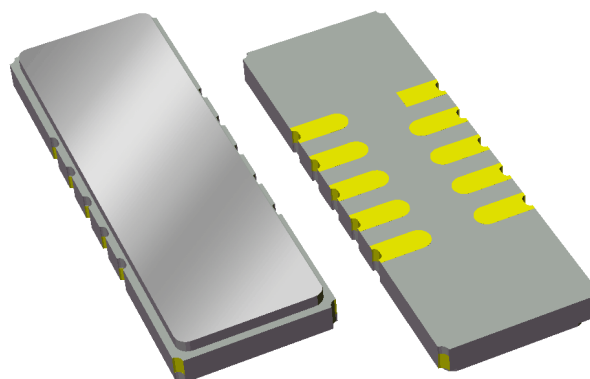


# 854652

## 70 MHz SAW Filter

### Applications

- General Purpose
- For IF applications



### Product Features

- Typical 3 dB bandwidth of 1.1 MHz
- Low loss
- High Attenuation
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Small Size
- Dimensions: 19.00 x 6.50 x 1.75mm
- Hermetically sealed
- **RoHS** compliant, **Pb**-free

### General Description

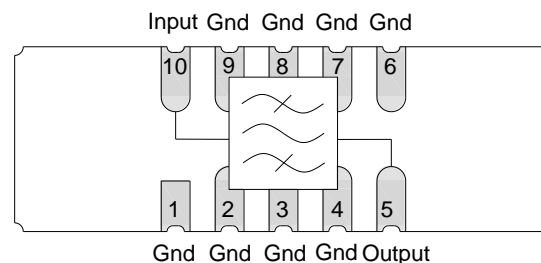
The 854652 is a high-performance IF SAW filter with a center frequency of 70 MHz and a 3 dB bandwidth of 1.1 MHz.

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

This device is RoHS compliant and Pb-free.

### Functional Block Diagram

Top view



### 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
854652	packaged part
854652-EVB	evaluation board

Standard T/R size = 2000 units/reel.

### Specifications

#### Electrical Specifications <sup>(1)</sup>

Specified Temperature Range: <sup>(2)</sup> +25 °C

Parameter <sup>(3)</sup>	Conditions	Min	Typical <sup>(4)</sup>	Max	Units
Center Frequency		69.92	70	70.08	MHz
Insertion Loss	at 70 MHz	-	7.3	8	dB
1.0 dB Bandwidth <sup>(5)</sup>		0.7	0.8	-	MHz
3.0 dB Bandwidth <sup>(5)</sup>		1.0	1.1	-	MHz
40.0 dB Bandwidth <sup>(5)</sup>		-	2.8	3.0	MHz
Passband Ripple <sup>(6)</sup> (60% of 3 dB Bandwidth)		-	0.7	1.0	dB p-p
Phase Linearity		-	9.0	11.95	deg p-p
Group Delay Variation (60% of 3 dB Bandwidth)		-	375	500	ns p-p
Absolute Group Delay		-	2.1	-	μs
Temperature Coefficient		-	-23	-	ppm/°C
Source Impedance (single-ended) <sup>(7)</sup>	-	-	50	-	Ω
Load Impedance (single-ended) <sup>(7)</sup>	-	-	50	-	Ω

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 insertion loss at center frequency
6. Passband Ripple is defined as the worst case difference between a peak and an adjacent valley within defined frequency points
7. This is the optimum impedance in order to achieve the performance shown

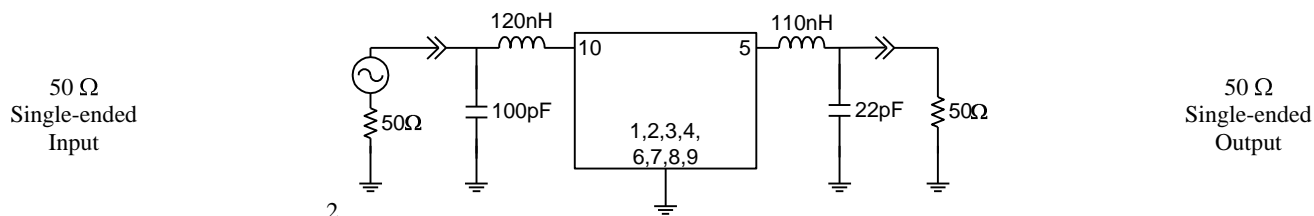
#### Absolute Maximum Ratings

Parameter	Rating
Operating Temperature	+25°C
Storage Temperature	-40 to +85 °C
Input Power (at +55°C for 100 hours max)	+10dBm

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

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

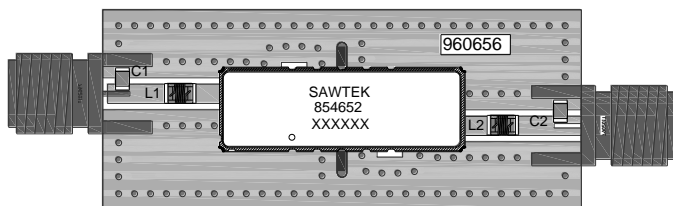
#### Schematic



#### Notes:

- Actual matching values may vary due to PCB layout and parasitics

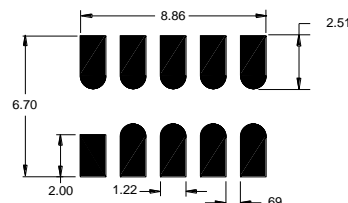
#### PC Board



#### 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



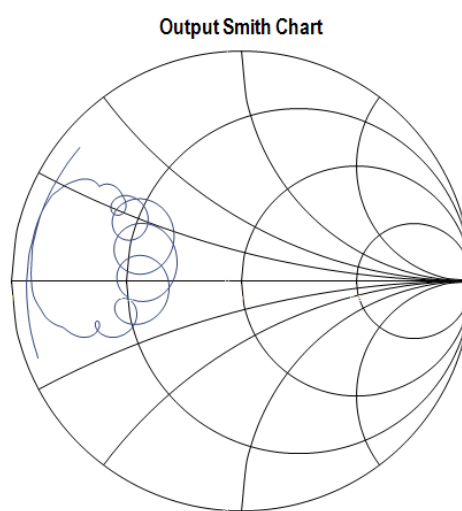
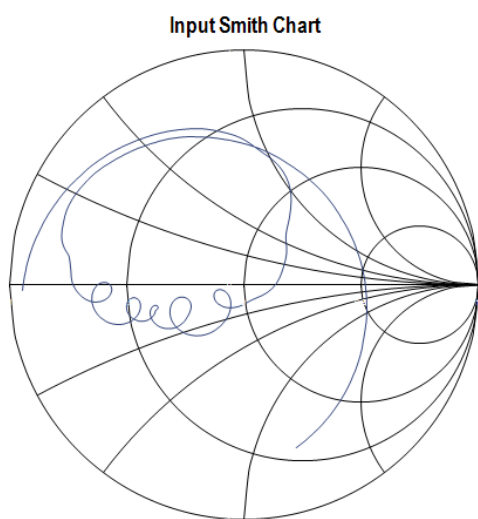
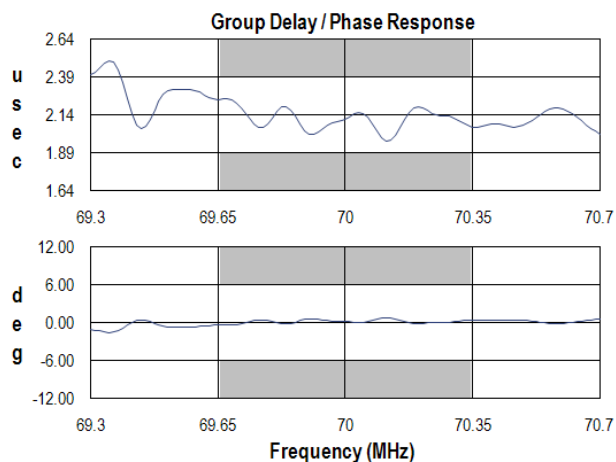
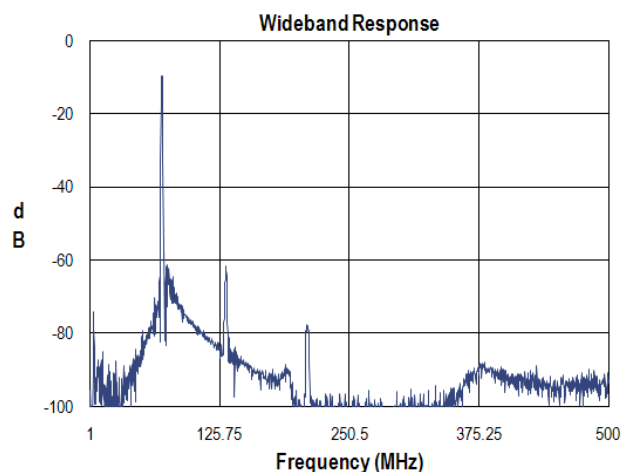
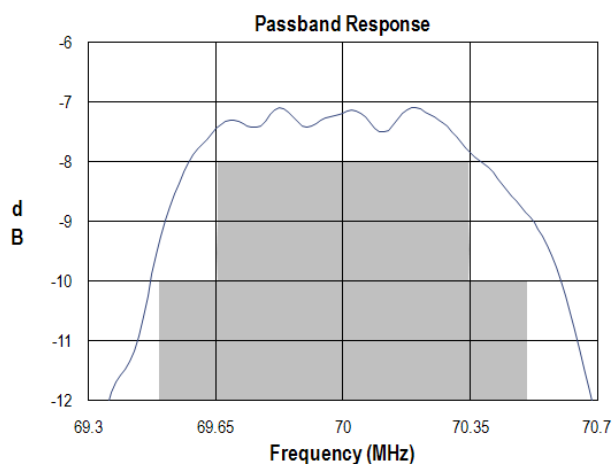
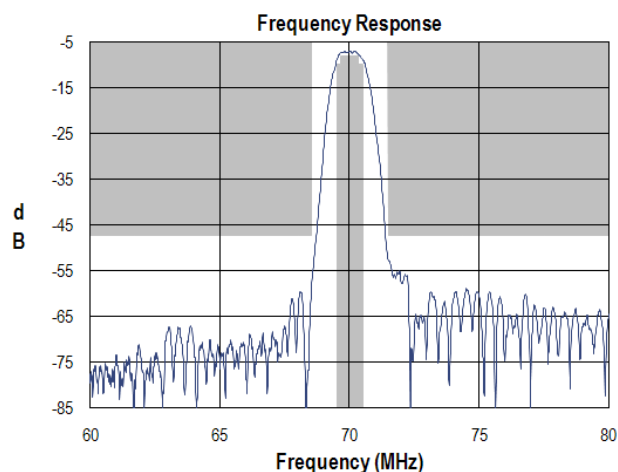
#### Notes:

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

#### Bill of Material

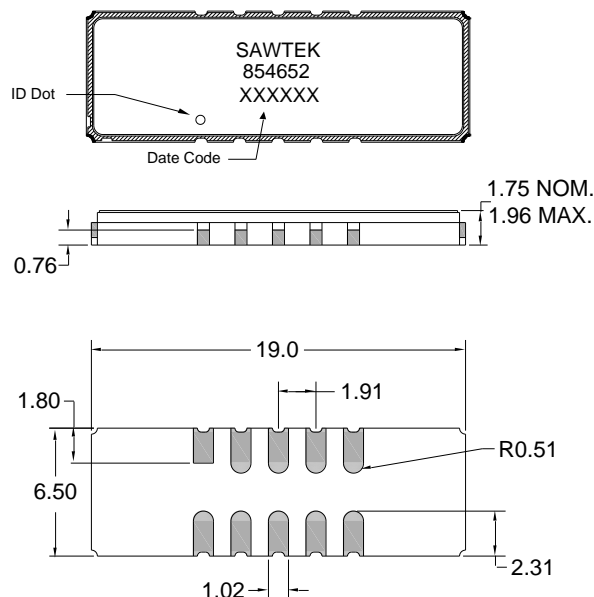
Reference Desg.	Value	Description	Manufacturer	Part Number
L1	120nH	Coil Wire-wound, 0805, 5%	Coilcraft	0805CS-121XJLC
L2	110nH	Coil Wire-wound, 0805, 5%	Coilcraft	0805CS-111XJLC
C1	100pF	Coil Wire-wound, 0805, 5%	MuRata	GRM40COG101J50V
C2	22pF	Coil Wire-wound, 0805 5%	MuRata	GRM40COG220J50V
SMA	N/A	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-75  
Dimensions: 19.00 x 6.50 x 1.75mm

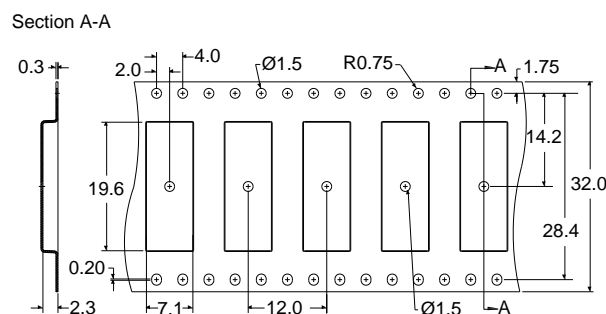
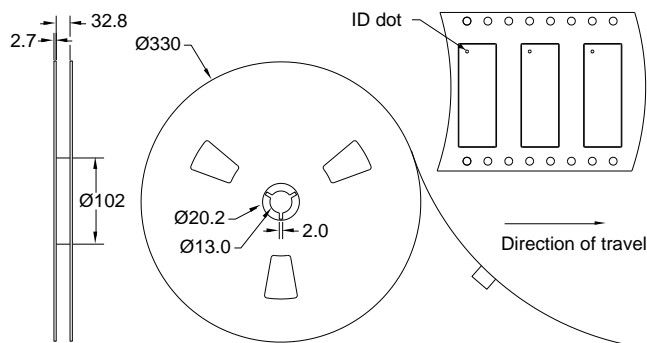
Body:  $Al_2O_3$  ceramic  
Lid: Kovar, Ni plated  
Terminations: Au plating 0.5 - 1.0 $\mu$ m, over a 2-6 $\mu$ m Ni plating

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

The date code consists of: day of the current year (Julian, 3 digits), last digit of the year (1 digit) and M= manufacturing code

#### 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: 2

Value: Passes  $\geq 2100$  V min.  
Test: Human Body Model (HBM)  
Standard: JEDEC Standard JESD22-A114

ESD Rating: C

Value: Passes  $\geq 600$  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

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

Web: [www.triquint.com](http://www.triquint.com)  
Email: [info-sales@tqs.com](mailto:info-sales@tqs.com)

Tel: +1.407.886.8860  
Fax: +1.407.886.7061

For technical questions and application information:

Email: [applications.engineering@tqs.com](mailto:applications.engineering@tqs.com)

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