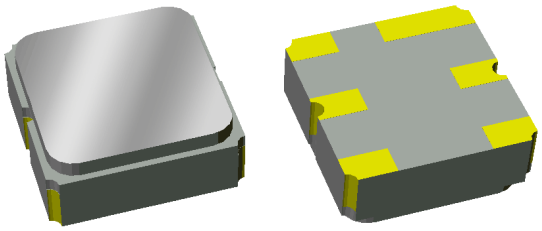
856884

707 MHz SAW Filter

Applications

- Base Station

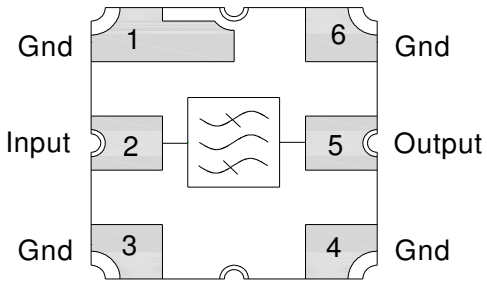


Product Features

- Usable bandwidth 18 MHz
- High attenuation
- Low Loss
- 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

Functional Block Diagram

Top View



General Description

856884 is a general purpose Uplink filter for Band 12. 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 makes this filter a natural choice for our customers Uplink RF filtering needs.

Pin Configuration

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

Ordering Information

Part No.	Description
856884	Packaged Part
856884–EVB	Evaluation board

Standard T/R size = 5,000 units/reel

Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	–40 to +105 °C
Operable Temperature	–20 to +105 °C
DC Voltage on any port (instantaneous)	+5 Vdc
RF Input Power (1)	+22dBm

1. Input power with applied CW signal at =105° C in the 703 – 748MHz frequency band for 24 hrs.

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

Electrical Specifications (1)

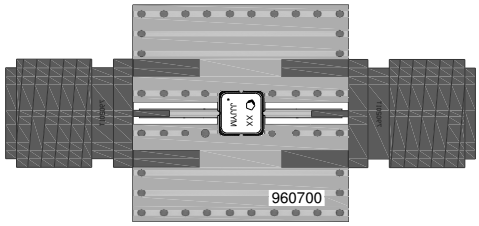
Specified Temperature Range: (2) –40 to +85 °C

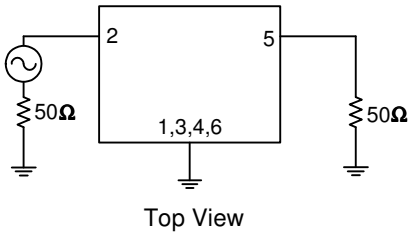
Parameter (3)	Conditions	Min	Typical (4)	Max	Units
Center Frequency		-	707	-	MHz
Maximum Insertion Loss	698 – 716 MHz	-	1.5	2	dB
	698 – 716 MHz at +105°C (5)	-	1.5	2.1	dB
Amplitude Variation	698 – 716 MHz	-	0.5	1	dB p-p
Amplitude Variation (over any 5MHz band) (6)	698 – 716 MHz	-	0.4	0.8	dB p-p
Phase Ripple	698 – 716 MHz	-	6	30	deg
Group Delay Variation	698 – 716 MHz	-	11	21	ns p-p
	698 – 716 MHz at +105°C (5)	-	11	23	
Absolute Group Delay	698 – 716 MHz	-	34	40	ns
Absolute Attenuation (7)	70 – 120 MHz	50	52	-	dB
	70 – 120 MHz at +105°C (5)	49	52	-	
	430– 470 MHz	41	44	-	
	728 – 746 MHz	9	21	-	
	753 – 763 MHz	35	39	-	
	804 – 815 MHz	39	42	-	
	930 – 940 MHz	41	45	-	
	930 – 940 MHz at +105°C (5)	40	45	-	
	1609 – 1629 MHz	47	53	-	
	1860 – 1880 MHz	44	53	-	
	1860 – 1880 MHzat +105°C (5)	37	53	-	
	2770 – 3043 MHz	15	19	-	
	2770 – 3043 MHz at +105°C (5)	13	19	-	
Input/output VSWR	698 – 716 MHz	-	1.7:1	2:1	-
	698 – 716 MHz at +105°C (5)	-	1.7:1	2.3:1	-
Source/Load Impedance (7)	Single-ended	-	50	-	Ω
Load Impedance (7)	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. Extended Temperature operation: the filter can be operated up to +105°C with de-rated specification as noted
6. Describes the total variation over the defined frequency range
7. Relative to zero dB.
8. This is the optimum impedance in order to achieve the performance shown.

856884 Evaluation Board





Top View

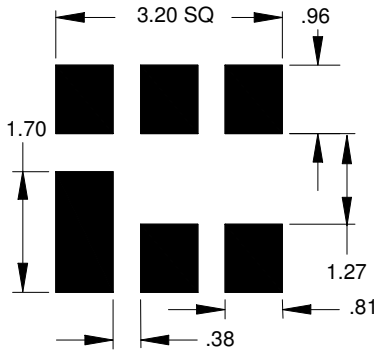
Notes:

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

Bill of Material – 856884-EVB

Reference Des.	Value	Description	Manuf.	Part Number
SMA	N/A	SMA Connector	Radiall USA Inc.	9602-1111-018
PCB	N/A	3-layer	multiple	960700

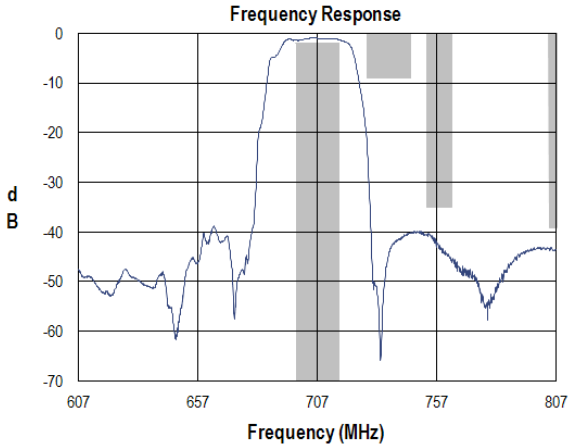
PCB Mounting Pattern

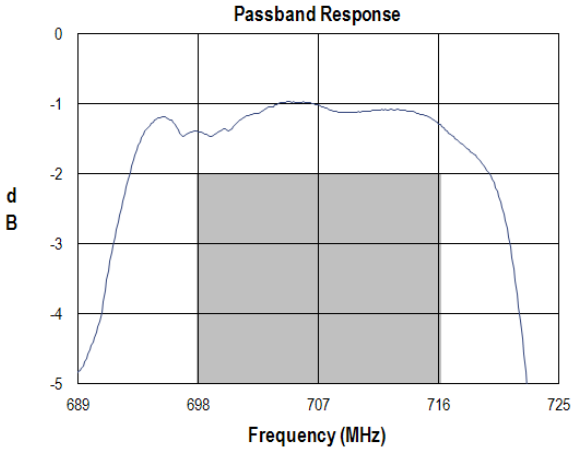


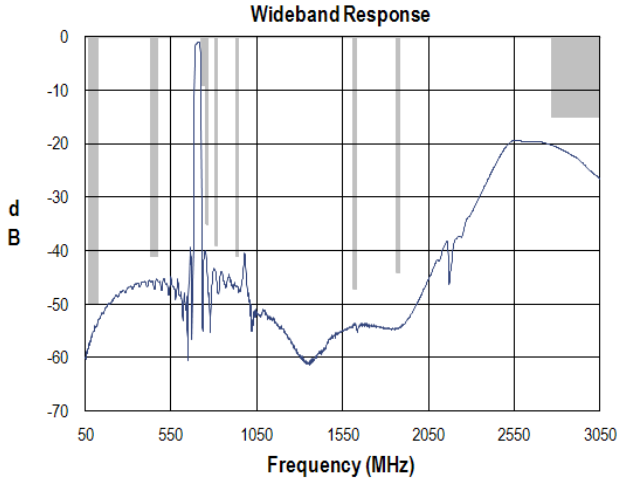
Notes:
1. All dimensions are in millimeters.
2. This footprint represents a recommendation only

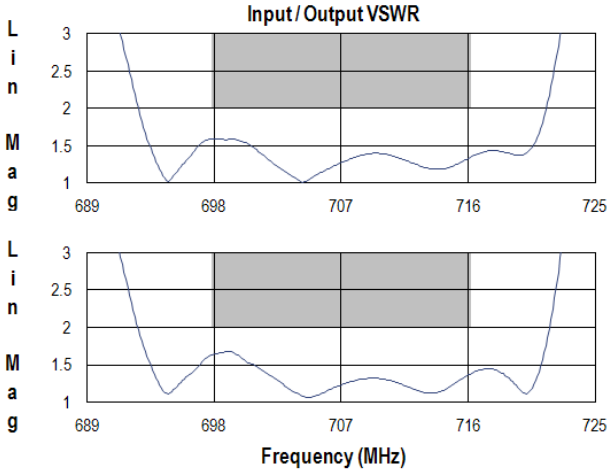
Measured Performance Plots

Test conditions unless otherwise noted: Temp= +25 ℃

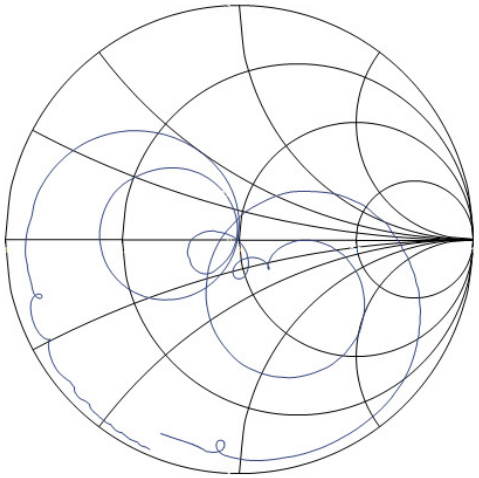




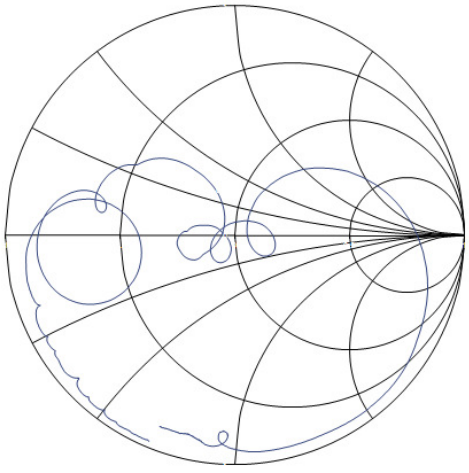




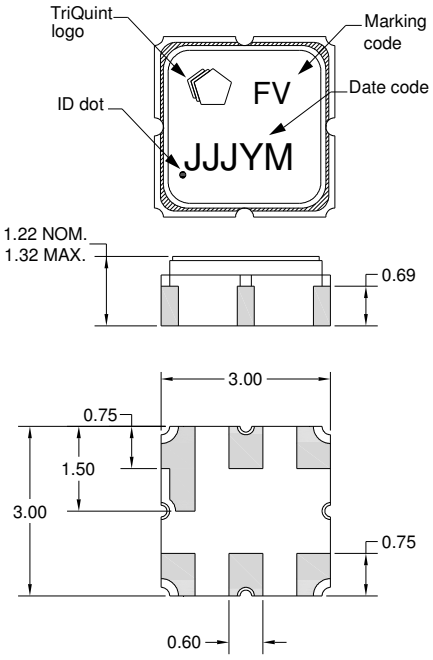
Input Smith Chart



Output Smith Chart



Package Information, Marking and Dimensions



Package Style: SMP-12A
Dimensions: 3.00 x 3.00 x 1.22 mm

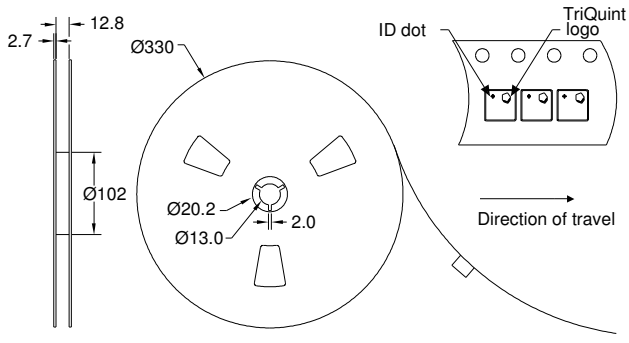
Body: Al_2O_3 ceramic
Lid: *Kovar*, *Ni* plated
Terminations: *Au* plating 0.5 - 1.0µm, over a 2-6µm *Ni* plating

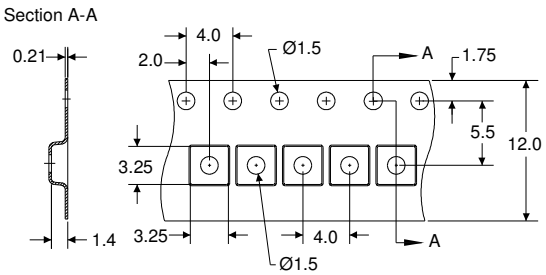
All dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width ±0.10mm

The date code consists of: day of the current year (Julian, 3 digits), 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





Product Compliance Information

ESD Sensitivity Ratings

Caution! ESD-Sensitive Device

ESD Rating: 1B
Value: Passes ≥ 500 V min.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: B
Value: Passes ≥ 300 V min.
Test: Machine Body Model (MBM)
Standard: JEDEC Standard JESD22-A114

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 ($C_{15}H_{12}Br_4O_2$) Free
- PFOS Free
- SVHC Free

Contact Information

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

Web: www.triquint.com **Tel: 877-800-8584**
Email: customer.support@qorvo.com

For information about the merger of RFMD and TriQuint as Qorvo:

Web: www.qorvo.com

For technical questions and application information: **Email:** flapplication.engineering@tqs.com

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