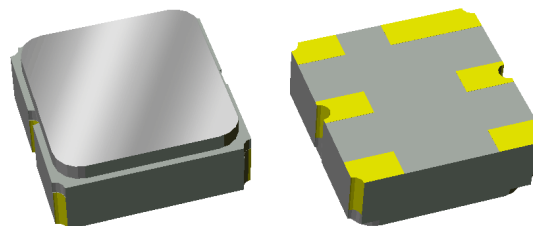


# 856764

## 781.5 MHz SAW Filter

### Applications

- Base Station



### Product Features

- Usable bandwidth 11 MHz
- High attenuation
- Low Loss
- Excellent power handling
- Single-ended operation
- No matching required for operation at 50Ω
- Small Size: 3.00 x 3.00 x 1.22 mm
- Ceramic Surface Mount Package (SMP)
- Hermetically Sealed
- **RoHS** compliant, **Pb**-free

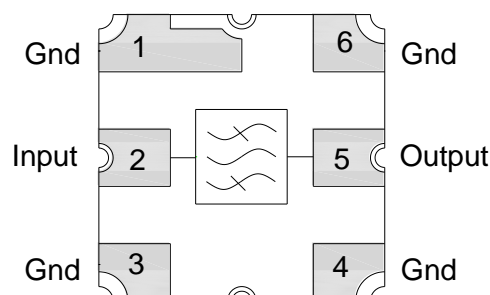
### General Description

856764 is a general purpose Uplink filter for Band 13. This filter was specifically designed in a 3x3mm hermetic package for base station applications and is part of our wide portfolio of RF filters in the same package.

Low insertion loss, coupled with high attenuation and excellent power handling, makes this filter a natural choice for our customers Uplink RF filtering needs.

### Functional Block Diagram

Top view



### Pin Configuration

Pin # SE	Description
2	Input
5	Output
1,3,4,6	Case Ground

### Ordering Information

Part No.	Description
856764	packaged part
856764-EVB	evaluation board

Standard T/R size = 5000 units/reel.

## Specifications

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

Specified Temperature Range: <sup>(2)</sup> -40 to +85 °C

Parameter <sup>(3)</sup>	Conditions	Min	Typical <sup>(4)</sup>	Max	Units
Center Frequency		-	781.5	-	MHz
Maximum Insertion Loss	776– 787 MHz	-	1.46	2.5	dB
Lower 2.5dB Band Edge <sup>(6)</sup>		-	767.5	776	MHz
Upper 2.5dB Band Edge <sup>(6)</sup>		787	791.8	-	MHz
Amplitude Variation <sup>(5)</sup>	776– 787 MHz	-	0.38	0.8	dB p-p
Absolute Group Delay	776– 787 MHz	-	40	-	ns
Absolute Attenuation <sup>(6)</sup>	200 – 484.5 MHz	25	48	-	dB
	484.5– 740 MHz	25	36	-	dB
	740 – 757 MHz	35	39	-	dB
	806 – 1284 MHz	25	35	-	dB
	1284 – 2000 MHz	15	22	-	dB
Input/output Return Loss	776– 787 MHz	10	13.9	-	dB
Source Impedance <sup>(7)</sup>	Single-ended	-	50	-	Ω
Load Impedance <sup>(7)</sup>	Single-ended	-	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. Describes the total variation over the defined frequency range
6. Relative to zero dB
7. This is the optimum impedance in order to achieve the performance shown

### Absolute Maximum Ratings

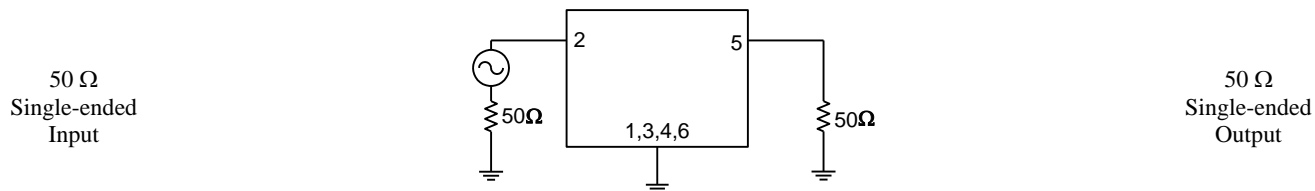
Parameter	Rating
Operable Temperature	-40 to +85 °C
Storage Temperature	-40 to +85 °C
Input Power <sup>(8)</sup>	+20 dBm

8. Input Power is targeted for an applied CW modulated RF in the 776-787 MHz band at 55 °C for a minimum of 125 hrs

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

### Reference Design

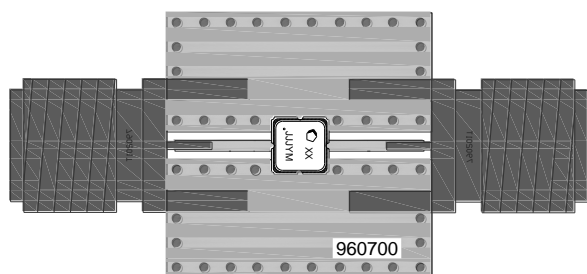
#### Schematic



#### Notes:

1. Actual matching values may vary due to PCB layout and parasitic

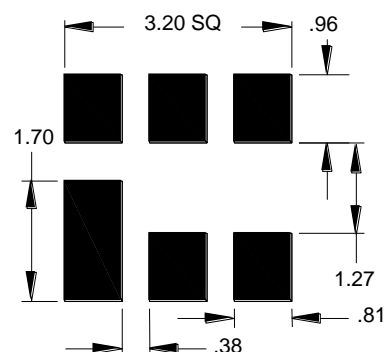
#### PC Board



#### Notes:

Top, middle & bottom layers: 1 oz copper  
Substrates: FR4 dielectric, .031" thick  
Finish plating: Nickel: 3-8 $\mu$ m thick, Gold: .03-.2 $\mu$ m thick  
Hole plating: Copper min .0008 $\mu$ m thick

#### Mounting Configuration



#### Notes:

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

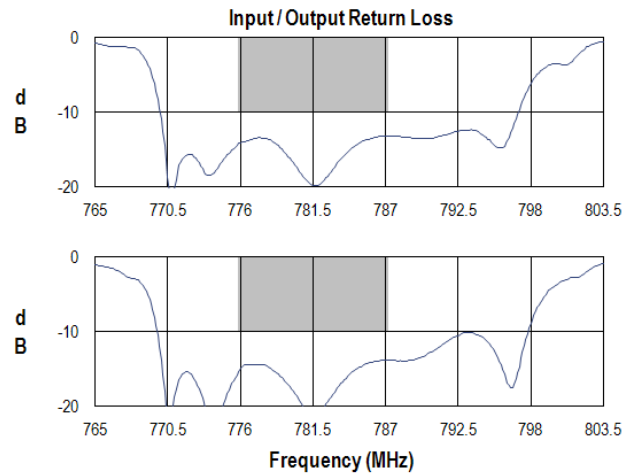
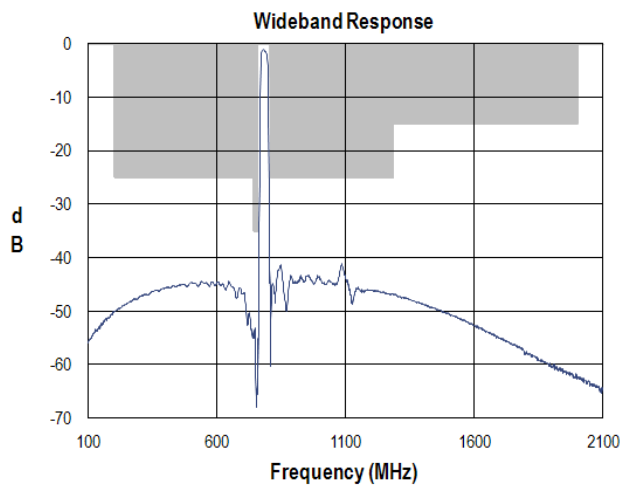
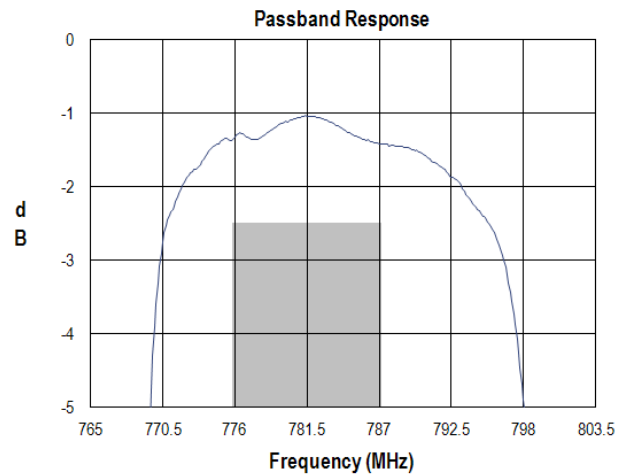
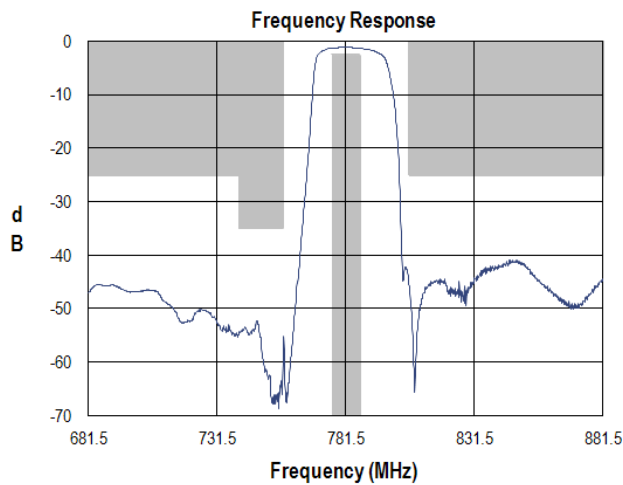
#### Bill of Material

Reference Desg.	Value	Description	Manufacturer	Part Number
SMA	N/A	SMA connector	Radiall USA Inc.	9602-1111-018
PCB	N/A	3-layer	multiple	960700

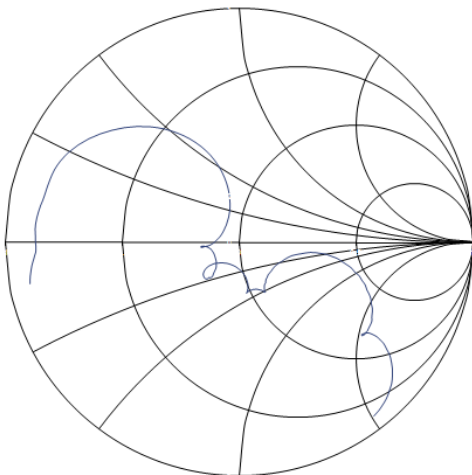
# 856764

## 781.5 MHz SAW Filter

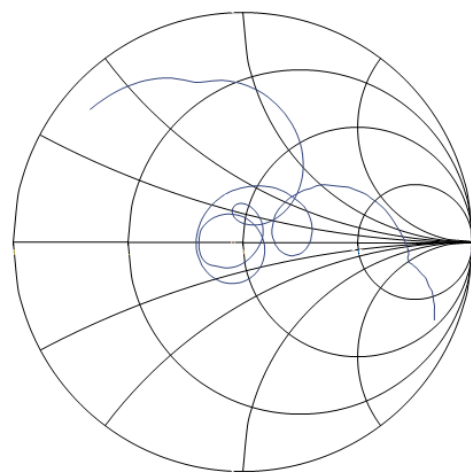
### Typical Performance (at room temperature)



**Input Smith Chart**



**Output Smith Chart**

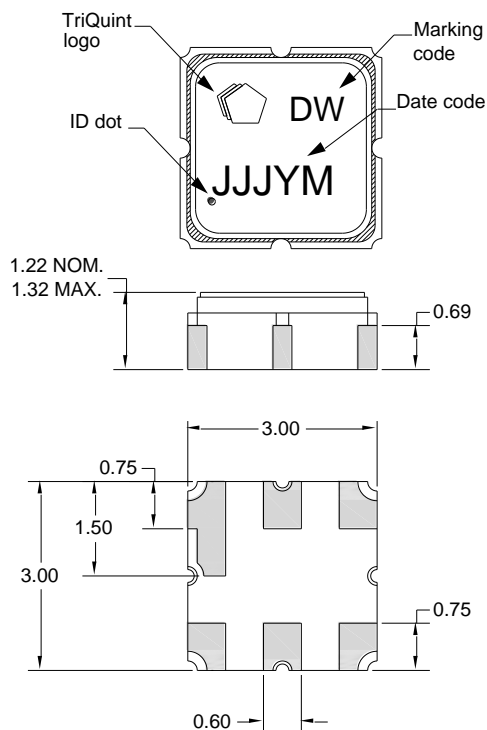


# 856764

## 781.5 MHz SAW Filter

### Mechanical Information

#### Package Information, Dimensions and Marking



Package Style: SMP-12A

Dimensions: 3.00 x 3.00 x 1.22 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

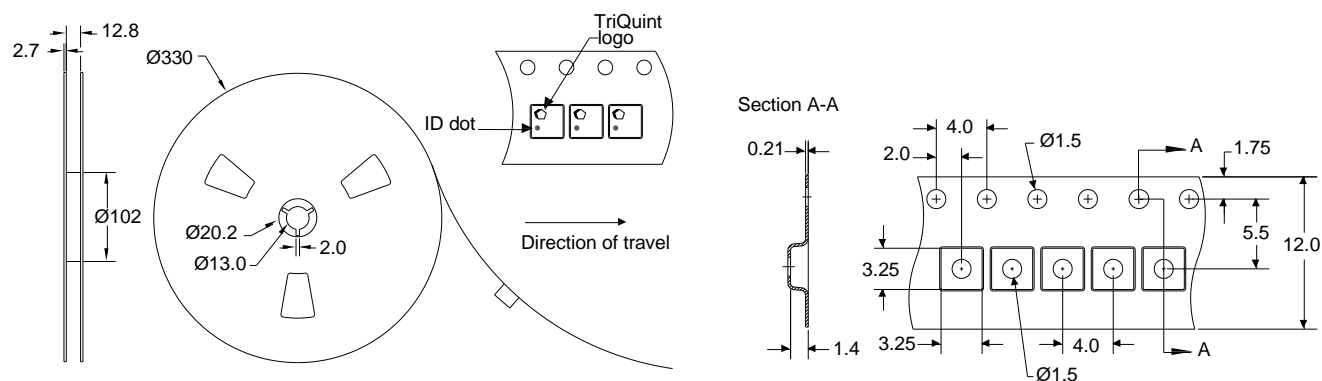
All dimensions shown are nominal in millimeters

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

#### Tape and Reel Information

Standard T/R size = 5000 units/reel. All dimensions are in millimeters



# 856764

## 781.5 MHz SAW Filter

### Product Compliance Information

#### ESD Information



**Caution! ESD-Sensitive Device**

ESD Rating: 1B

Value: Passes  $\geq 500$  V min.  
Test: Human Body Model (HBM)  
Standard: JEDEC Standard JESD22-A114

ESD Rating: B

Value: Passes  $\geq 300$  V min.  
Test: Machine Body Model (MBM)  
Standard: JEDEC Standard JESD22-A114

#### 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:

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For technical questions and application information:

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

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