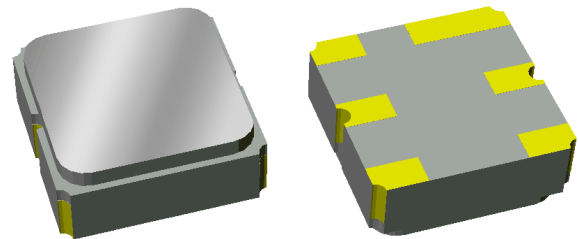


855916

2441.8 MHz SAW Filter

Applications

- For ISM applications
- Bluetooth



Product Features

- Usable bandwidth 83.5 MHz
- High Attenuation
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- No Impedance matching required for operation at 50Ω
- Small Size: 3.00 x 3.00 x 1.22 mm
- Hermetically sealed
- **RoHS** compliant, **Pb**-free

General Description

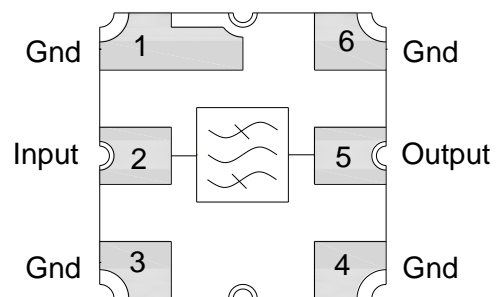
The 855916 is a high-performance RF SAW filter with a center frequency of 2441.8 and a usable bandwidth of 83.5 MHz.

It features low loss with excellent attenuation, is designed to be used with a single ended input and output, and no impedance matching is required for operation at 50Ω.

The device is RoHS compliant and Pb-free.

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 |
|------------|------------------|
| 855916 | packaged part |
| 855916-EVB | evaluation board |

Standard T/R size = 5000 units/reel.

Specifications

Electrical Specifications ⁽¹⁾

Specified Temperature Range: ⁽²⁾ 0 to +60 °C

| Parameter ⁽³⁾ | Conditions | Min | Typical ⁽⁴⁾ | Max | Units |
|-------------------------------------|-------------------|-----|------------------------|--------|--------|
| Center Frequency | | - | 2441.8 | - | MHz |
| Maximum Insertion Loss | 2400 – 2483.5 MHz | - | 2.76 | 5.0 | dB |
| Passband Ripple | 2400 – 2483.5 MHz | - | 1.2 | 2.5 | dB p-p |
| Absolute Attenuation ⁽⁵⁾ | 0.3 – 500 MHz | 25 | 34 | - | dB |
| | 500 – 1000 MHz | 20 | 29 | - | dB |
| | 1000 – 1700 MHz | 20 | 26.8 | - | dB |
| | 1700 – 2200 MHz | 20 | 26.8 | - | dB |
| | 2700 – 3100 MHz | 20 | 30.5 | - | dB |
| | 3100 – 4000 MHz | 20 | 31.8 | - | dB |
| | 4000 – 5000 MHz | 10 | 20 | - | dB |
| Input VSWR | 2400 – 2483.5 MHz | - | 2.75 | 4.55:1 | Ratio |
| Input VSWR | 2400 – 2483.5 MHz | - | 2.68 | 5.70:1 | Ratio |

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

| Parameter ⁽³⁾ | Conditions | Min | Typical ⁽⁴⁾ | Max | Units |
|--|-------------------|-----|------------------------|--------|--------|
| Center Frequency | | - | 2441.8 | - | MHz |
| Maximum Insertion Loss | 2400 – 2483.5 MHz | - | 2.76 | 5.0 | dB |
| Passband Ripple | 2400 – 2483.5 MHz | - | 1.2 | 3.0 | dB p-p |
| Absolute Attenuation ⁽⁵⁾ | 0.3 – 500 MHz | 25 | 34 | - | dB |
| | 500 – 1000 MHz | 20 | 29 | - | dB |
| | 1000 – 1700 MHz | 20 | 26.8 | - | dB |
| | 1700 – 2200 MHz | 20 | 26.8 | - | dB |
| | 2700 – 3100 MHz | 20 | 30.5 | - | dB |
| | 3100 – 4000 MHz | 20 | 31.8 | - | dB |
| | 4000 – 5000 MHz | 10 | 20 | - | dB |
| Input VSWR | 2400 – 2483.5 MHz | - | 2.75 | 4.55:1 | Ratio |
| Output VSWR | 2400 – 2483.5 MHz | - | 2.68 | 5.70:1 | Ratio |
| Load /Source Impedance (single-ended) ⁽⁶⁾ | | - | 50 | - | Ω |

Notes:

- All specifications are based on the TriQuint schematic for the main reference design shown on page 3
- In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
- Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances
- Typical values are based on average measurements at room temperature
- Relative to zero dB
- This is the optimum impedance in order to achieve the performance shown

Absolute Maximum Ratings

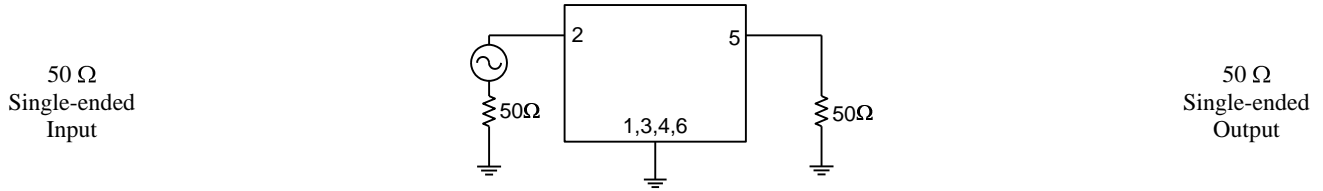
| Parameter | Rating |
|--|------------|
| Operating Temperature ⁽⁷⁾ | -40 to +85 |
| Storage Temperature | -40 to +85 |
| Input Power (CW at 2441 MHz for 10K hrs) | +10 dBm |

- Device may operate over this range with degraded Electrical Specifications

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

Reference Design 1 – 50Ω SE Input, 50Ω SE Output

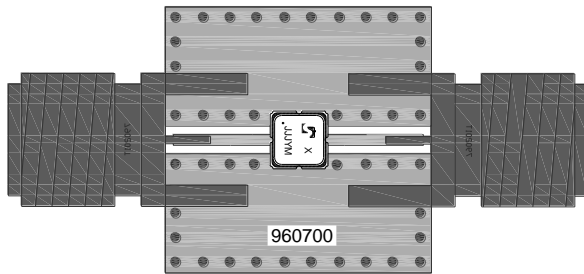
Schematic



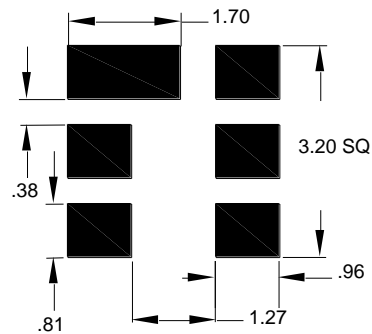
Notes:

1. No impedance matching required
2. Actual matching values may vary due to PCB layout and parasitic

PC Board



Mounting Configuration



Notes:

- Top, middle & bottom layers: 1/2 oz copper
- Substrates: FR4 dielectric .063” / Taconic TLY-5A .0075”
- Finish plating: Nickel: 3-8µm thick, Gold: .03-.2µm thick
- Hole plating: Copper min .0008µm

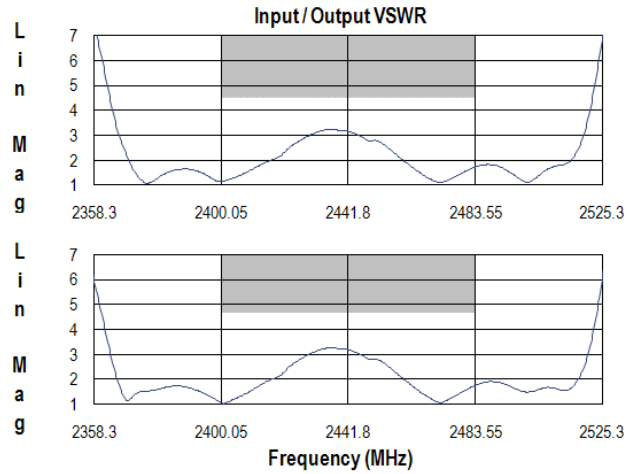
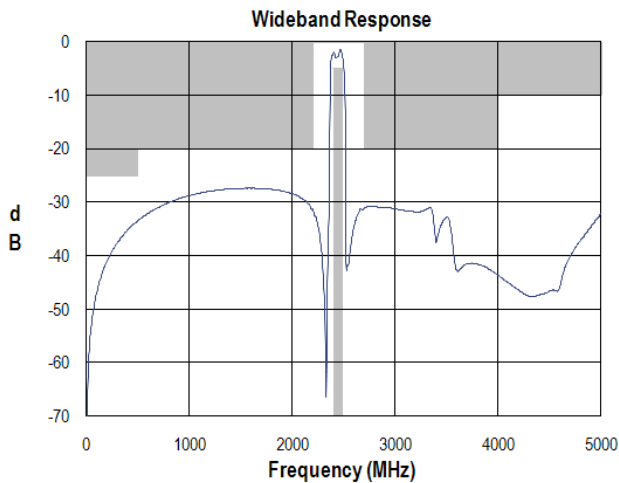
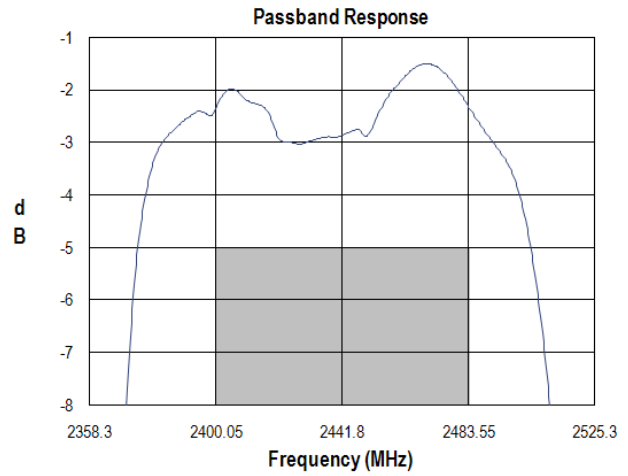
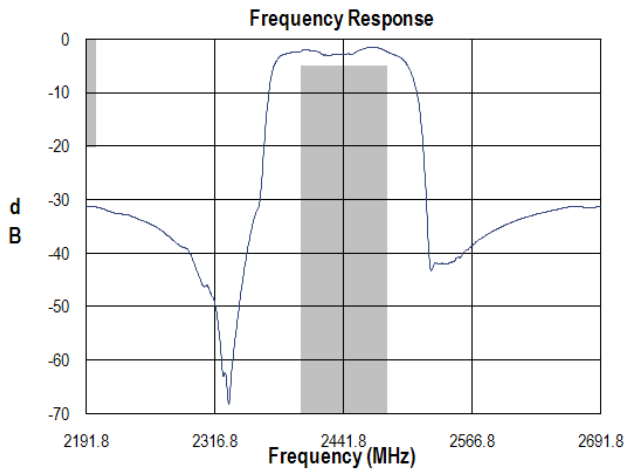
Notes:

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

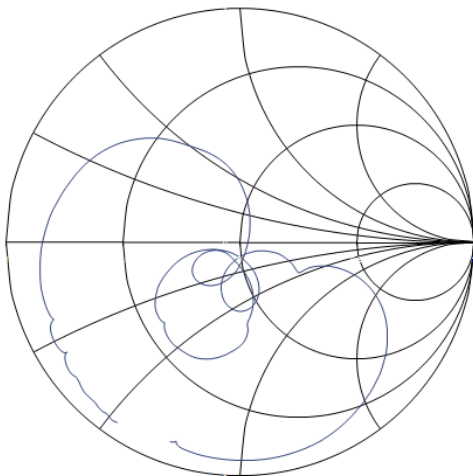
Bill of Material

| 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 |

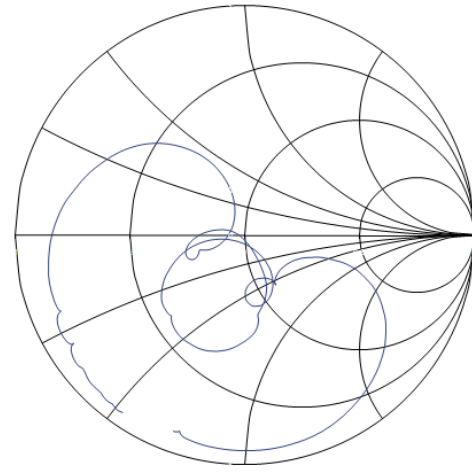
Typical Performance (at room temperature)



Input Smith Chart

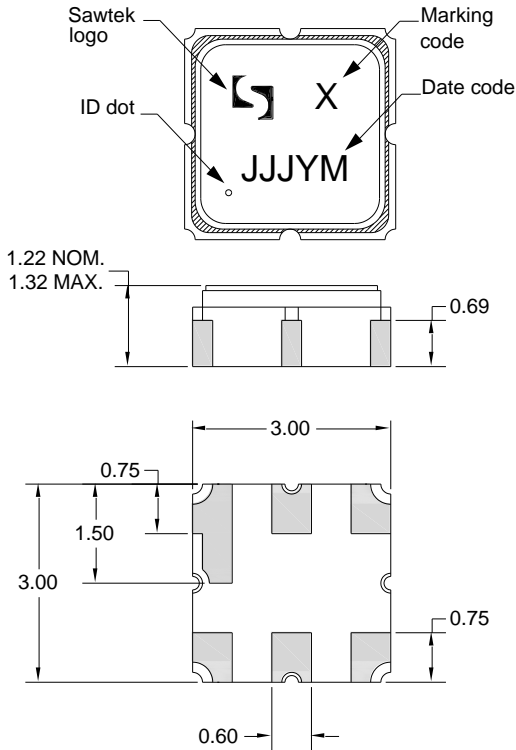


Output Smith Chart



Mechanical Information

Package Information, Dimensions and Marking



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

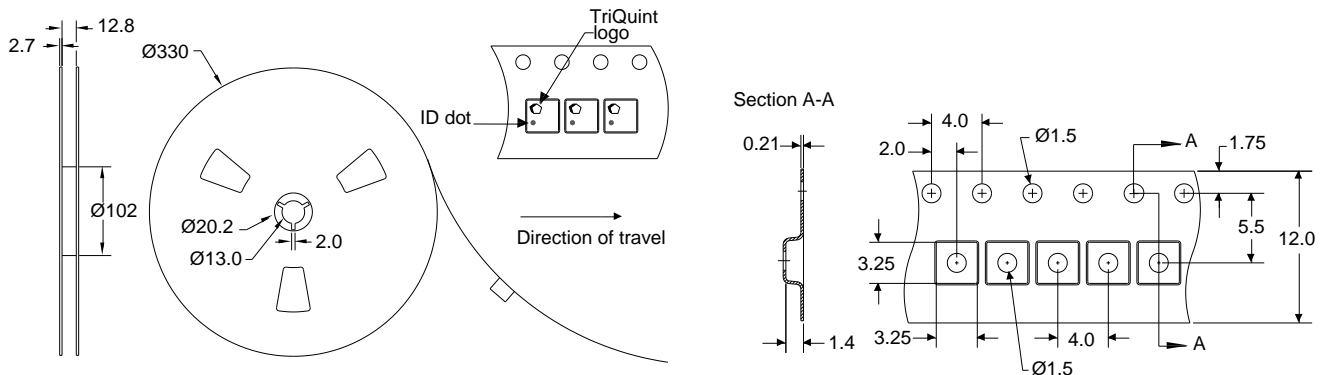
Body: Al_2O_3 ceramic
 Lid: Kovar, Ni plated
 Terminations: Au plating 0.5 - 1.0 μ m, over a 2-6 μ m Ni plating

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 ≥ 500 V min.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: B

Value: Passes ≥ 200 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 (C₁₅H₁₂Br₄O₂) Free
- PFOS Free
- SVHC Free

Contact Information

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