


Applications

- Wireless Infrastructure
- AMPS, CDMA and TDMA
- General Purpose RF Filter
- 4G, Multi-Standard
- Band 1 Uplink
- Repeaters

Product Features

- 60 MHz Bandwidth
- High Attenuation
- Single-ended Operation
- 50 Ohm Impedance
- Small Size: 3.00 x 3.00 x 1.22 mm
- Ceramic Surface Mount Package (SMP)
- Hermetically Sealed
- RoHS Compliant, Pb-Free 

General Description

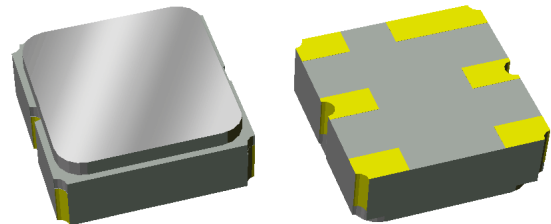
The 856678 is a Surface Acoustic Wave (SAW) based filter suitable for LTE Band 1 Uplink.

856678 is specifically designed to meet the high performance expectations of insertion loss and rejection for LTE downlink systems under all operating conditions.

This filter is housed in a compact, industry standard 3x3 mm footprint.

Low insertion loss, coupled with high attenuation makes this filter an ideal choice for Base Station Applications.

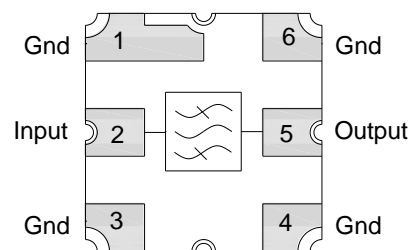
This filter is part of TriQuint's wide portfolio of RF filters.



SMP-12, 3.00 x 3.00 x 1.22 mm

Functional Block Diagram

Top View



Pin Configuration - Single Ended

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

Ordering Information

| Part No. | Description |
|------------|---------------------|
| 856678 | 1950 MHz SAW Filter |
| 856678-EVB | Evaluation board |

Standard T/R size = 5000 units/reel

Absolute Maximum Ratings

| Parameter | Rating |
|---|---------------|
| Storage Temperature ⁽¹⁾ | -40 to +85 °C |
| Operable Temperature ⁽²⁾ | -30 to +85 °C |
| DC Voltage (instantaneous only on any port) | +5 V |

Notes:

1. Operation of this device outside the parameter ranges given may cause permanent damage.
2. Specifications are not guaranteed over all operable conditions.

Electrical Specifications ^(1,2,3)

Test conditions unless otherwise noted: ⁽²⁾ Temp= -30 °C to +85 °C

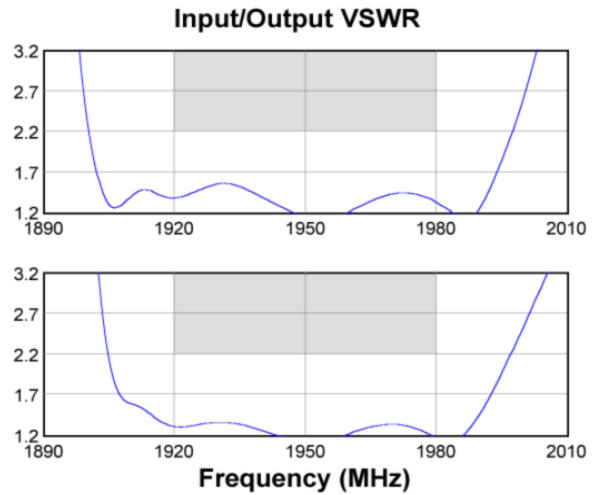
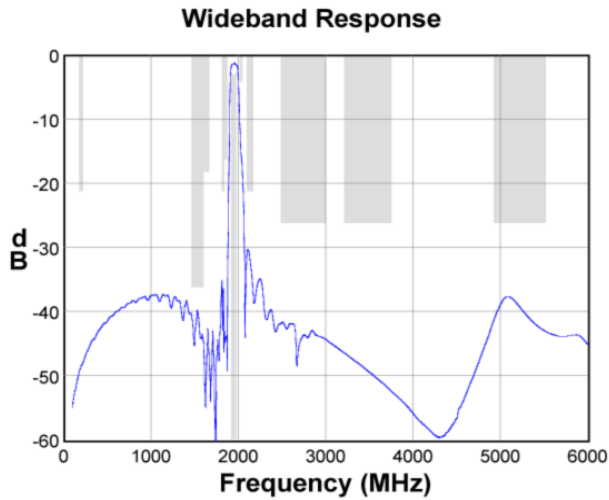
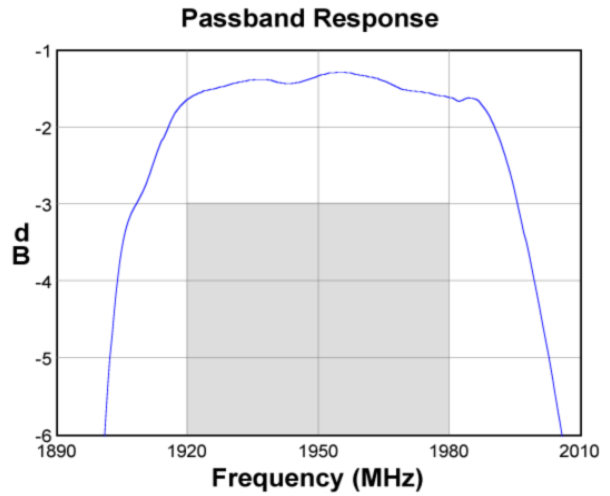
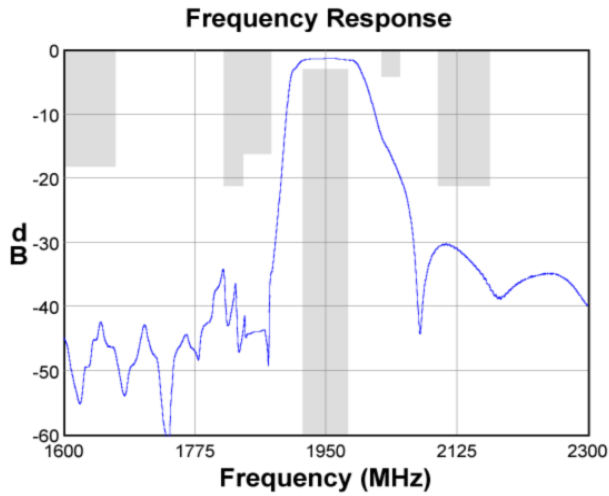
| Parameter ⁽³⁾ | Conditions | Min | Typ ⁽⁴⁾ | Max | Units |
|---|--|-------|--------------------|-----|--------|
| Center Frequency | | - | 1950 | - | MHz |
| Insertion Loss | 1920 – 1980 MHz | - | 1.8 | 3.0 | dB |
| Amplitude Variation | 1920 – 1980 MHz | | 0.45 | 1.6 | dB p-p |
| | 1920 – 1980 MHz (over any 5 MHz band) | | 0.25 | 0.8 | |
| Phase Ripple | 1920 – 1980 MHz | | 16 | 30 | Deg. |
| Absolute Delay | 1920 – 1980 MHz | | 11 | 50 | ns |
| Group Delay Variation | 1920 – 1980 MHz | | 6 | 30 | ns p-p |
| Stopband Attenuation (relative to zero dB) | 180 – 220 MHz | 20 | 49 | - | dB |
| | 1470 – 1500 MHz | 35 | 44.5 | - | |
| | 1500 – 1540 MHz | 35 | 40.5 | - | |
| | 1540 – 1570 MHz | 35 | 42 | - | |
| | 1570 – 1601 MHz | 35 | 45.5 | - | |
| | 1601 – 1670 MHz | 17 | 42 | - | |
| | 1814 – 1840 MHz | 20 | 33 | - | |
| | 1840 – 1878 MHz | 15 | 35.5 | - | |
| | 2025 – 2050 MHz | 3 | 11.5 | - | |
| | 2100 – 2170 MHz | 20 | 28 | - | |
| | 2490 – 3000 MHz | 25 | 44 | - | |
| | 3213 – 3755 MHz | 25 | 51.5 | - | |
| | 4925 – 5527 MHz | 25 | 41.5 | - | |
| Input/Output VSWR | 1920 – 1980 MHz | 1.5:1 | 2.2:1 | | - |
| Source Impedance ⁽⁵⁾ | single-ended | - | 50 | - | Ohms |
| Load Impedance ⁽⁵⁾ | single-ended | - | 50 | - | Ohms |

Notes:

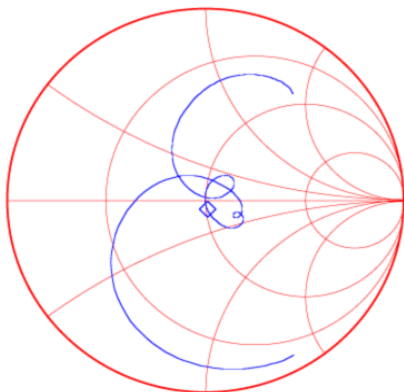
1. All specifications are based on the test circuit shown below.
2. Production test is performed at room temp. to a guard-banded specification to ensure electrical compliance over temperature.
3. Electrical margin has been built into the design to account for variation due to temperature drift and manufacturing tolerances.
4. Typical values are based on average measurements at room temperature
5. This is the optimum impedance in order to achieve the performance shown.

Performance Plots

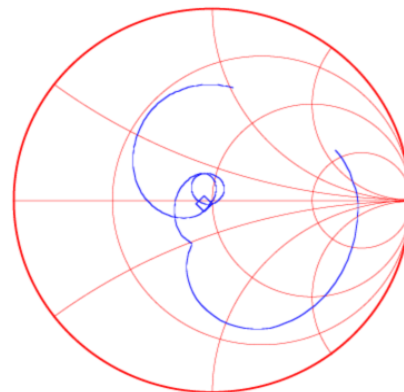
Test conditions unless otherwise noted: Temp= +25°C



Input Smith Chart



Output Smith Chart

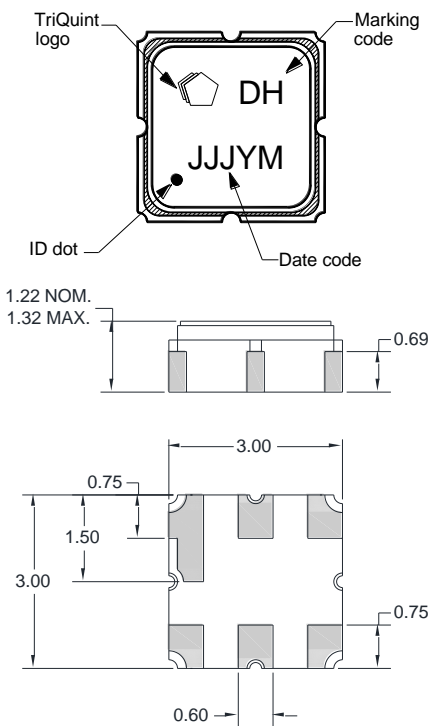


Package Information, Marking and Dimensions

Package Style: SMP-12A

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

The date code consists of JJJ = Julian day, Y = last digit of the year, and M = manufacturing site code

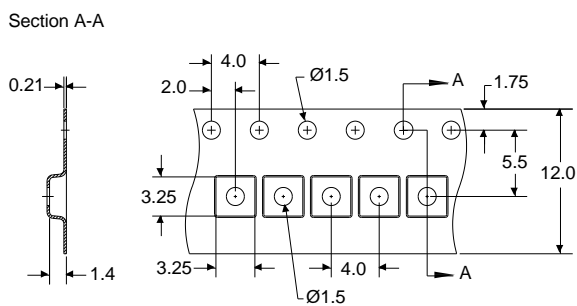
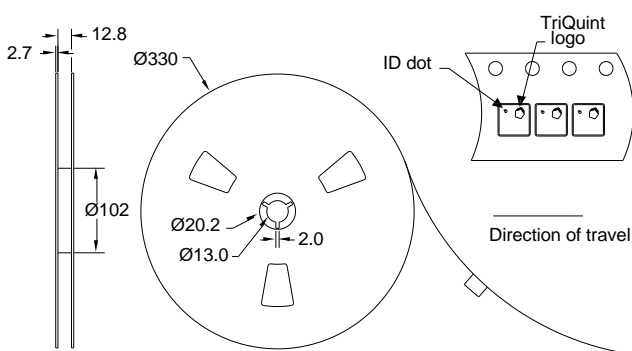


Notes:

1. All dimensions shown are typical in millimeters
2. All tolerances are ± 0.15 mm except overall length and width ± 0.10 mm
3. An asterisk (*) in front of the marking code indicates prototype.

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: Class 0A
Value: Passes ≤ 100 V
Test: Electrostatic Discharge Sensitivity Testing,
Human Body Model (HBM) - component level
Standard: ESDA/JEDEC JS-001-2012

ESD Rating: Class A
Value: Passes ≤ 50 V
Test: Machine Model (MM)
Standard: JEDEC Standard JESD22-A115

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 (C₁₅H₁₂Br₄O₂) Free
- PFOS Free
- SVHC Free

Contact Information

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