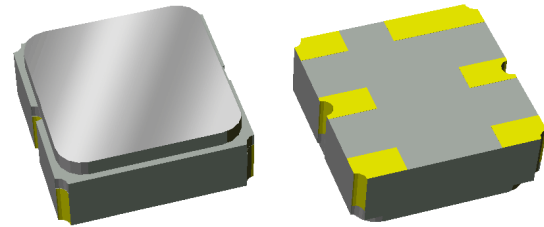


856932


847 MHz SAW Filter

Applications

- General purpose wireless
- WCDMA Applications

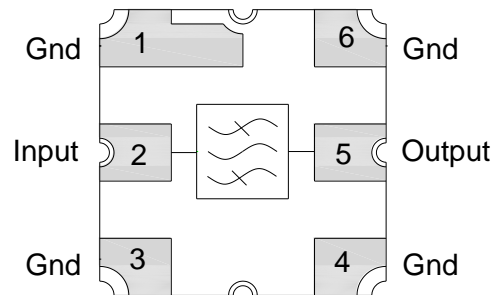


Product Features

- Usable bandwidth 30 MHz
- 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 (2002/95/EC) compliant, Pb-free 

Functional Block Diagram

Top view



General Description

856932 is a general purpose Uplink Filter for Band 20. 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.

Pin Configuration

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

Ordering Information

Part No.	Description
856932	packaged part
856932-EVB	evaluation board

Standard T/R size = 5000 units/reel.

Specifications 1

Electrical Specifications ⁽¹⁾

Specified Temperature Range: ⁽²⁾ -30 to +85 °C

Parameter ⁽³⁾	Conditions	Min	Typical ⁽⁴⁾	Max	Units
Center Frequency		-	847	-	MHz
Maximum Insertion Loss	832 – 862 MHz	-	1.3	2.0	dB
Amplitude Variation	832 – 862 MHz	-	0.29	1.2	dB p-p
Amplitude Variation (over any 5 MHz window)	832 – 862 MHz	-	0.21	0.8	dB p-p
Phase Ripple	832 – 862 MHz	-	10.5	30	deg p-p
Absolute Delay	832 – 862 MHz	-	18.2	30	ns
Group Delay Variation	832 – 862 MHz	-	12	20	ns p-p
Relative Attenuation ⁽⁵⁾	60 – 120 MHz	30	47.7	-	dB
	300 – 500 MHz	30	39.6	-	dB
	645 – 680 MHz	30	37.7	-	dB
	782 – 812 MHz	10	24.5	-	dB
	812 – 816 MHz	10	19.0	-	dB
	882 – 912 MHz	10	16.5	-	dB
	1010 – 1100 MHz	25	33.7	-	dB
	1545 – 1580 MHz	45	49.6	-	dB
	2000 – 2800 MHz	25	31.0	-	dB
	3200 – 4000 MHz	15	27.3	-	dB
4400 – 5250 MHz	5	12.0	-	dB	
Input VSWR	832 – 862 MHz	-	1.63	2.0	-
Output VSWR	832 – 862 MHz	-	1.64	2.0	-
Source Impedance ⁽⁶⁾	Single-ended	-	50	-	Ω
Load Impedance ⁽⁶⁾	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 of 5 devices at room temperature
5. Relative to max loss over passband
6. 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	+22dBm (CW modulated RF signal at 55 °C for 125 hours)

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

Specifications 2

Electrical Specifications ⁽¹⁾

Specified Temperature Range: ⁽²⁾ -30 to +85 °C

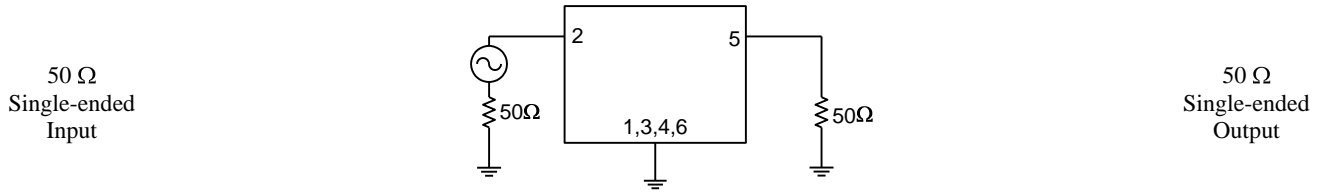
Parameter ⁽³⁾	Conditions	Min	Typical ⁽⁴⁾	Max	Units
Center Frequency		-	847	-	MHz
Maximum Insertion Loss	832 – 862 MHz	-	1.3	2.0	dB
Amplitude Variation	832 – 862 MHz	-	0.29	1.2	dB p-p
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Phase Ripple	832 – 862 MHz	-	10.5	30	deg p-p
Absolute Delay	832 – 862 MHz	-	18.2	30	ns
Group Delay Variation	832 – 862 MHz	-	12	20	ns p-p
Absolute Attenuation ⁽⁵⁾	60 – 680 MHz	30	39	-	dB
	680 – 816 MHz	10	21	-	dB
	882 – 909 MHz	10	17	-	dB
	909 – 1010 MHz	19	22	-	dB
	1010 – 1545 MHz	25	29	-	dB
	1545 – 1580 MHz	45	49.6	-	dB
	1580 – 2800 MHz	25	32	-	dB
	2800 – 4000 MHz	15	26	-	dB
4000 – 5250 MHz	5	13	-	dB	
Input VSWR	832 – 862 MHz	-	1.63	2.0	-
Output VSWR	832 – 862 MHz	-	1.64	2.0	-
Source Impedance ⁽⁶⁾	Single-ended	-	50	-	Ω
Load Impedance ⁽⁶⁾	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 of 5 devices at room temperature
5. Relative to ZERO dB
6. This is the optimum impedance in order to achieve the performance shown

Reference Design

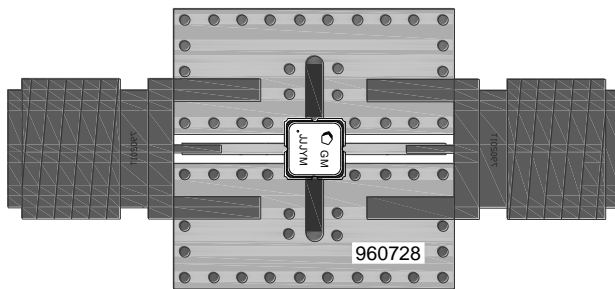
Schematic



Notes:

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

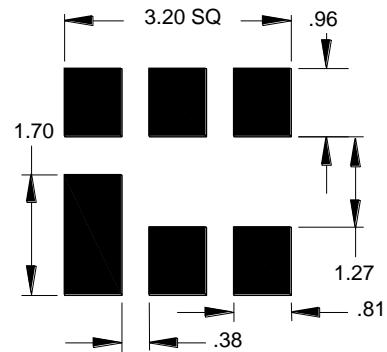
PC Board



Notes:

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

Mounting Configuration



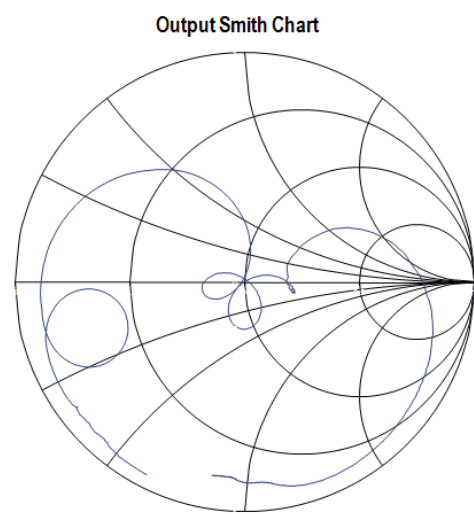
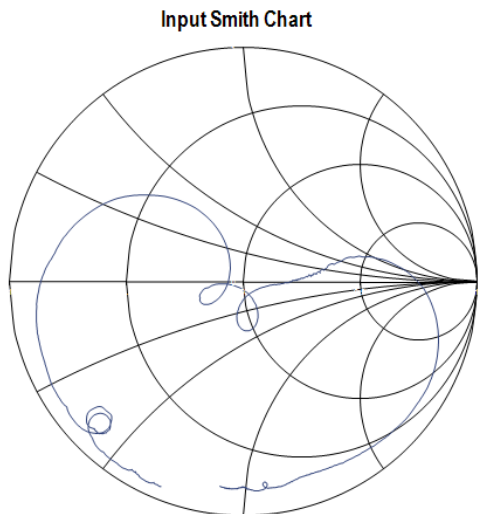
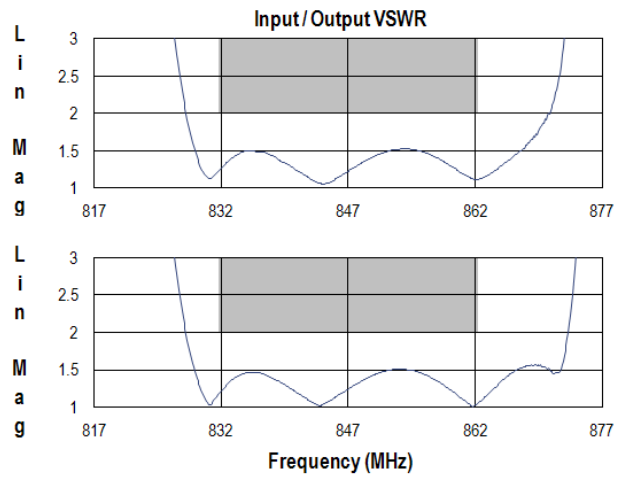
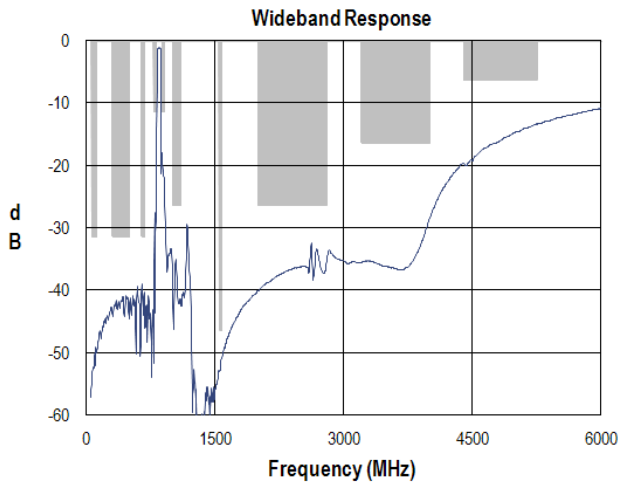
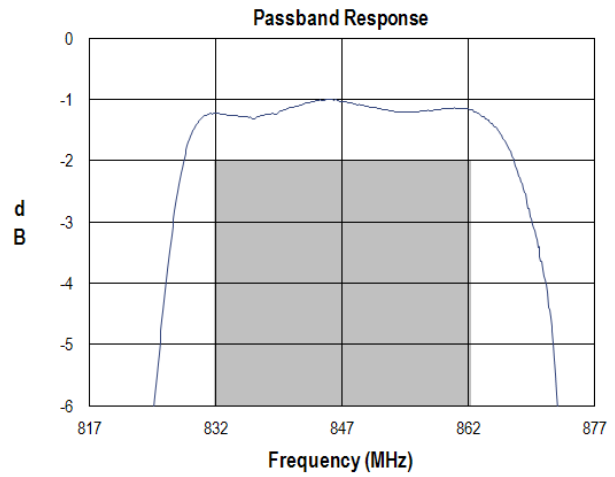
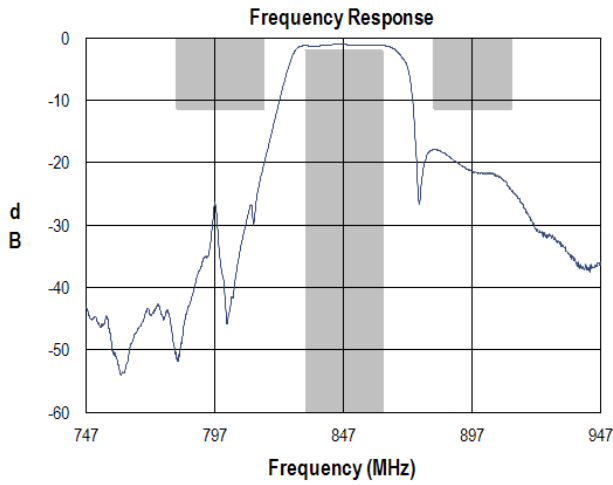
Notes:

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

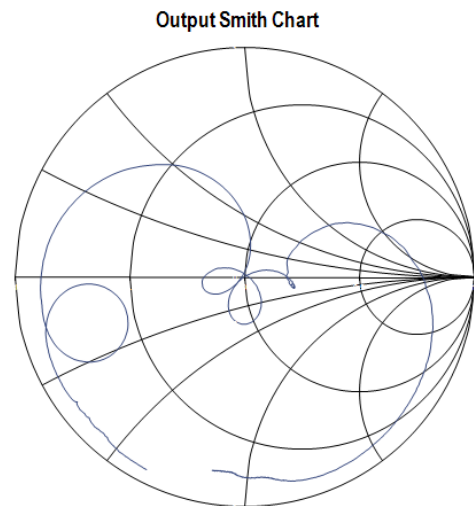
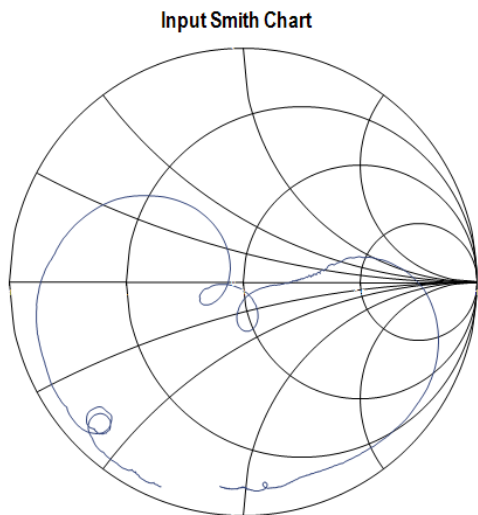
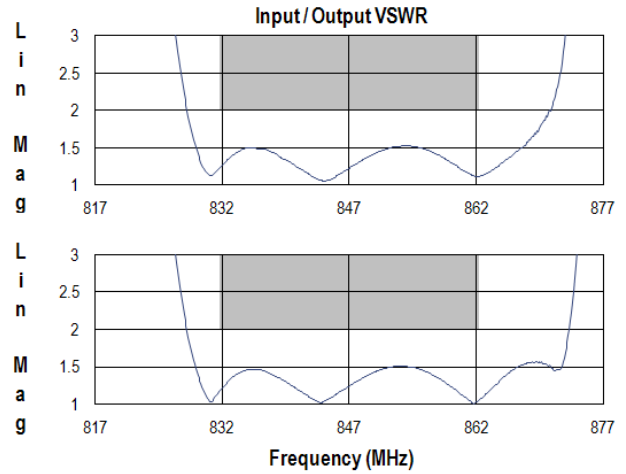
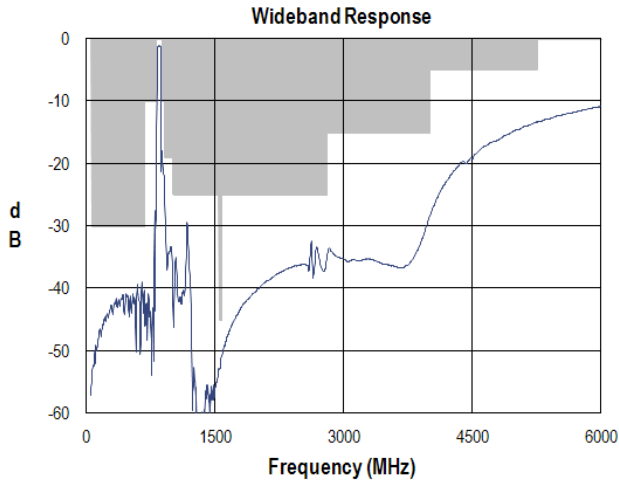
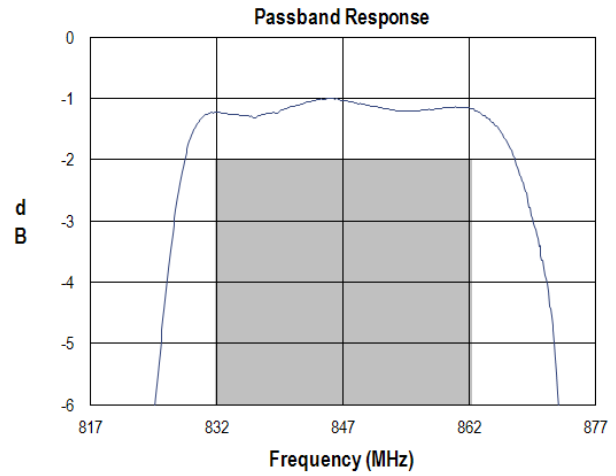
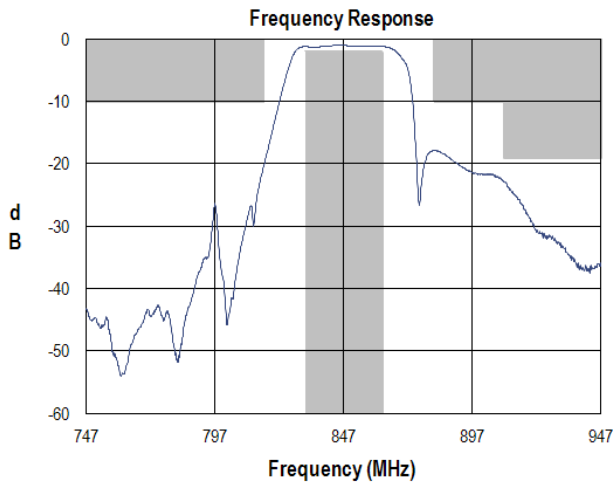
Bill of Material

Reference Desg.	Value	Description	Manufacturer	Part Number
SMA	N/A	SMA connector	Radiall USA Inc.	9602-1111-018
PCB	N/A	3-layer	multiple	960728

Typical Performance for Specifications Table 1 (at room temperature)

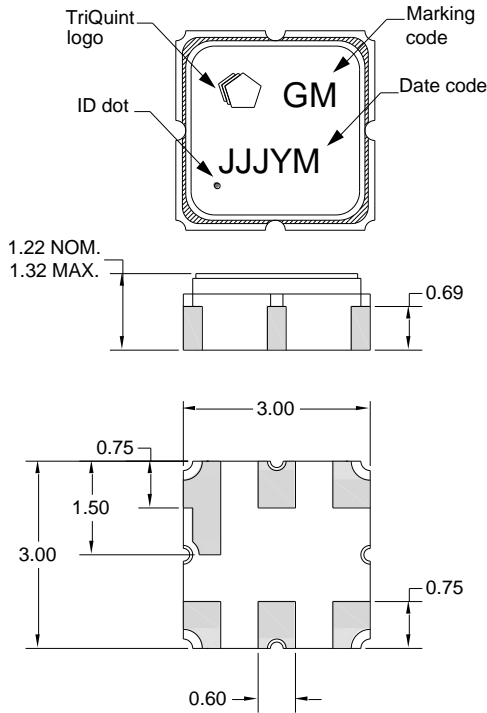


Typical Performance for Specifications Table 2 (at room temperature)



Mechanical Information

Package Information, Dimensions and Marking



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

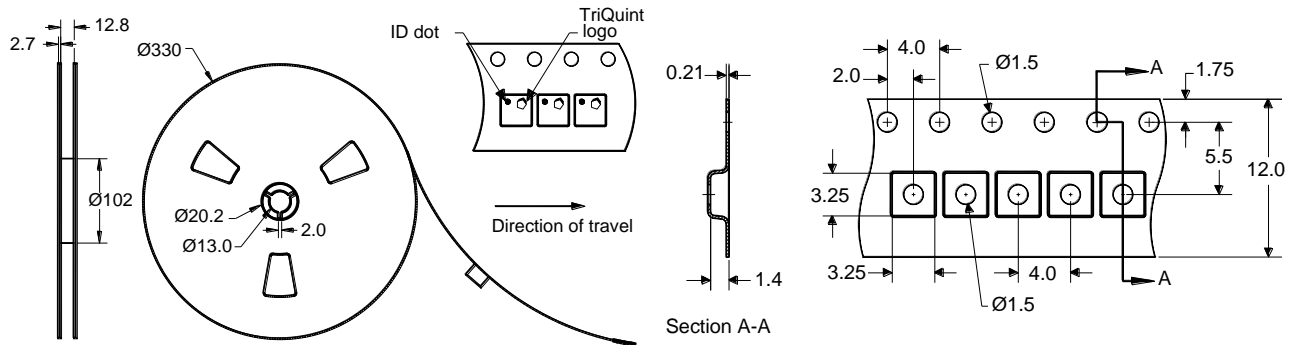
Body: Al_2O_3 ceramic
 Lid: Kovar, Ni plated
 Terminations: Au plating 0.5 - 1.0 μ m, over a 2-6 μ m Ni plating

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



Product Compliance Information

ESD Information



Caution! ESD-Sensitive Device

ESD Rating: 1B

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

ESD Rating: B

Value: Passes $\geq 300V$ 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 (C₁₅H₁₂Br₄O₂) Free
- PFOS Free
- SVHC Free

Contact Information

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