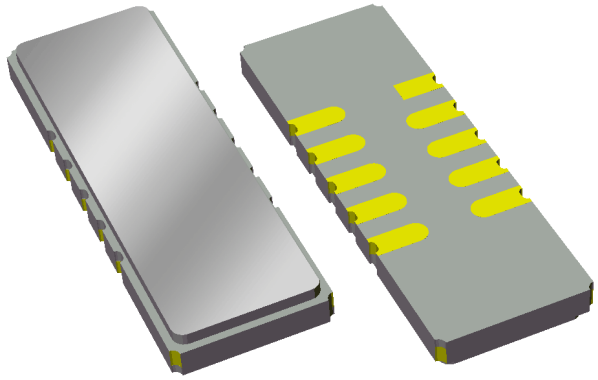
854652

70 MHz SAW Filter

Applications

- General Purpose
- For IF applications

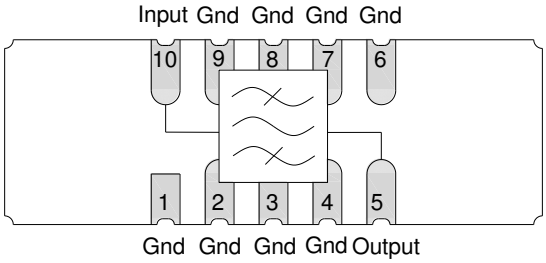


Product Features

- 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

Functional Block Diagram

Top view



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.

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 (1)

Specified Temperature Range: (2) +25 ºC

Parameter (3)	Conditions	Min	Typical (4)	Max	Units
Center Frequency		69.92	70	70.08	MHz
Insertion Loss	at 70 MHz	-	7.3	8	dB
1.0 dB Bandwidth (5)		0.7	0.8	-	MHz
3.0 dB Bandwidth (5)		1.0	1.1	-	MHz
40.0 dB Bandwidth (5)		-	2.8	3.0	MHz
Passband Ripple(6) (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/ ºC
Source Impedance (single-ended) (7)	-	-	50	-	Ω
Load Impedance (single-ended) (7)	-	-	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

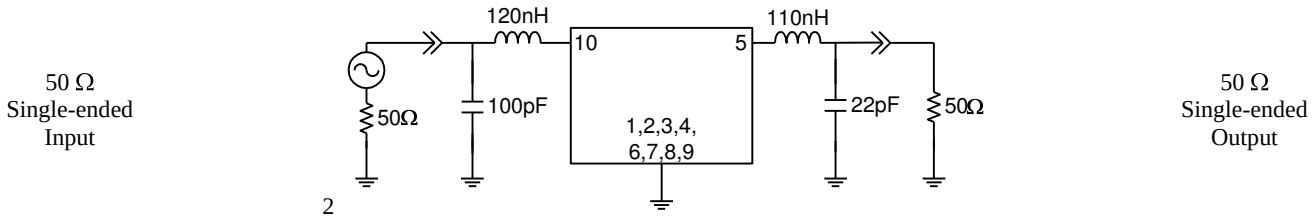
Absolute Maximum Ratings

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.

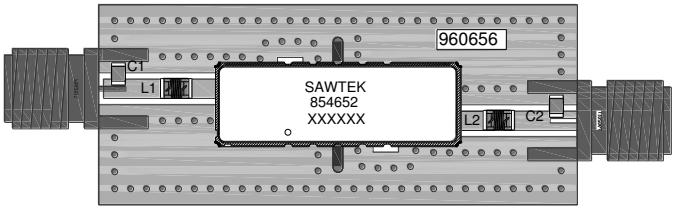
Reference Design – 50Ω SE Input, 50Ω SE Output

Schematic



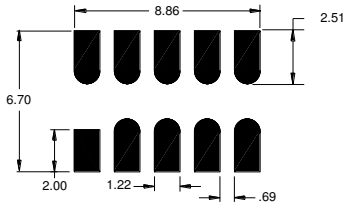
Notes:
1. Actual matching values may vary due to PCB layout and parasitics

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



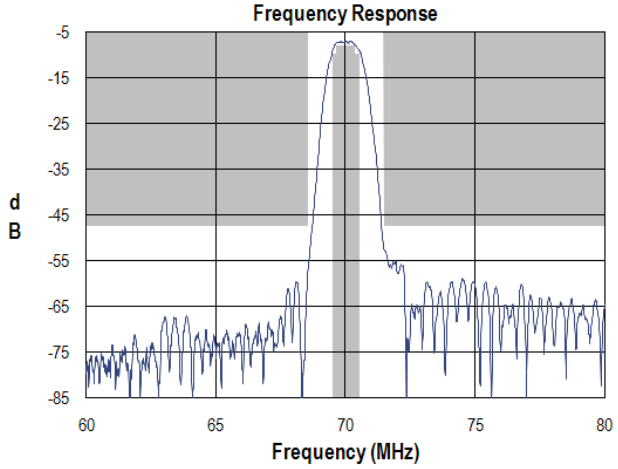
Notes:
1. All dimensions are in millimeters.
2. This footprint represents a recommendation only.

Bill of Material

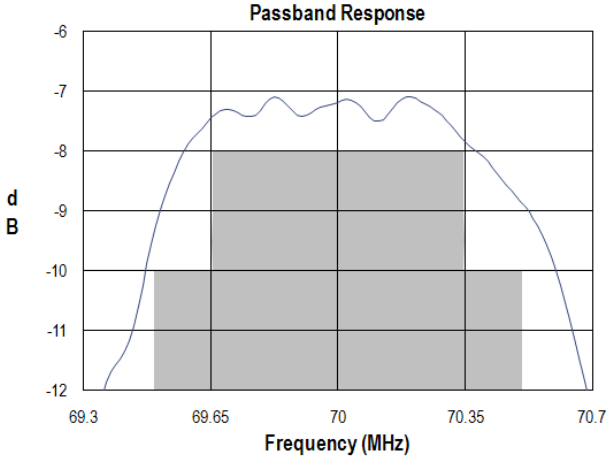
Reference Desg.	Value	Description	Manufacturer	Part Number
L1	120nH	Coil Wire-wound, 0805, 5%	Coilcraft	0805CS-121XJLC
L2	110nH	Coil Wire-wound, 0805, 5%	Coilcraft	0805CS-111XJLC
C1	100pF	Coil Wire-wound, 0805, 5%	MuRata	GRM40COG101J50V
C2	22pF	Coil Wire-wound, 0805 5%	MuRata	GRM40COG220J50V
SMA	N/A	SMA connector	Radiall USA Inc.	9602-1111-018
PCB	N/A	3-layer	multiple	960656

Typical Performance (at room temperature)

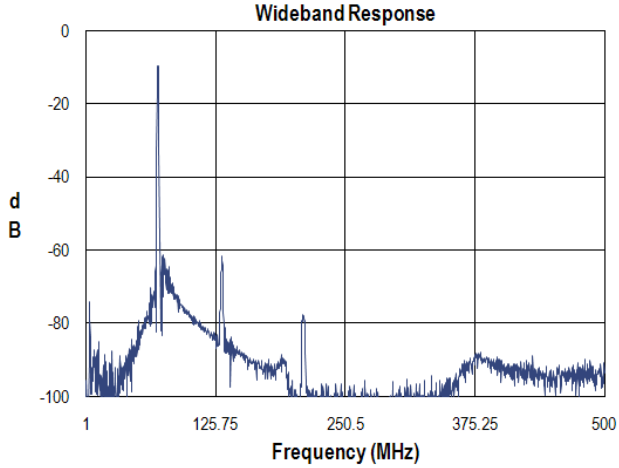
Frequency Response



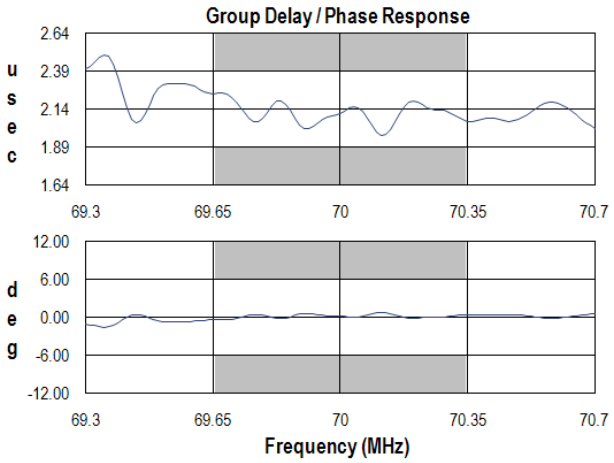
Passband Response



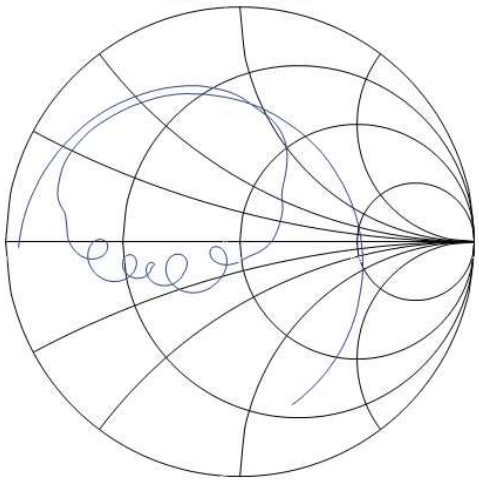
Wideband Response



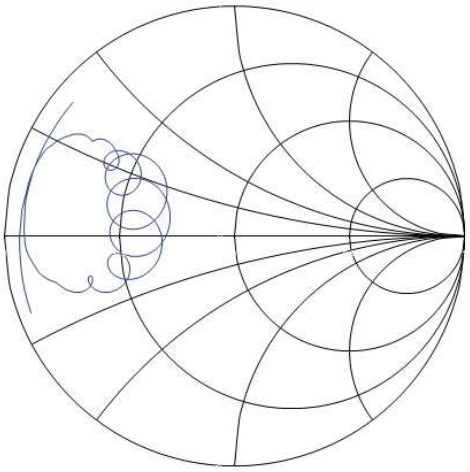
Group Delay / Phase Response



Input Smith Chart

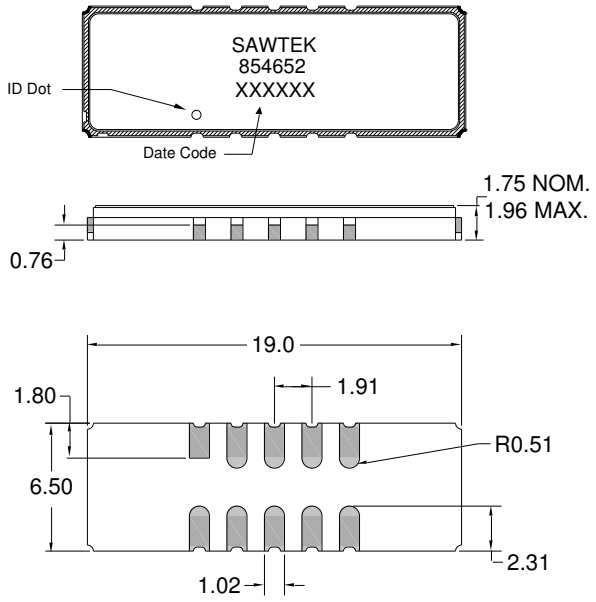


Output Smith Chart



Mechanical Information

Package Information, Dimensions and Marking



Package Style: SMP-75
Dimensions: 19.00 x 6.50 x 1.75mm

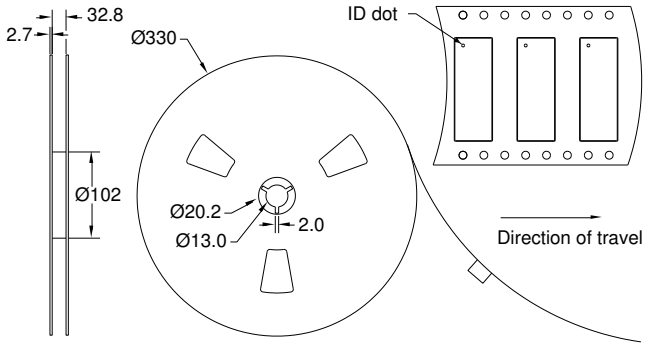
Body: Al_2O_3 ceramic
Lid: Kovar, Ni plated
Terminations: Au plating 0.5 - 1.0µm, over a 2-6µm Ni plating

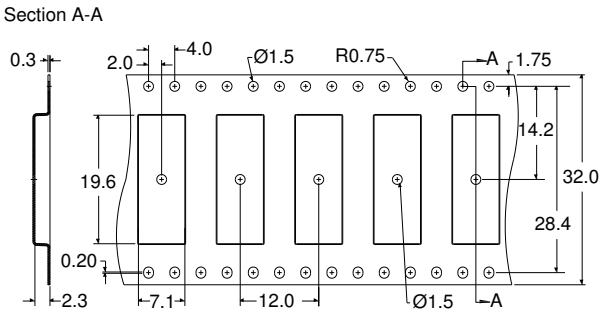
All dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width ±0.10mm

The date code consists of: day of the current year (Julian, 3 digits), last digit of the year (1 digit) and 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 ≥ 2100 V min.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: C
Value: Passes ≥ 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 ($C_{15}H_{12}Br_40_2$) 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: applications.engineering@tqs.com

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