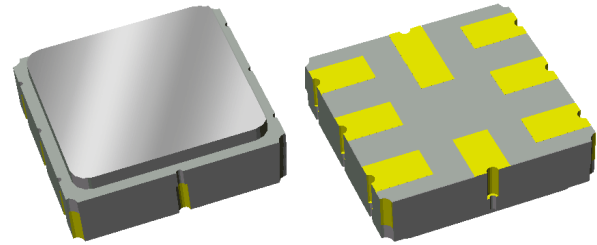



## Applications

- For broadband wireless access applications.

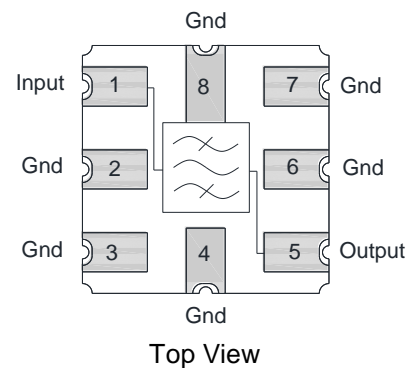


SMP-15, 3.8 x 3.8 x 1.27 mm

## Product Features

- Usable bandwidth 20 MHz
- Low loss
- High attenuation
- Single-ended operation
- No external matching required for operation at 50  $\Omega$
- Small size: 3.8 x 3.8 x 1.27 mm
- Ceramic Surface Mount Package (SMP)
- Hermetically sealed
- RoHS (2002/95/EC) compliant, Pb-free 

## Functional Block Diagram



## General Description

The 856866 is a high-performance IF SAW filter with a center frequency of 756 MHz and a usable bandwidth of 20 MHz

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

## Pin Configuration

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

## Ordering Information

Part No.	Description
856866	Packaged Part
856866-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>

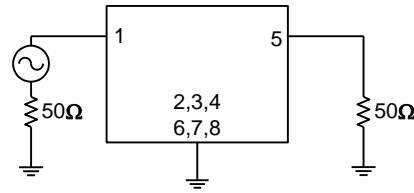
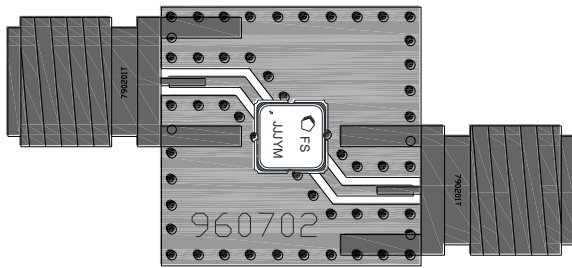
Test conditions unless otherwise noted: <sup>(2)</sup> Temperature Range - 40 to + 85 °C

Parameter <sup>(3)</sup>	Conditions	Min	Typical <sup>(4)</sup>	Max	Units
Center Frequency		-	756	-	MHz
Minimum Insertion Loss		-	0.9	2.5	dB
1.0 dB Bandwidth <sup>(5)</sup>		-	29.15	-	MHz
Lower 1.0 dB Band Edge <sup>(5)</sup>		-	740.85	746	
Upper 1.0 dB Band Edge <sup>(5)</sup>		766	770.86	-	
Amplitude Variation <sup>(7)</sup>	746 – 766 MHz	-	0.4	1.0	dB p-p
Group Delay Variation <sup>(7)</sup>	746 – 766 MHz	-	13.2	75	ns p-p
Absolute Attenuation <sup>(6)</sup>	10 – 616 MHz	40	46	-	dB
	616 – 716 MHz	30	36	-	
	784 – 788 MHz	15	18	-	
	796 – 896 MHz	30	35	-	
	896 – 1005 MHz	40	43	-	
	1005 – 1092 MHz	30	34	-	
1092 – 1500 MHz	40	54	-		
Source/Load Impedance <sup>(8)</sup>	Single-ended	-	50	-	Ω

### Notes:

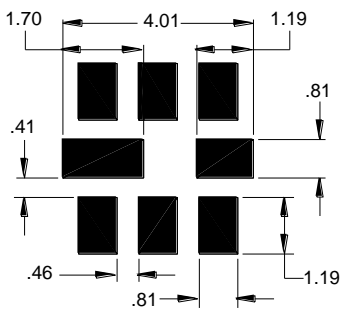
1. All specifications are based on the TriQuint schematic reference design shown on page 3.
2. In production, devices will be tested at room temperature to a guard-banded specification to ensure electrical compliance over temperature.
3. Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances.
4. Typical values are based on average measurements at room temperature.
5. Relative to minimum insertion loss.
6. Absolute attenuation measurements are referenced to zero dB.
7. Total variation over the defined frequency range.
8. 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**

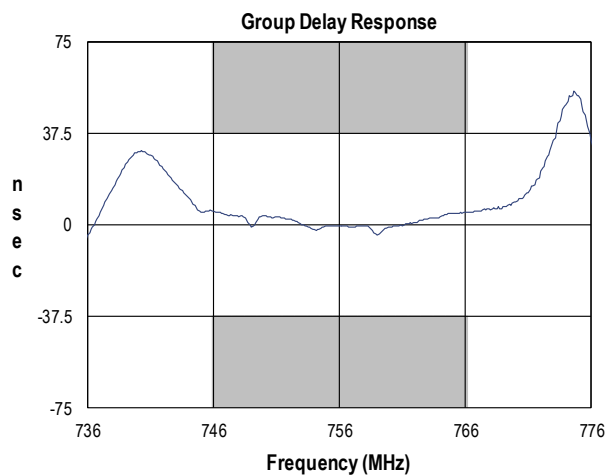
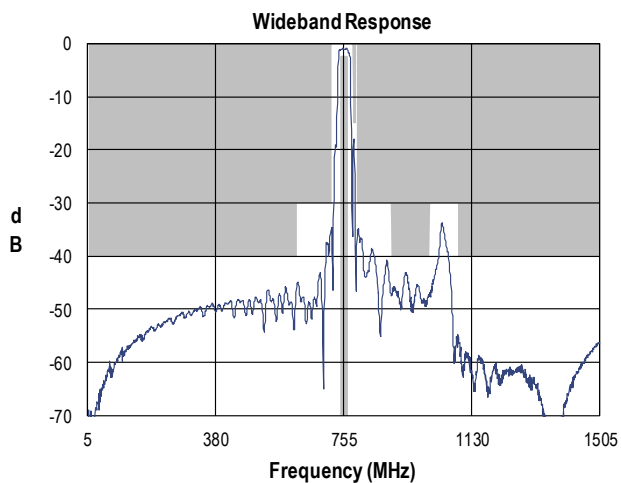
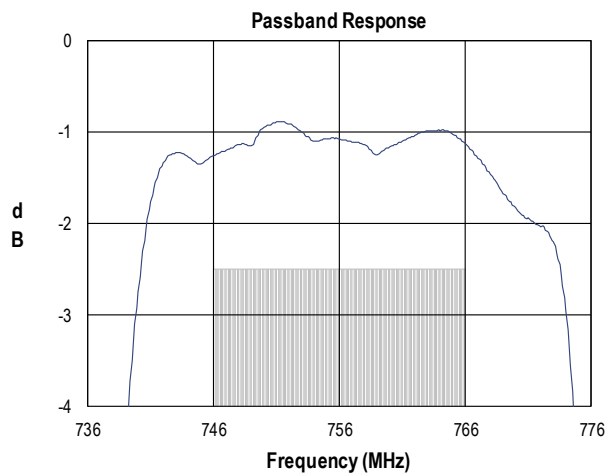
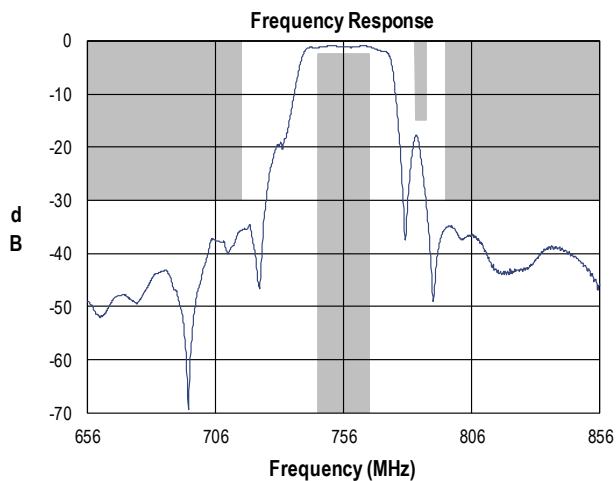


Notes:  
 1. All dimensions are in millimeters. Angles are in degrees.  
 2. This drawing specifies the mounting pattern used on the TriQuint evaluation board for this product. Some modification may be necessary to suit end user assembly materials and processes.

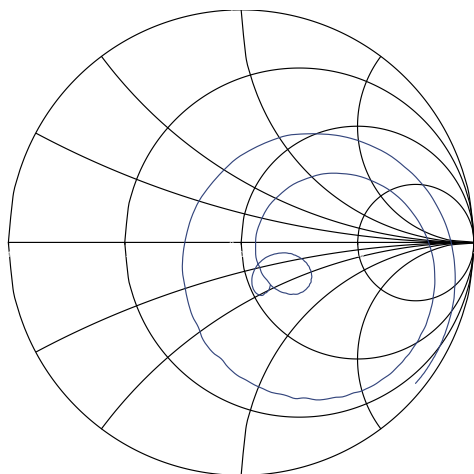
**Bill of Material**

Reference Des.	Value	Description	Manuf.	Part Number
SMA	N/A	SMA connector	Johnson Components	142-0701-801
PCB	N/A	3-layer	Multiple	960702

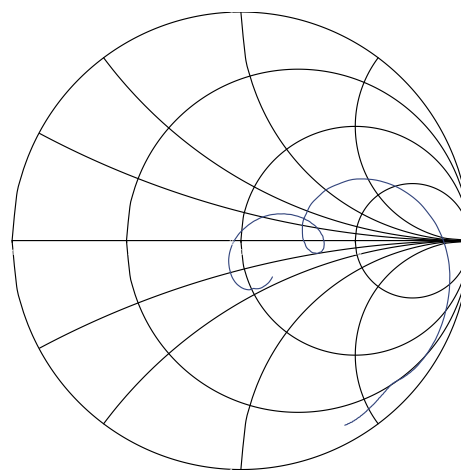
**Performance Plots** (Test conditions unless otherwise noted: Temp.= +25 °C)



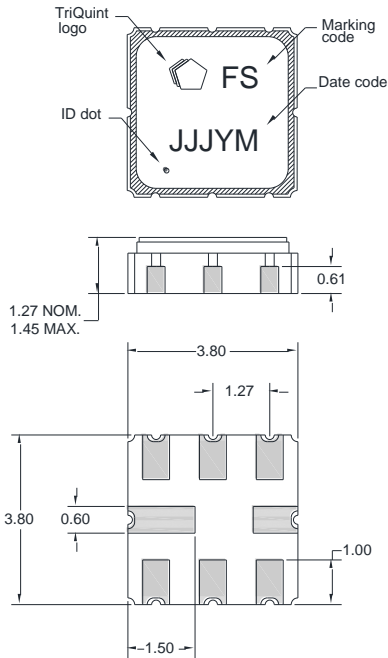
**Input Smith Chart**



**Output Smith Chart**



**Mechanical Information**



Package Style: SMP-15  
Dimensions: 3.8 x 3.8 x 1.27 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

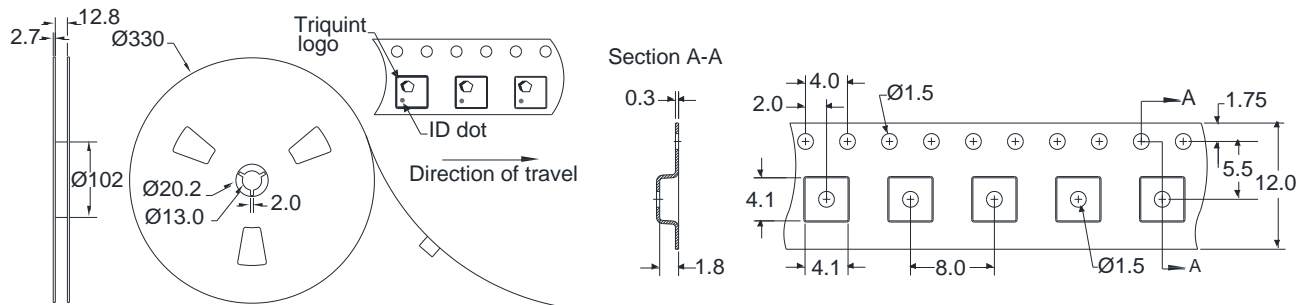
The date code consists of: day of the current year (Julian, 3 digits), Y = last digit of the year, and M = manufacturing site code

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: 1B

Value: Passes  $\geq 700$  V min.  
Test: Human Body Model (HBM)  
Standard: ESDA/JEDEC JS-001-2012

ESD Rating: B

Value: Passes  $\geq 300$  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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Fax: +1.407.886.7061

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

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