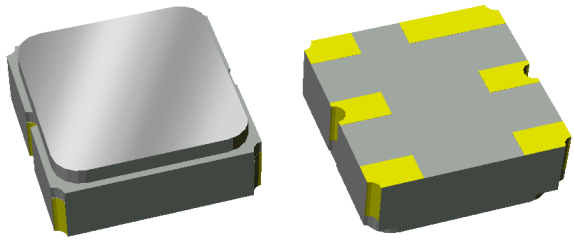
856532

1950 MHz SAW Filter

Applications

- General purpose wireless
- Wireless infrastructure
- 3G, 4G, Multistandard
- Repeaters

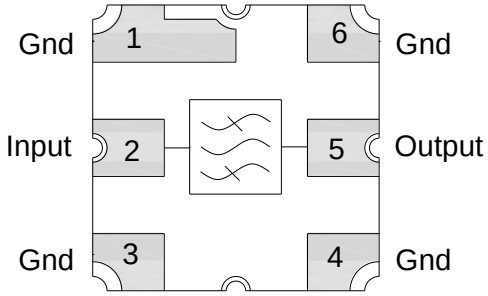


Product Features

- Usable bandwidth 60 MHz
- Low loss
- Single-ended operation
- No impedance matching required for operation at 50Ω
- Ceramic Surface Mount Package (SMP)
- Industry standard package
- Dimensions: 3.00 x 3.00 x 1.22 mm
- Hermetic **RoHS** compliant, **Pb**-free

Functional Block Diagram

Top view



General Description

Band 1 Uplink filter for general purpose wireless applications. 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 good power handling, makes this filter a natural choice for our customers uplink RF filtering needs.

No matching components are required, making filter implementation easy.

Pin Configuration

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

Ordering Information

Part No.	Description
856532	packaged part
856532-EVB	evaluation board

Standard T/R size = 5000 units/reel.

Specifications

Electrical Specifications (1)

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

Parameter (3)	Conditions	Min	Typical (4)	Max	Units
Center Frequency		-	1950	-	MHz
Maximum Insertion Loss	1920 – 1980 MHz	-	2.5	3.0	dB
Amplitude Ripple(5)	1920 – 1980 MHz	-	0.7	1.5	dB p-p
Absolute Attenuation (6)	10 – 1000 MHz	25	31.7	-	dB
	1000 – 1880 MHz	20	31.8	-	dB
	2110 – 2170 MHz	40	43.6	-	dB
	2170 – 3800 MHz	25	29.1	-	dB
	3800 – 5000 MHz	18	22.5	-	dB
Input/Output Return Loss	1920 – 1980 MHz	8	9.6	-	dB
Source/Load Impedance (single-ended) (7)		-	50	-	Ω

Specified Temperature Range: (2) -40 to +85 ºC

Parameter (3)	Conditions	Min	Typical (4)	Max	Units
Center Frequency		-	1950	-	MHz
Maximum Insertion Loss	1920 – 1980 MHz	-	2.5	3.2	dB
Amplitude Ripple(5)	1920 – 1980 MHz	-	0.7	1.5	dB p-p
Absolute Attenuation (6)	10 – 1000 MHz	25	31.7	-	dB
	1000 – 1880 MHz	20	31.8	-	dB
	2110 – 2170 MHz	40	43.6	-	dB
	2170 – 3800 MHz	25	29.1	-	dB
	3800 – 5000 MHz	18	22.5	-	dB
Input/Output Return Loss	1920 – 1980 MHz	8	9.6	-	dB
Source/Load Impedance (single-ended) (7)		-	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. Evaluated as peak-to-adjacent valley ripple
6. Relative to zero dB
7. This is the optimum impedance in order to achieve the performance shown

Absolute Maximum Ratings

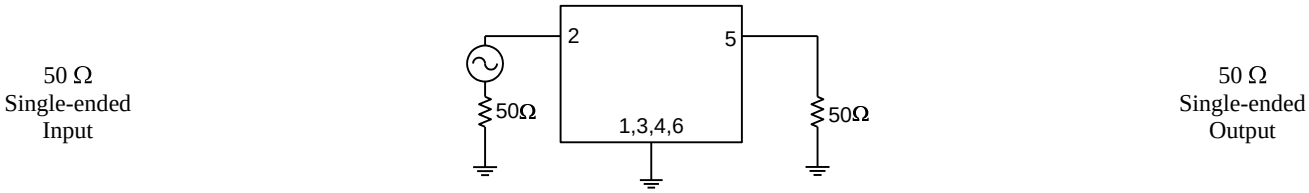
Parameter	Rating
Operating Temperature	-40 to +85 °C
Storage Temperature	-40 to +85 °C
Input Power(8)	+10 dBm

8. Input Power is targeted for an applied CW modulated RF signal at 55 °C for 10,000 hours

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

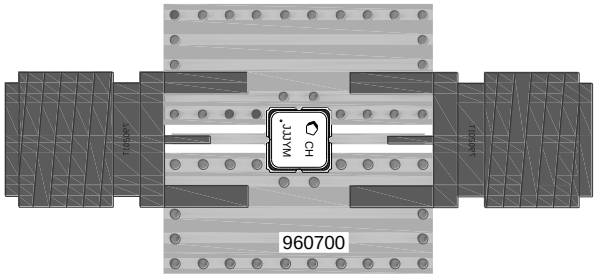
Reference Design

Schematic



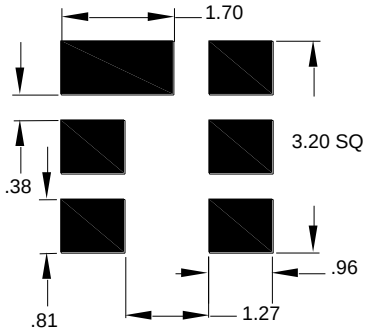
Notes:
1. No impedance matching required

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



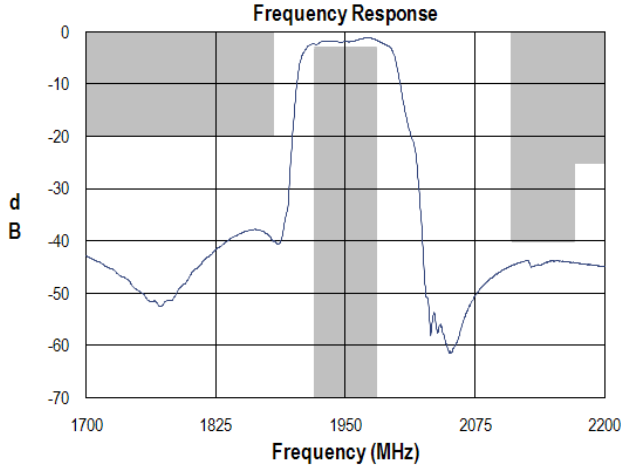
Notes:
1. All dimensions are in millimeters.
2. This footprint represents a recommendation only.

Bill of Material

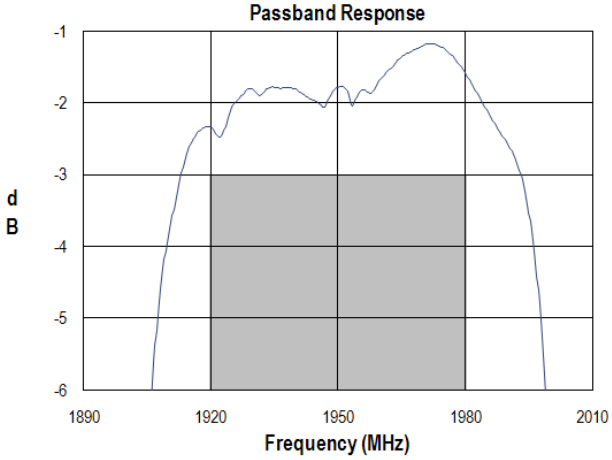
Reference Desg.	Value	Description	Manufacturer	Part Number
SMA	N/A	SMA connector	Radiall USA Inc.	9602-1111-018
PCB	N/A	3-layer	multiple	960700

Typical Performance (at room temperature)

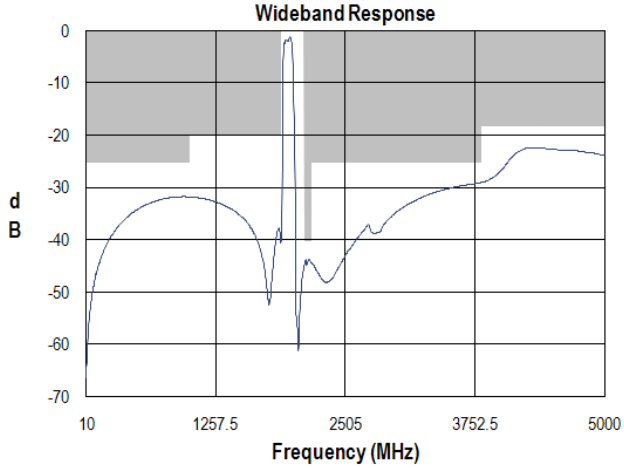
Frequency Response



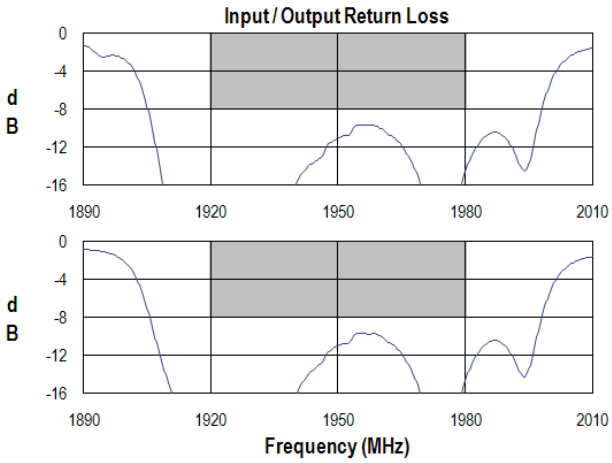
Passband Response



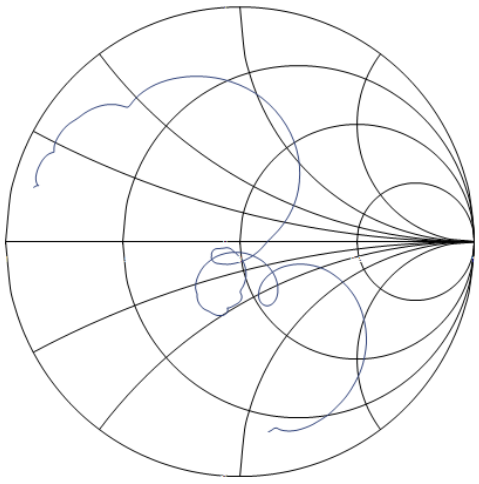
Wideband Response



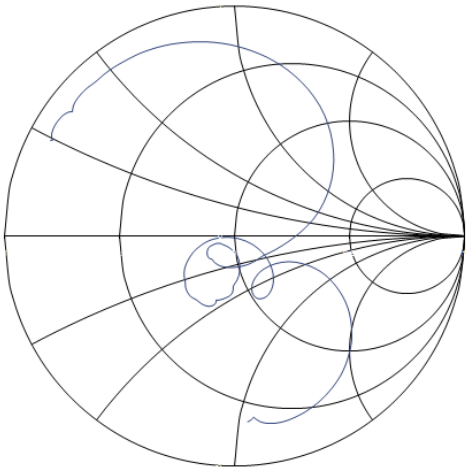
Input / Output Return Loss



Input Smith Chart

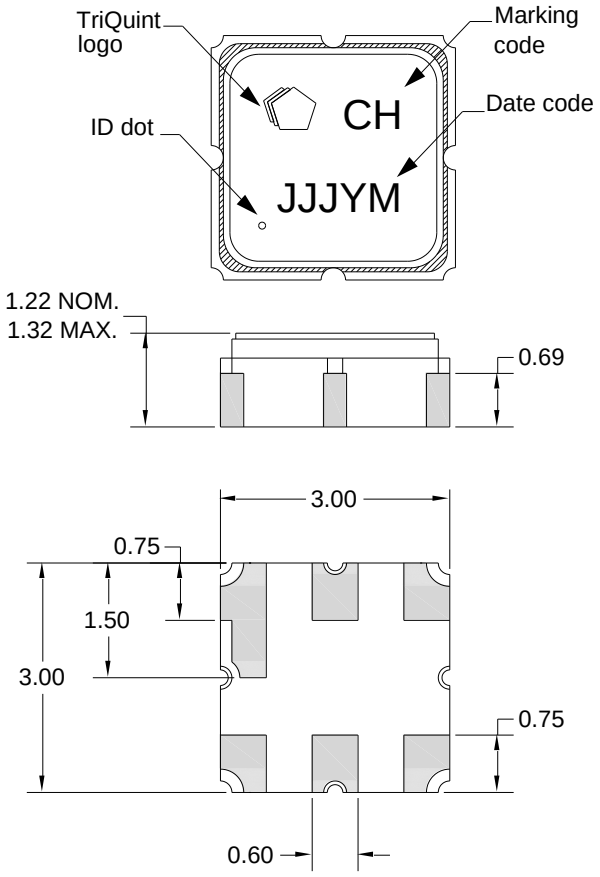


Output Smith Chart



Mechanical Information

Package Information, Dimensions and Marking



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

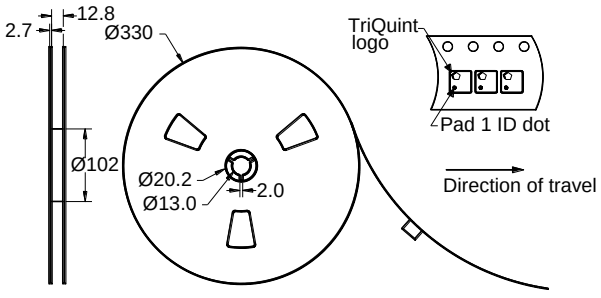
Body: Al_2O_3 ceramic
Lid: *Kovar, Ni* plated
Terminations: *Au* plating 0.5 - 1.0µm, over a 2-6µm *Ni* plating

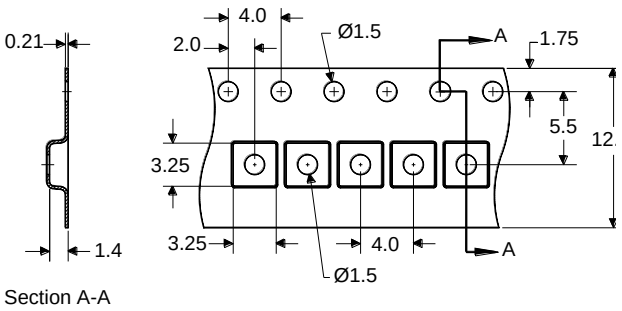
All dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width ±0.10mm

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 Information

Caution! ESD-Sensitive Device

ESD Rating: 1B
Value: Passes ≥ 550 V min.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: B
Value: Passes ≥ 350 V 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 ($C_{15}H_{12}Br_4O_2$) Free
- PFOS Free
- SVHC Free

Contact Information

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