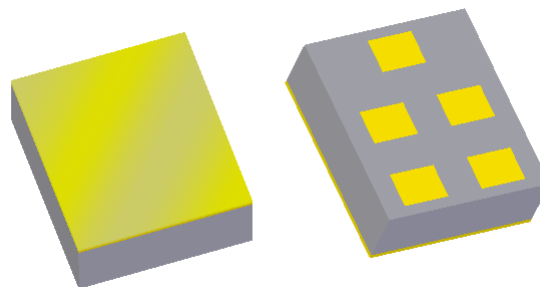



Applications

- For GPS application
- Suitable for Automotive applications-
Compliant to the AEC-Q200 reliability standard



Surface Mount 1.40 x 1.20 x 0.46 mm

Product Features

- Compatible with leading chipset suppliers
- Low loss
- Usable bandwidth of 2 MHz
- Single-ended operation
- Ceramic Chip Scale Package (CSP)
- Hermetic
- Manufacturing facilities are certified with ISO/TS 16949:2002
- **RoHS** compliant (2002/95/EC), **Pb-free** 

General Description

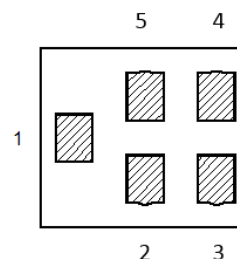
The 856561 is a high-performance SAW filter designed for GPS applications. It is suitable for Automotive applications too.

Dimensions shown are nominal in millimeters
All tolerances are $\pm 0.10\text{mm}$

Body: Al₂O₃ ceramic
Lid: Kovar or Alloy 42, Au over Ni plated
Terminations: Au plating 0.5 - 1.0 μm ,
over a 2 - 6 μm Ni plating

Functional Block Diagram

Top view



Pin Configuration

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

Ordering Information

Part No.	Description
856561	Packaged part
856561-EVB	Evaluation board

Standard T/R size = 10,000 units/reel.

Electrical Specifications ⁽¹⁾

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

Parameter ⁽³⁾	Minimum	Typical ⁽⁴⁾	Maximum	Unit
Center Frequency	-	1575.42	-	MHz
<i>Insertion Loss</i>				
1574.42 - 1576.42 MHz (-30 to +85 °C)	-	0.75	1.2	dB
1574.42 - 1576.42 MHz	-	0.75	1.4	dB
<i>Absolute Attenuation</i> ⁽⁵⁾				
0.1 - 824 MHz	32	36	-	dB
824 - 849 MHz	33.5	36	-	dB
849 - 960 MHz	32	36	-	dB
1495 - 1515 MHz	25	31	-	dB
1635 - 1655 MHz	35	40	-	dB
1710 - 1750 MHz	35	39	-	dB
1750 - 1780 MHz	35	39	-	dB
1780 - 1785 MHz	35	39	-	dB
1850 - 1910 MHz	35	39	-	dB
1920 - 1980 MHz	35	39	-	dB
2402 - 2480 MHz	25	35	-	dB
3000 - 4000 MHz	10	15	-	dB
4000 - 6000 MHz	10	15	-	dB
<i>Input/output Return Loss</i>				
1574.42 - 1576.42 MHz	10	15	-	dB
<i>Source Impedance (single-ended)</i> ⁽⁶⁾	-	50	-	Ω
<i>Load Impedance (single-ended)</i> ⁽⁶⁾	-	50	-	Ω

Notes:

- (1) All specifications are based on the TriQuint test circuit shown below
- (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) Relative to zero dB
- (6) This is the optimum impedance in order to achieve the performance shown

Absolute Maximum Ratings

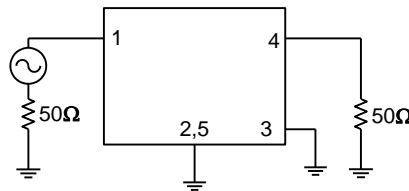
Parameter	Rating
Operating Temperature ⁽⁷⁾	-40 to +85 °C
Storage Temperature	-40 to +85 °C
Power handling 824-849 Mhz, 1850-1910 Mhz	+20 dBm +20 dBm ⁽⁸⁾

Notes:

- (7) The SAW filter will function over the recommended range without degradation in reliability or permanent change in performance, but is not guaranteed to meet electrical specifications.
- (8) Power handling will be CW signal for 10,000 hours at +55 °

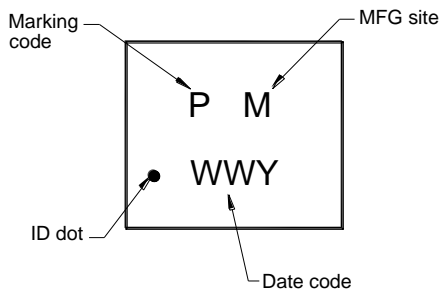
Matching Schematics

50 Ω
Single-ended
Input



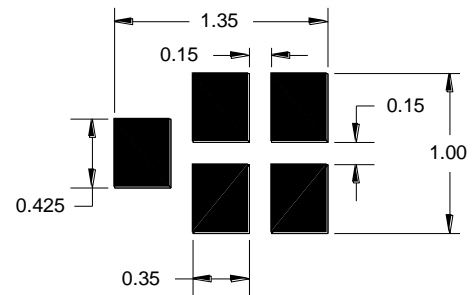
50 Ω
Single-ended
Output

Marking



The date code consists of: WW = 2 digit week,
Y = last digit of year, M = manufacturing site code

PCB Footprint

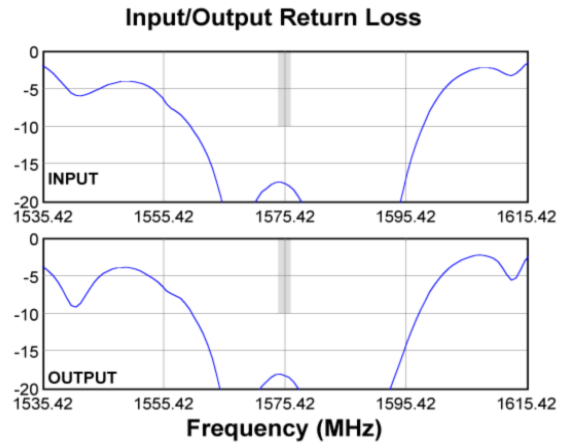
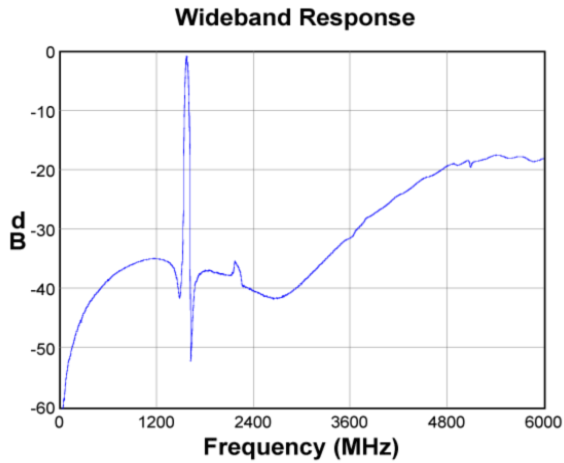
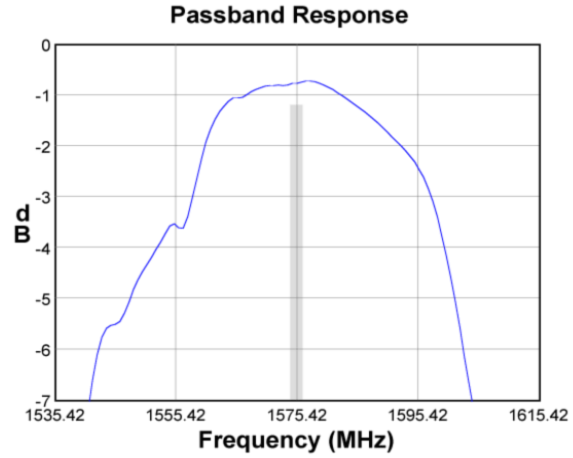
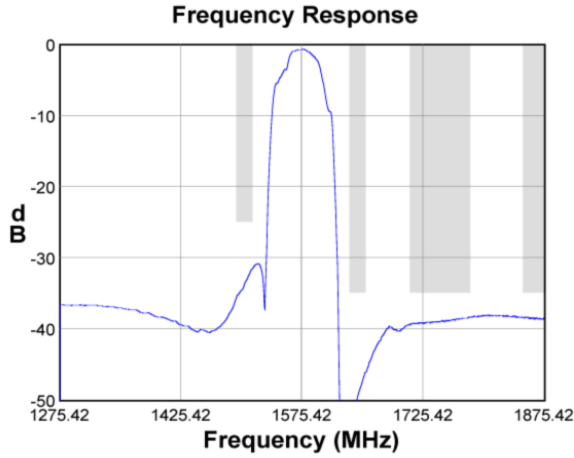


This footprint represents a recommendation only
Dimensions shown are nominal in millimeters

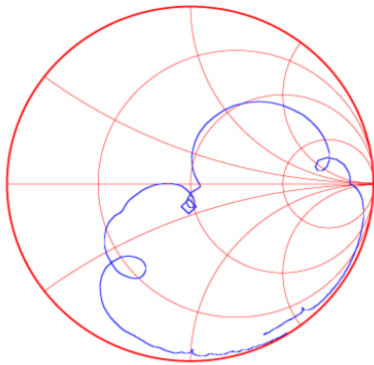
Notes:

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

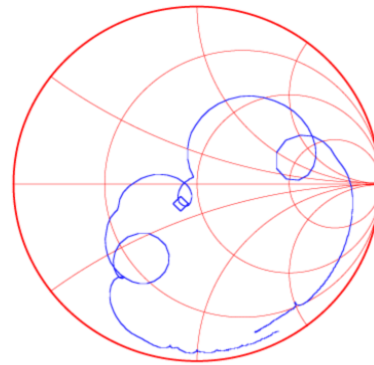
Typical Performance (at room temperature)



Input Smith Chart

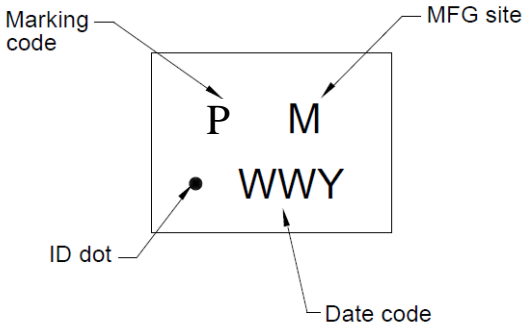


Output Smith Chart



Mechanical Information

Package Information, Dimensions and Marking

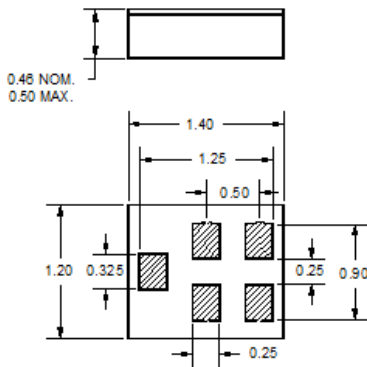


Package Style: CSP-5BT
Dimensions: 1.40 x 1.20 x 0.46 mm

Body: Al_2O_3 ceramic
Lid: Kovar or Alloy 42, Au over Ni plated
Terminations: Au plating 0.5 - 1.0 μ m, over a 2-6 μ m Ni plating

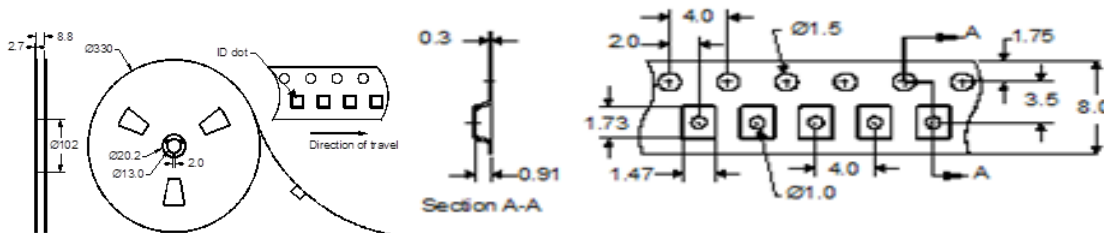
All dimensions shown are nominal in millimeters
All tolerances are ± 0.15 mm except overall length and width : ± 0.10 mm

The date code consists of:
WW = 2 digit week,
Y = Last digit of year,
M = Manufacturing site code



Tape and Reel Information

Standard T/R size = 10,000 units/reel. All dimensions are in millimeters



Product Compliance Information

ESD Information



Caution! ESD-Sensitive Device

ESD Rating: 3A
Value: TBD.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: C
Value: TBD
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

For the latest specifications, additional product information, worldwide sales and distribution locations, and information about TriQuint:

Web: www.triquint.com
Email: info-sales@tqs.com

Tel: +1.407.886.8860
Fax: +1.407.886.7061

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