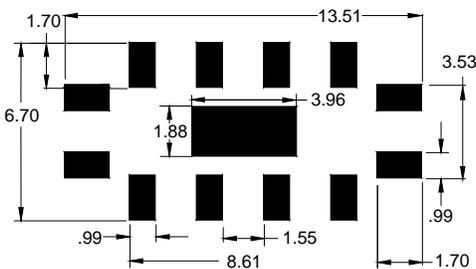
Notes:

1. Impedance matching required.
2. PCB: 1.500 x .625 x .063; Construction: 1/2 oz Cu Top Layer; TLY-5A (.0075) 1/2 oz Cu Middle Layer, FR4; 1/2 oz Cu Bottom Layer. (dimensions are in inches)

Bill of Material

Reference Des.	Value	Description	Manufacturer	Part Number
U1	N/A	70 MHz SAW filter	TriQuint	854678
L1	120 nH	Chip inductor	Coilcraft	N/A
L2	180 nH	Chip inductor	Coilcraft	N/A
SMA	N/A	SMA connector	Radiall USA Inc.	9602-1111-018
PCB	N/A	3-layer	multiple	960685

PCB Mounting Pattern

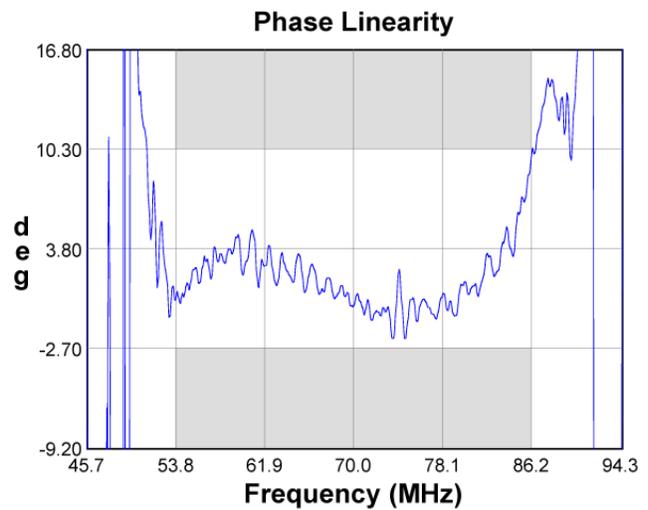
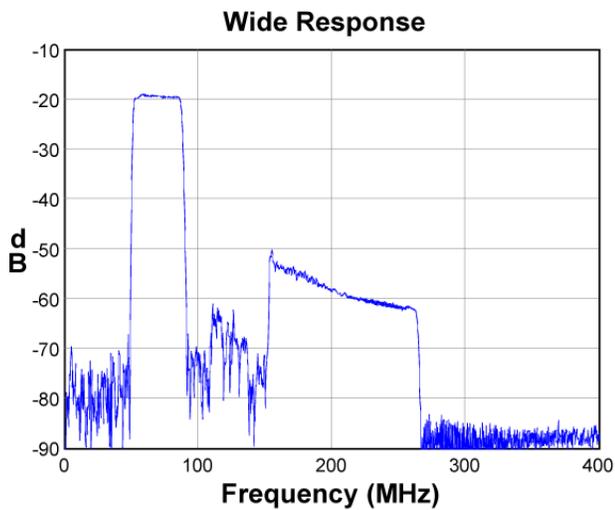
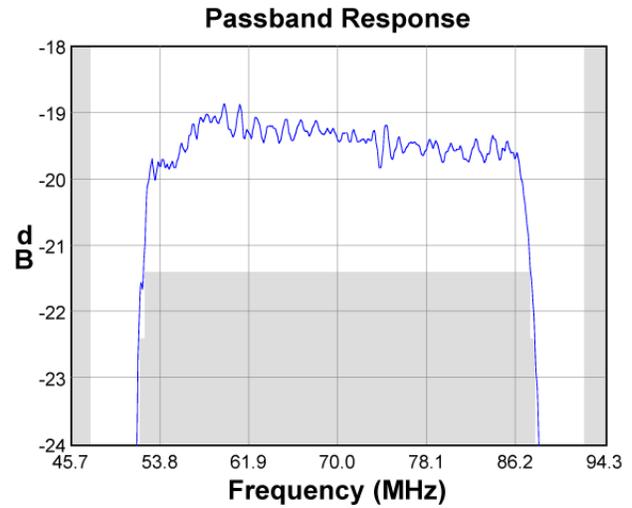
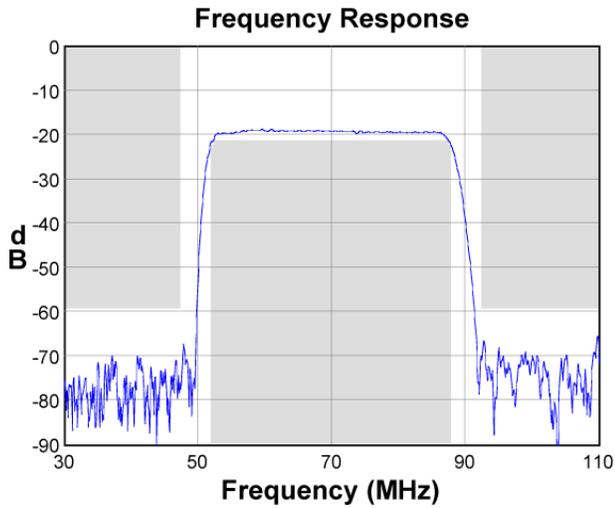


Notes:

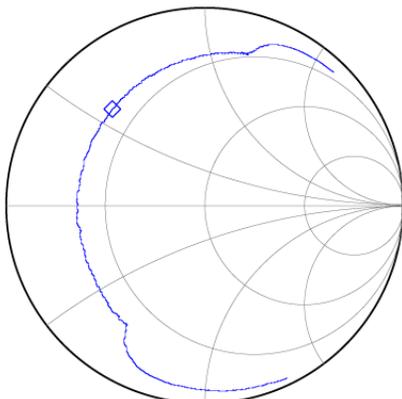
1. All dimensions are in millimeters. Angles are in degrees.
2. This drawing specifies the mounting pattern used on the TriQuint evaluation board for this product. Some modification may be necessary to suit end user assembly materials and processes.

Performance Plots

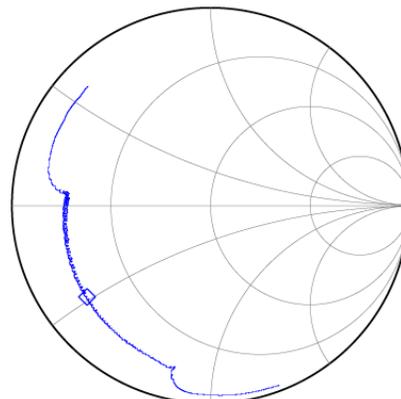
Test conditions unless otherwise noted: Temp= +25°C



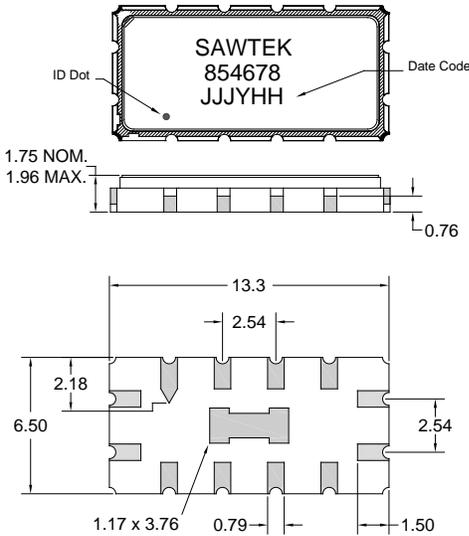
Input Smith Chart



Output Smith Chart



Package Information, Marking and Dimensions



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

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

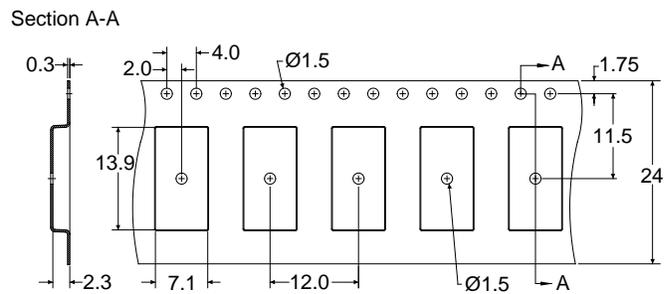
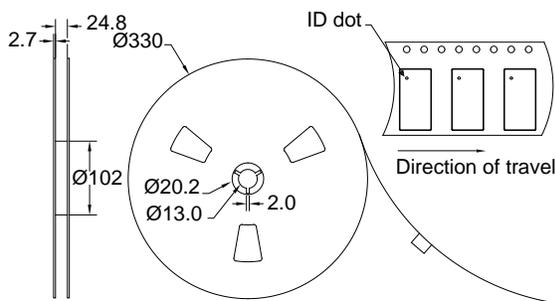
All dimensions shown are nominal in millimeters
All tolerances are ± 0.15 mm except overall length and width ± 0.10 mm

The date code consists of: day of the current year (Julian, 3 digits), last digit of the year (1 digit) and hour (2 digits)
Notes:

1. All dimensions shown are typical in millimeters
2. An asterisk (*) in front of the marking code indicates prototype.

Tape and Reel information

Standard T/R size = 2000 units/reel



Product Compliance Information

ESD Sensitivity Ratings



Caution! ESD-Sensitive Device

ESD Rating: Class 1A
Value: Passes ≥ 300 V to < 350 V
Test: Electrostatic Discharge Sensitivity Testing,
Human Body Model (HBM) - component level
Standard: ESDA/JEDEC JS-001-2012

ESD Rating: Class B
Value: Passes ≥ 200 V to 250 V
Test: Machine Model (MM)
Standard: JEDEC Standard JESD22-A115

MSL Rating

Not applicable. Hermetic package.

Solderability

Compatible with both lead-free (260°C maximum reflow temperature) and tin/lead (245°C maximum reflow temperature) soldering processes.

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

RoHS Compliance

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:

- Lead Free
- Halogen Free (Chlorine, Bromine)
- Antimony Free
- TBBP-A ($\text{C}_{15}\text{H}_{12}\text{Br}_4\text{O}_2$) 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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Fax: +1.407.886.7061

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