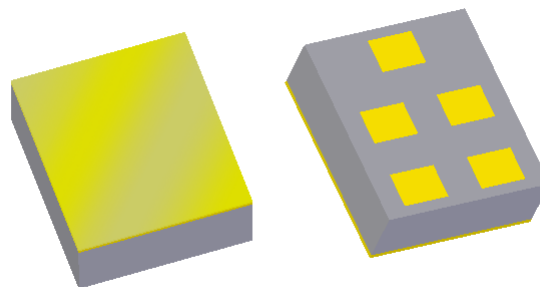



Applications

- 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

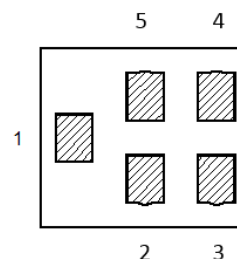
The 856561 is a high-performance SAW filter designed for GPS applications. It is suitable for Automotive applications too.

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

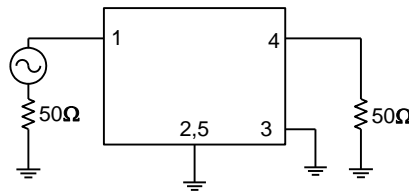
Parameter	Rating
Operating Temperature ⁽⁷⁾	-40 to +85 °C
Storage Temperature	-40 to +85 °C
Power handling 824-849 Mhz, 1850-1910 Mhz	+20 dBm +20 dBm ⁽⁸⁾

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 °

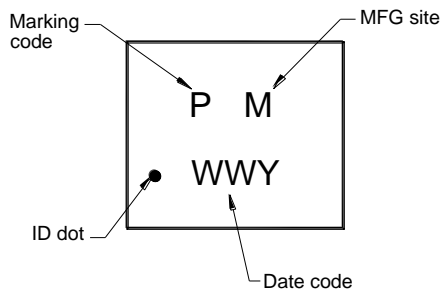
Matching Schematics

50 Ω
Single-ended
Input



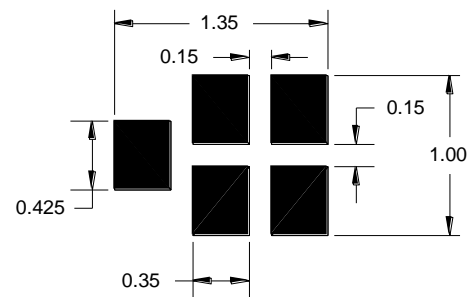
50 Ω
Single-ended
Output

Marking



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

PCB Footprint

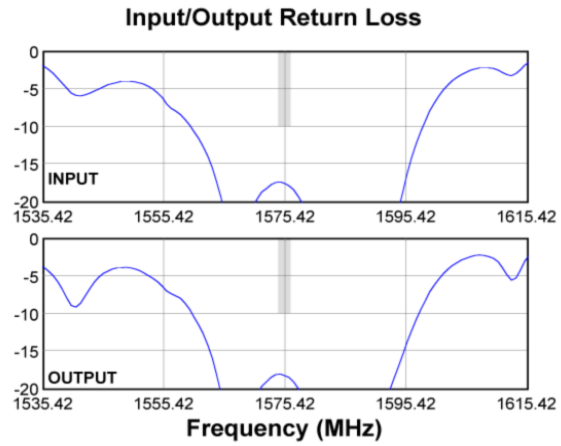
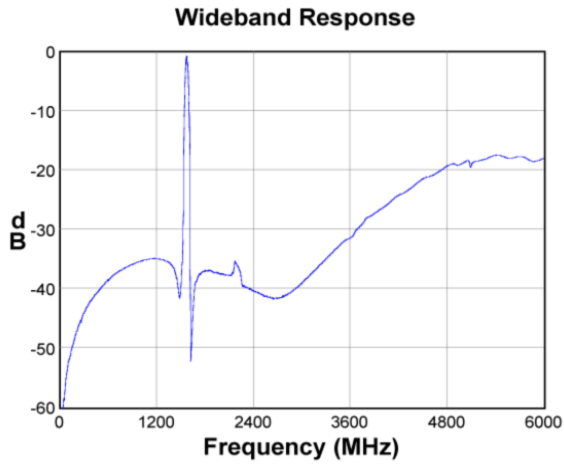
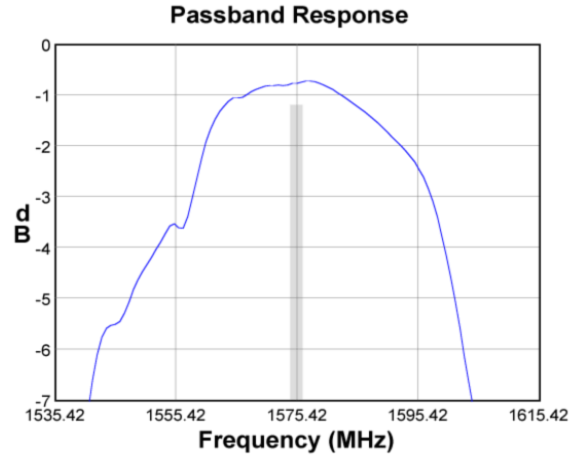
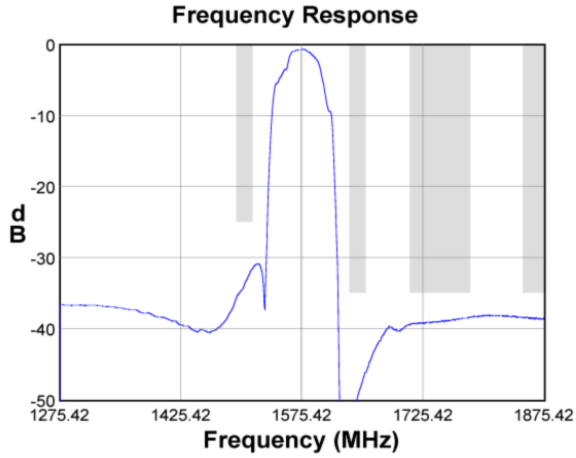


This footprint represents a recommendation only
Dimensions shown are nominal in millimeters

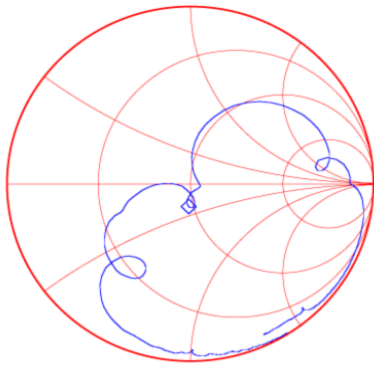
Notes:

- Actual matching may vary due to PCB layout and parasitic

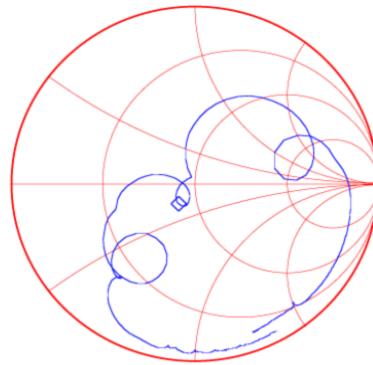
Typical Performance (at room temperature)



Input Smith Chart

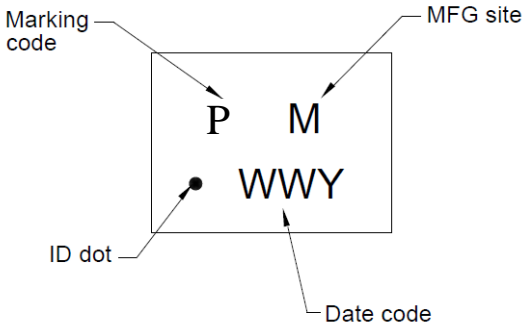


Output Smith Chart



Mechanical Information

Package Information, Dimensions and Marking

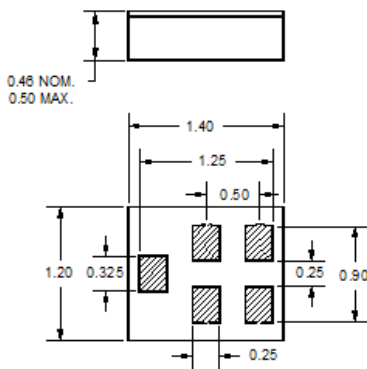


Package Style: CSP-5BT
Dimensions: 1.40 x 1.20 x 0.46 mm

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

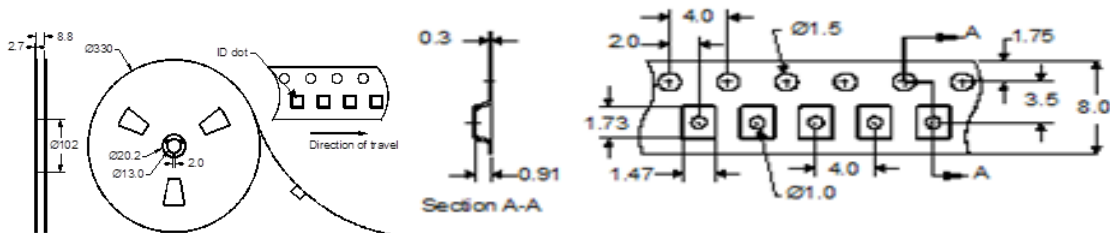
All dimensions shown are nominal in millimeters
All tolerances are ± 0.15 mm except overall length and width : ± 0.10 mm

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

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