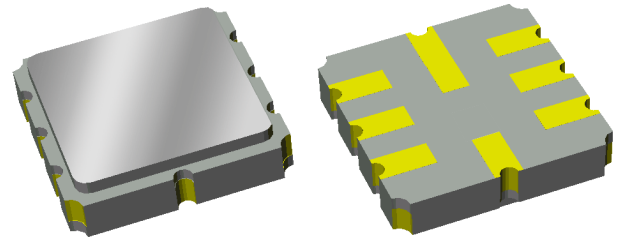



### Applications

- General Purpose
- For WCDMA applications

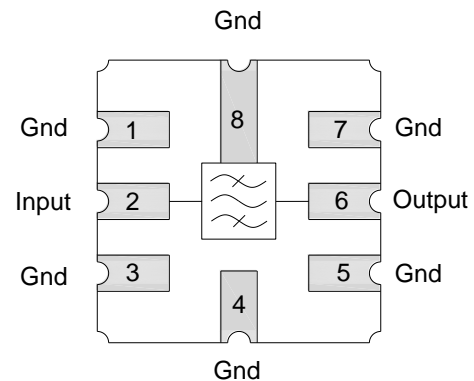


SMP-20, 5.0 x 5.0 x 1.32 mm

### Product Features

- Usable bandwidth 5 MHz
- Low loss
- High attenuation
- Single-ended operation
- Impedance matching required for operation at 50 ohms
- Small size: 5.0 x 5.0 x 1.32 mm
- Ceramic Surface Mount Package (SMP)
- Hermetically sealed
- RoHS (2002/95/EC) compliant, Pb-free 

### Functional Block Diagram



Top View

### General Description

The 855770 is a high-performance IF SAW filter with a center frequency of 190 MHz and a usable bandwidth of 5 MHz.

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

The device is RoHS compliant and Pb-free.

### Pin Configuration

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

### Ordering Information

Part No.	Description
855770	Packaged Part
855770-EVB	Evaluation board

Standard T/R size = 4000 units/reel

### Absolute Maximum Ratings

Parameter	Rating
Storage Temperature <sup>(1)</sup>	- 40 to + 85 °C
Operable Temperature <sup>(2)</sup>	- 40 to + 85 °C

1. Operation of this device outside the parameter ranges given may cause permanent damage.
2. Specifications are not guaranteed over all operable conditions.

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

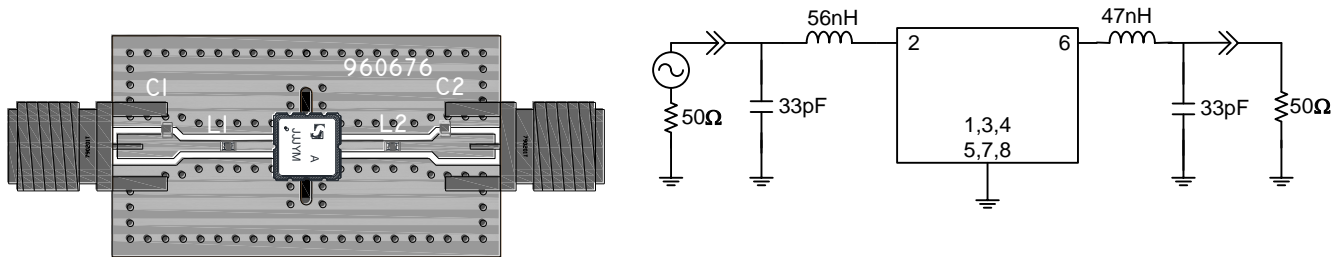
Test conditions unless otherwise noted: <sup>(2)</sup> Temperature Range - 30 to + 70 °C

Parameter <sup>(3)</sup>	Conditions	Min	Typical <sup>(4)</sup>	Max	Units
Center Frequency		-	190	-	MHz
Insertion Loss	At 190 MHz	-	8	10	dB
Lower 5 dB Band Edge <sup>(5)</sup>		-	187.23	187.6	MHz
Upper 5 dB Band Edge <sup>(5)</sup>		192.4	193.01	-	
Phase Ripple	188 – 192 MHz	-	1.9	4.15	deg RMS
Attenuation <sup>(5)</sup>	160 – 170 MHz	33	39.9	-	dB
	170 – 180 MHz	27	35.4	-	
	180 – 185.5 MHz	25	30.3	-	
	194.5 – 200 MHz	25	29.5	-	
	200 – 210 MHz	27	34.9	-	
	210 – 220 MHz	33	42.7	-	
Source/Load Impedance <sup>(6)</sup>	Single-ended	-	50	-	Ω

Notes:

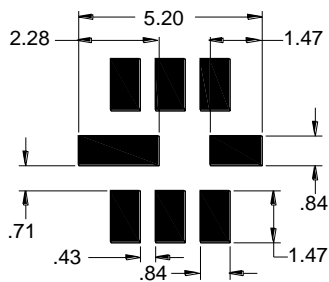
1. All specifications are based on the TriQuint schematic reference design shown on page 3.
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature.
3. Electrical margin has been built into the design to account for 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. This is the optimum impedance in order to achieve the performance shown.

### Evaluation Board



Notes:  
 3-layers board - top, middle & bottom layer: 1 oz copper  
 Substrates: .031" thick FR4 dielectric.  
 Finish plating: Nickel: 3-8 μm thick, Gold: .03-.2 μm thick  
 Hole plating: Copper min .0008 μm thick

### PCB Mounting Pattern

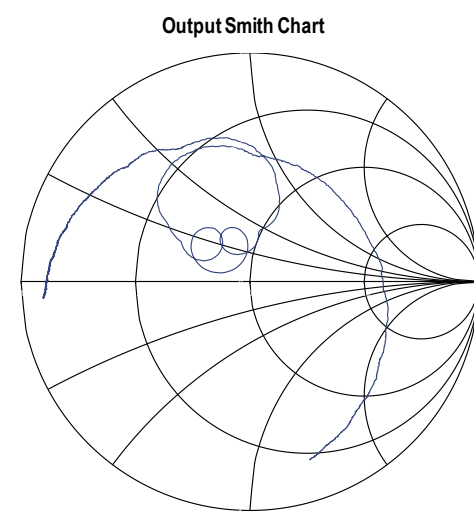
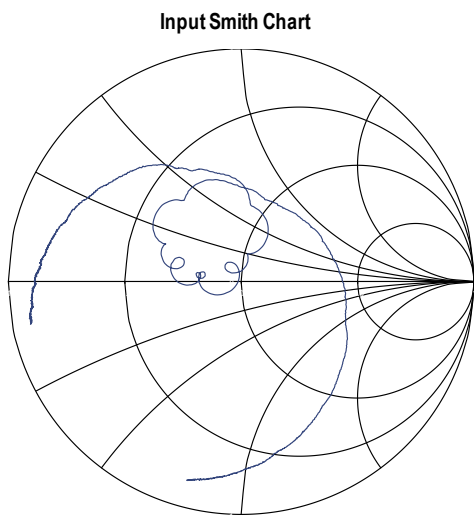
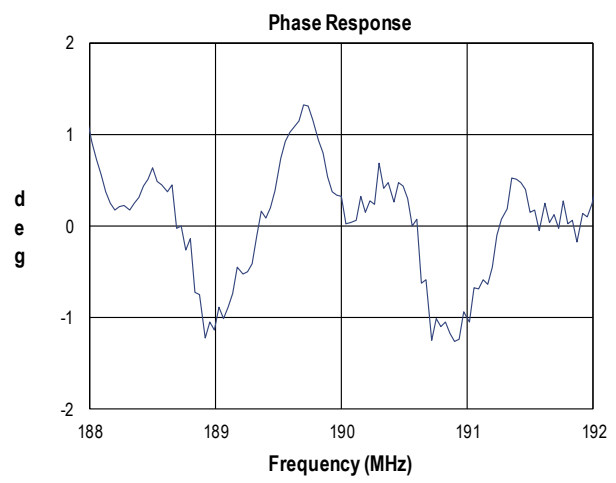
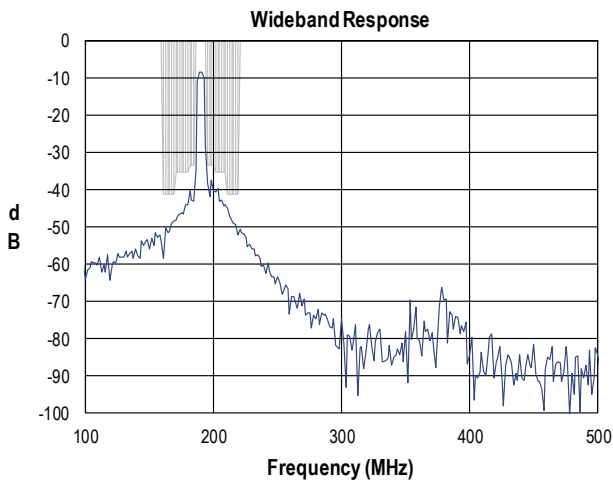
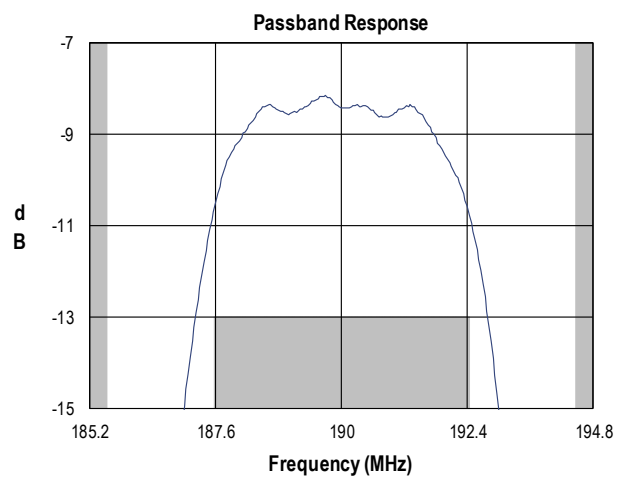
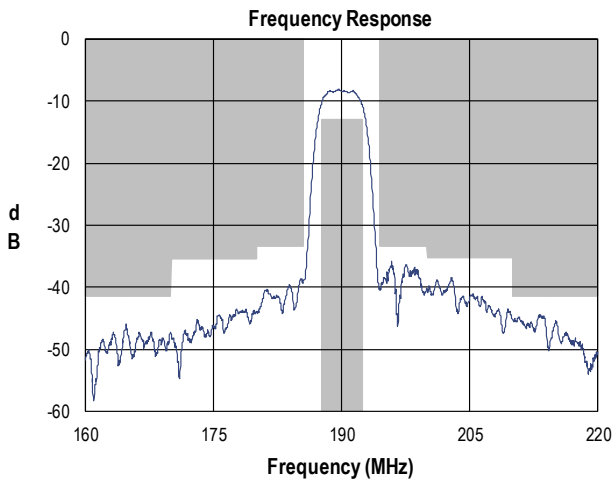


Notes:  
 1. All dimensions are in millimeters. Angles are in degrees.  
 2. This drawing specifies the mounting pattern used on the TriQuint evaluation board for this product. Some modification may be necessary to suit end user assembly materials and processes.

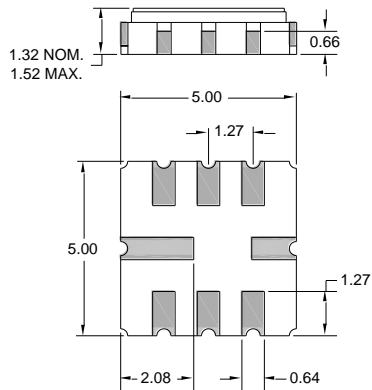
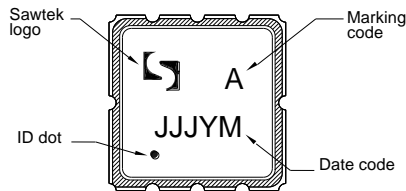
### Bill of Material

Reference Des. D1	Value	Description	Manuf.	Part Number
L1	56 nH	Coil Wire-wound, 0402, ± 5 %	Murata	LQW15AN56NG00
L2	47 nH	Coil Wire-wound, 0402, ± 5 %	Murata	LQW15AN47NG00
C1	33 pF	Chip Ceramic, 0402, ± 5 %	Murata	GRM1555C1H330GZ01
C2	33 pF	Chip Ceramic, 0402, ± 5 %	Murata	GRM1555C1H330GZ01
SMA	N/A	SMA connector	Radiall USA Inc.	9602-1111-018
PCB	N/A	3-layer	Multiple	960676

**Performance Plots** (Test conditions unless otherwise noted: Temp.= +25 °C)



### Mechanical Information



Package Style: SMP-20A  
 Dimensions: 5.00 x 5.00 x 1.32 mm

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

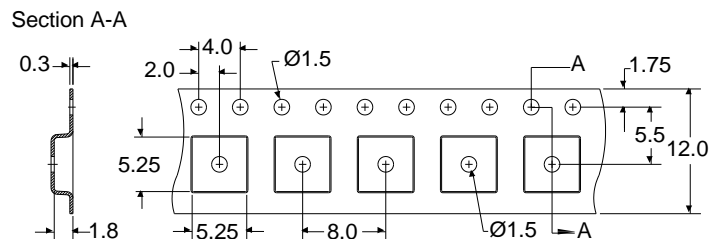
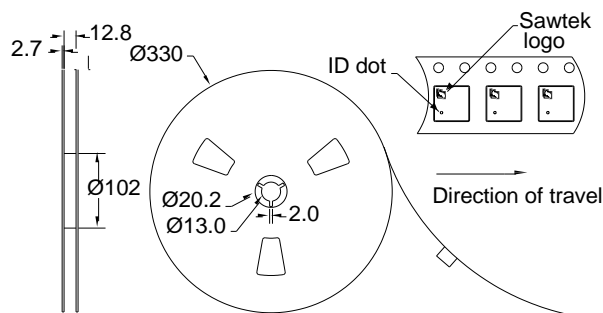
The date code consists of: day of the current year (Julian, 3 digits), Y = last digit of the year, and M = manufacturing site code

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 = 4000 units / reel. All dimensions are in millimeters



### Product Compliance Information

#### ESD Sensitivity Ratings



Caution! ESD-Sensitive Device

ESD Rating: 1C

Value: Passes  $\geq 1800$  V min.  
Test: Human Body Model (HBM)  
Standard: ESDA/JEDEC JS-001-2012

ESD Rating: B

Value: Passes  $\geq 200$  V min.  
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 (C<sub>15</sub>H<sub>12</sub>Br<sub>4</sub>O<sub>2</sub>) 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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For technical questions and application information:

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

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