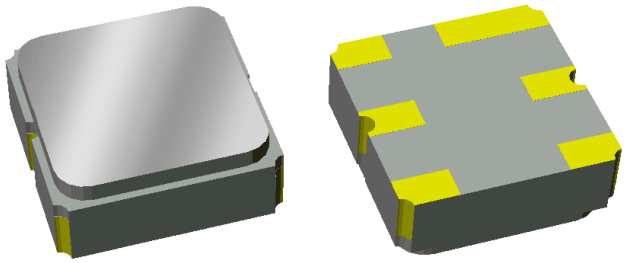
TriQuint SEMICONDUCTOR

# Data Sheet

## Part Number 856928
## 1445.4 MHz SAW Filter

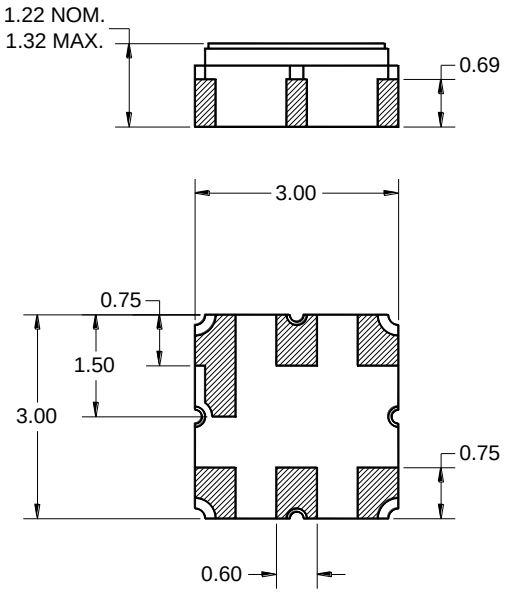
## Features

- For Base Stations applications
- Usable bandwidth 35 MHz
- Low loss
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Small Size
- Hermetic
- **RoHS** compliant (2002/95/EC), **Pb**-free

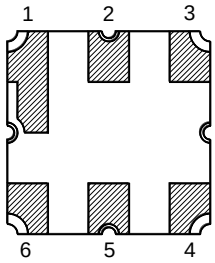


## Pin Configuration

Surface Mount 3.00 x 3.00 x 1.22 mm
SMP-12




Bottom View




| Pin No. | Description |
|---|---|
| 2 | Input |
| 5 | Output |
| 1,3,4,6 | Case ground |

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

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

## Electrical Specifications [1] [2]

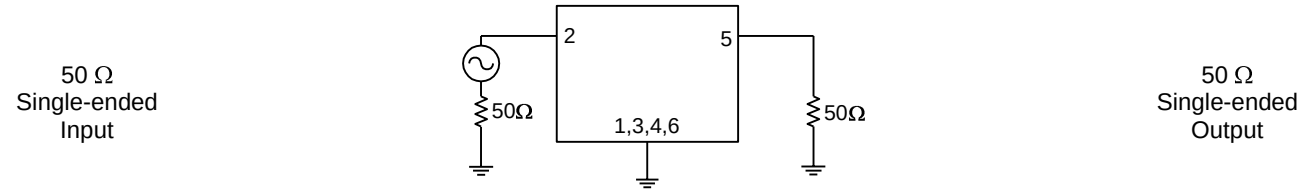
**Operated Temperature Range:** [3] -30 to +85 °C

| Parameter [4] | Minimum | Typical [5] | Maximum | Unit |
|---|---|---|---|---|
| **Center Frequency** | - | 1445.4 | - | MHz |
| **Maximum Insertion Loss** | | | | |
| 1427.9 – 1462.9 MHz | - | 1.25 | 2.5 | dB |
| **Amplitude Variation** | | | | |
| 1427.9 – 1462.9 MHz | - | 0.4 | 1.2 | dB p-p |
| 1427.9 – 1462.9 MHz (Over any 5 MHz range) | - | 0.3 | 0.8 | dB p-p |
| **VSWR** | | | | |
| 1427.9 – 1462.9 MHz | - | 1.7 | 2 | - |
| **Phase Ripple** | | | | |
| 1427.9 – 1462.9 MHz | - | 12.0 | 35 | deg |
| **Absolute Delay** | | | | |
| 1427.9 – 1462.9 MHz | - | 14.0 | 35 | ns |
| **Group Delay Variation** | | | | |
| 1427.9 – 1462.9 MHz | - | 11.0 | 30 | ns p-p |
| **Relative Attenuation** [6] | | | | |
| 60 – 120 MHz | 30 | 41.6 | - | dB |
| 300 – 500 MHz | 24 | 30.0 | - | dB |
| 1240 – 1280 MHz | 24 | 28.5 | - | dB |
| 1390 – 1407.9 MHz | 10 | 16.9 | - | dB |
| 1495.9 – 1521 MHz | 20 | 23.3 | - | dB |
| 1600 – 1710 MHz | 25 | 31.2 | - | dB |
| 2140 – 2180 MHz | 37 | 38.8 | - | dB |
| 3200 – 4000 MHz | 5 | 8.3 | - | dB |
| **Source Impedance (single-ended)** [7] | - | 50 | - | Ω |
| **Load Impedance (single-ended)** [7] | - | 50 | - | Ω |

**Notes:**
1. All target specifications are based on TriQuint test circuit shown below
2. All target specifications represent a design goal and not a guarantee until the design is finalized and a datasheet is issued
3. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
4. Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances
5. Typical values are based on average measurements at room temperature
6. Attenuation relative to Maximum Insertion Loss
7. This is the optimum impedance In order to achieve the performance shown

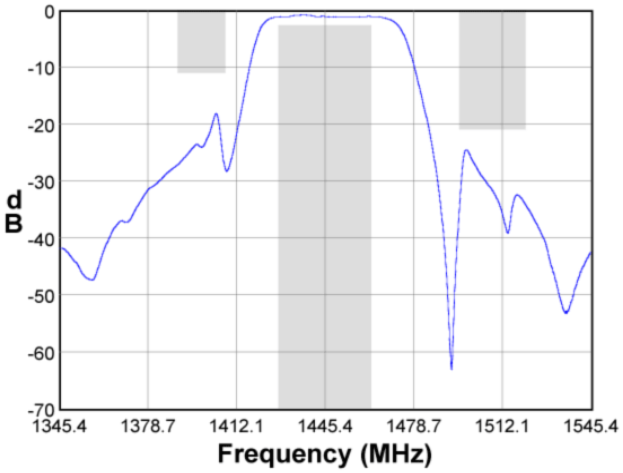
**Test Circuit:**

Actual matching values may vary due to PCB layout and parasitics

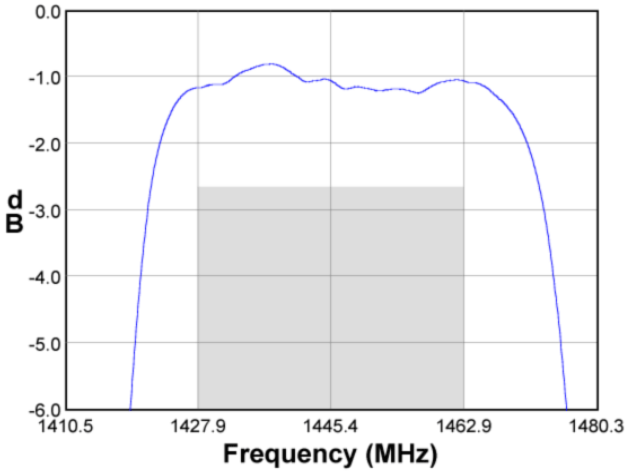


## Typical Performance (at +25°C)

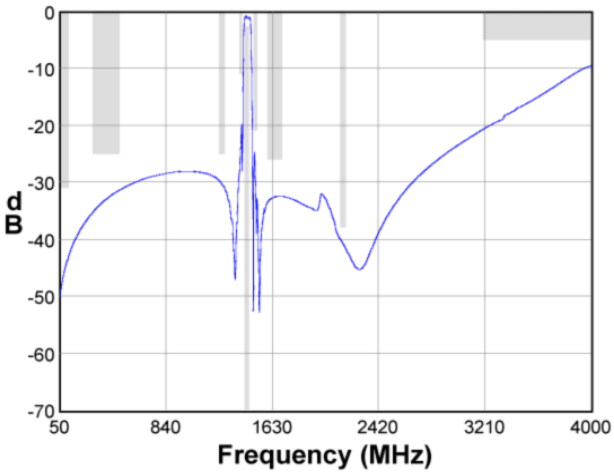
Frequency Response



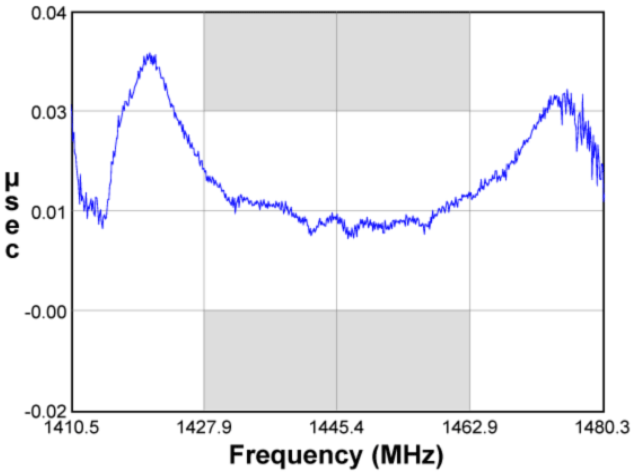

Passband Response



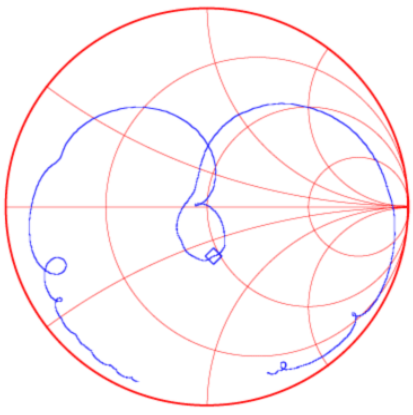

Wideband Response



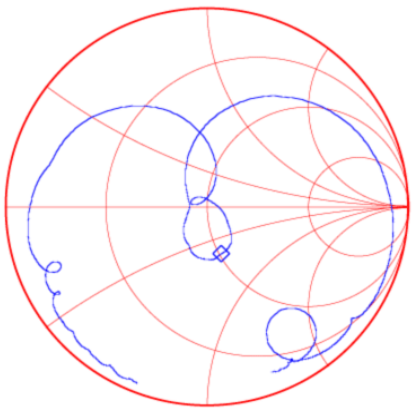

Group Delay Response




Input Smith Chart



Output Smith Chart



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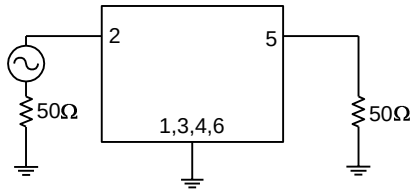
# Data Sheet

# Part Number 856928
# 1445.4 MHz SAW Filter

## Matching Schematics

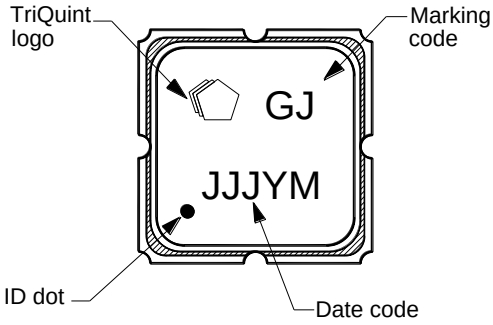
Actual matching values may vary due to PCB layout and parasitics

50 Ω
Single-ended
Input



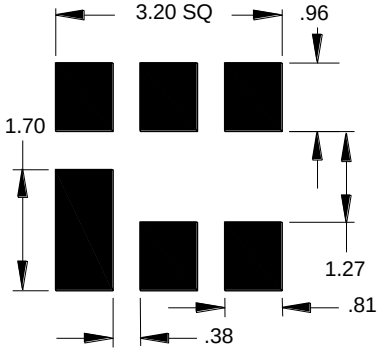

50 Ω
Single-ended
Output

## Marking



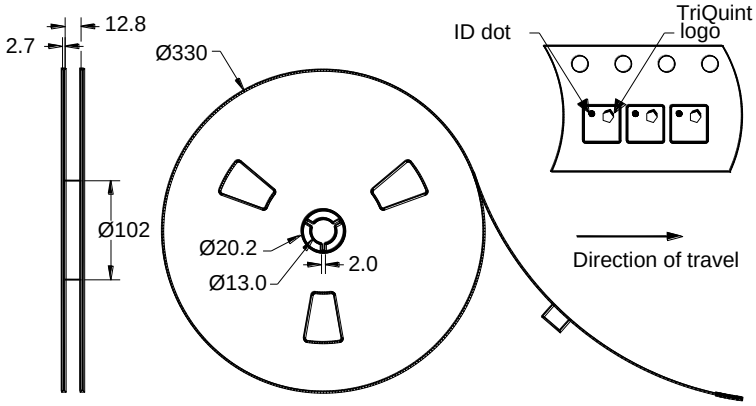

The date code consists of: day of the current year (Julian, 3 digits), Y = last digit of the year and M = manufacturing site code

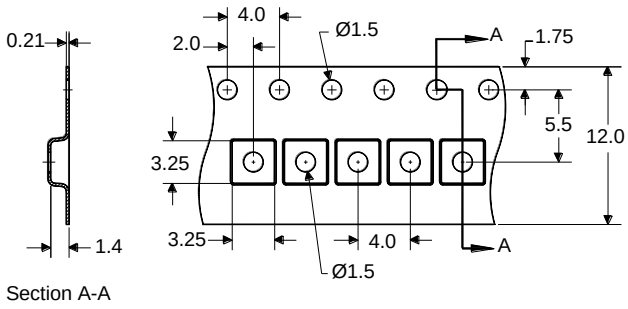
## PCB Footprint




This footprint represents a recommendation only
Dimensions shown are nominal in millimeters

## Tape and Reel




Dimensions shown are nominal in millimeters
Packaging quantity: 5000 units/reel

## Maximum Ratings

| Parameter | Symbol | Minimum | Maximum | Unit |
|---|---|---|---|---|
| Operating Temperature Range | T | -30 | +85 | $^{o}$C |
| Storage Temperature Range | $T_{stg}$ | -40 | +85 | $^{o}$C |
| Input Power [1] | $P_{in}$ | - | +22 | dBm |

**Note:**

1. Input Power is targeted for an applied CW modulated RF signal at 55 $^{0}$C for 125 hours

## Important Notes

### Warnings

- Electrostatic Sensitive Device (ESD)
- Avoid ultrasonic exposure

### RoHS Compliance

- This product complies with EU directive 2002/95/EC (RoHS)

### Solderability

- Compatible with JEDEC J-STD-020C **Pb**-free process, **260°C** peak reflow temperature

## Links to Additional Technical Information

PCB Layout Tips | Qualification Flowchart | Soldering Profile

S-Parameters | RoHS Information | Other Technical Information



## Contact Information

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