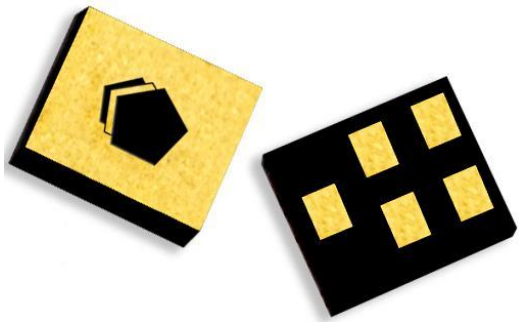
857140

1575.42 MHz SAW Filter

Applications

- For GPS applications

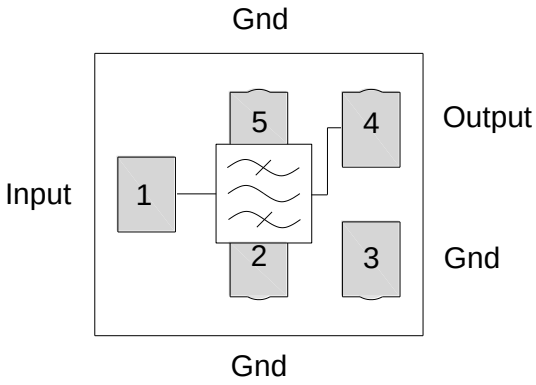


Product Features

- High attenuation
- Usable bandwidth 20.46 MHz
- Single-ended operation
- Ceramic chip-scale Package (CSP)
- Small Size: 1.40 x 1.20 x 0.46 mm
- Hermetically Sealed
- **RoHS** compliant, **Pb**-free

Functional Block Diagram

Top view



General Description

857140 is specifically designed for GPS applications.

857140 uses advanced and inexpensive packaging techniques to achieve an extremely small 1.40 x 1.20 x 0.46 mm hermetically sealed package.

Pin Configuration

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

Ordering Information

Part No.	Description
857140	packaged part
857140-EVB	evaluation board

Standard T/R size = 10000 units/reel.

Absolute Maximum Ratings

Parameter	Rating
Operating Temperature	-55 to + 85 °C
Storage Temperature (1)	-55 to + 85 °C
RF Input Power (2)	+15 dBm

Notes:
1. Device may operate over this range with degraded Electrical Specifications.
2. Device is measured for equivalent 10K hours @ + 85 °C [CW Signal]

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

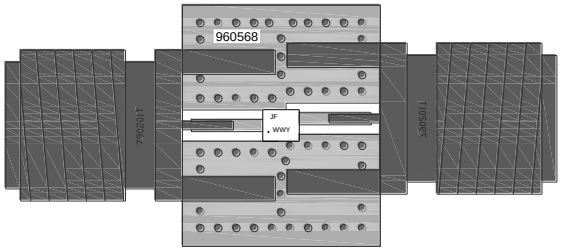
Electrical Specifications (1)

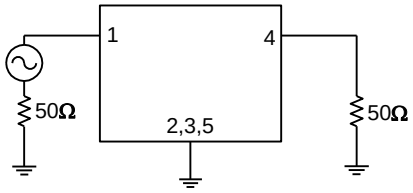
Test conditions unless otherwise noted: (2) −55 °C to +85 °C

Parameter (3)	Conditions	Min	Typical (4)	Max	Units
Center Frequency		-	1575.42	-	MHz
Maximum Insertion Loss	1574.22 – 1576.62 MHz	-	2.6	3.5	dB
Lower 4.5dB Bandedge		-	1547.60	1565.19	MHZ
Upper 4.5dB Bandedge		1585.65	1596.14	-	MHZ
Lower 21dB Bandedge		1525.42	1538.91	-	MHZ
Upper 21dB Bandedge		-	1611.22	1625.42	MHZ
Amplitude Variation	1574.22 – 1576.62 MHz	-	0.09	0.2	dB p-p
Relative Attenuation (5)	824 – 960 MHz	20	38.3	-	dB
	1500 – 1525.42 MHz	21	37.6	-	dB
	1625.42 – 1650 MHz	21	35.6	-	dB
	1710 – 2170 MHz	20	37.2	-	dB
Input Return Loss	1574.22 – 1576.62 MHz	10	11.5	-	dB
Output Return Loss	1574.22 – 1576.62 MHz	10	12.1	-	dB
Source Impedance (Single-ended) (6)		-	50	-	Ω
Load Impedance (Single-ended) (6)		-	50	-	Ω

Notes:
1. All specifications are based on the TriQuint schematic shown on page 3.
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.

Evaluation Board



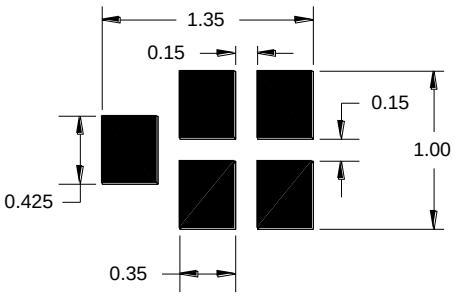


Notes:
Top, middle & bottom layers: 1 oz copper
Substrates: FR4 dielectric, .031" thick
Finish plating: Nickel: 3-8µm thick, Gold: .03-.2µm thick
Hole plating: Copper min .0008µm thick

Bill of Material

Reference Des.	Value	Description	Manuf.	Part Number
U1	N/A	1575.42 MHz SAW Filter	TriQuint	857140
SMA	N/A	SMA connector	Radiall	9602-1111-018
PCB	N/A	3 Layer	Multiple	960568

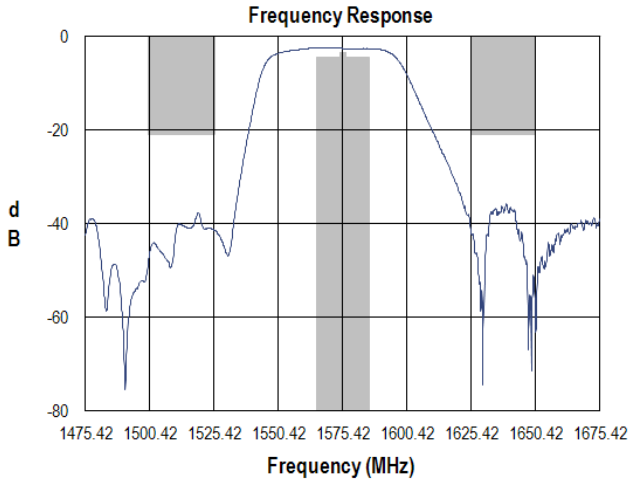
PCB Mounting Pattern

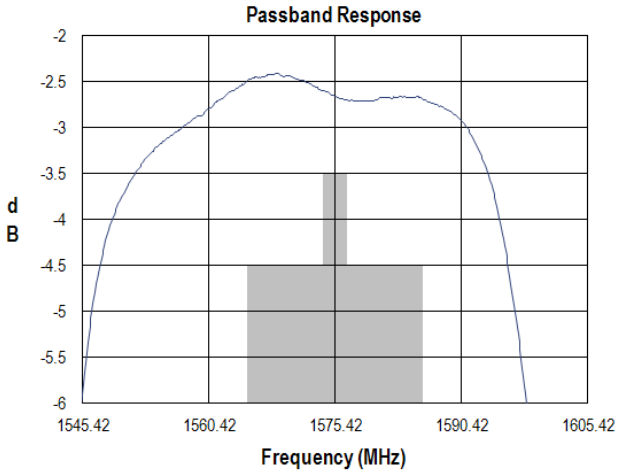


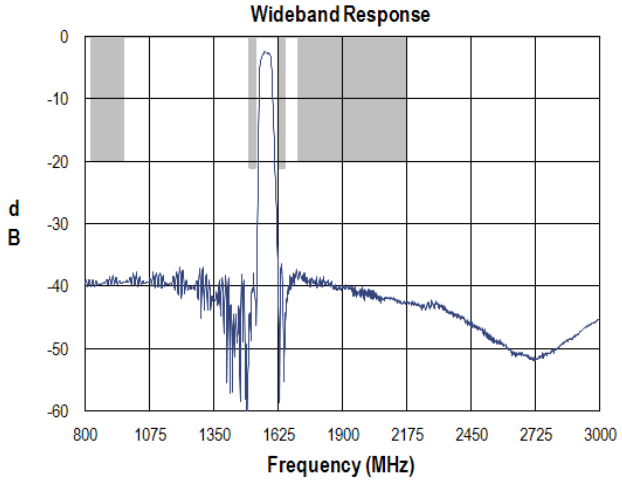
Notes:
1. All dimensions are in millimeters.
2. This footprint represents a recommendation only.

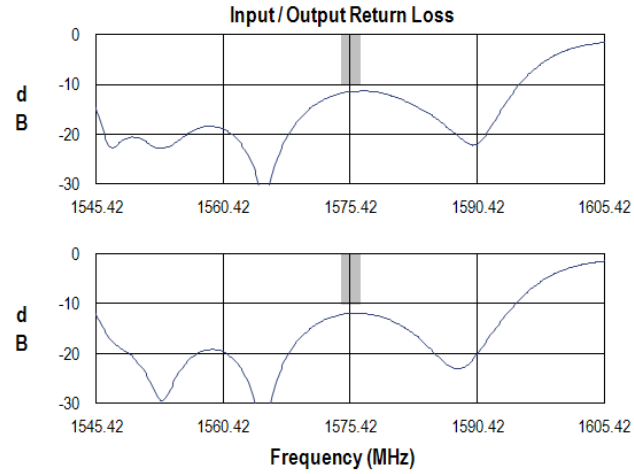
Performance Plots

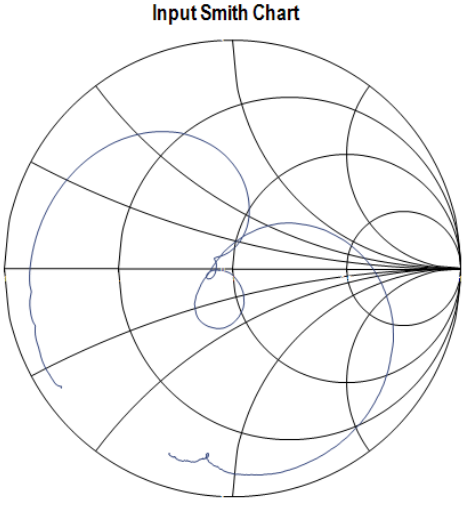
Test conditions unless otherwise noted: Temp= +25 °C

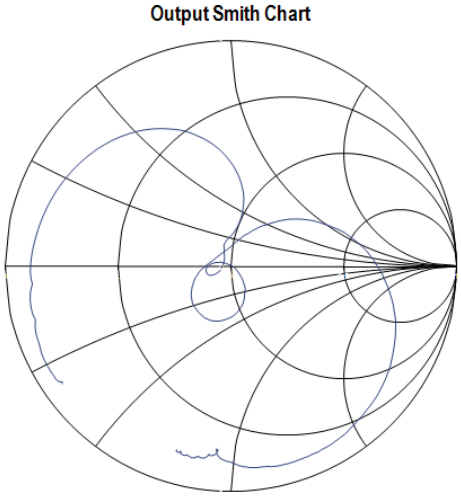




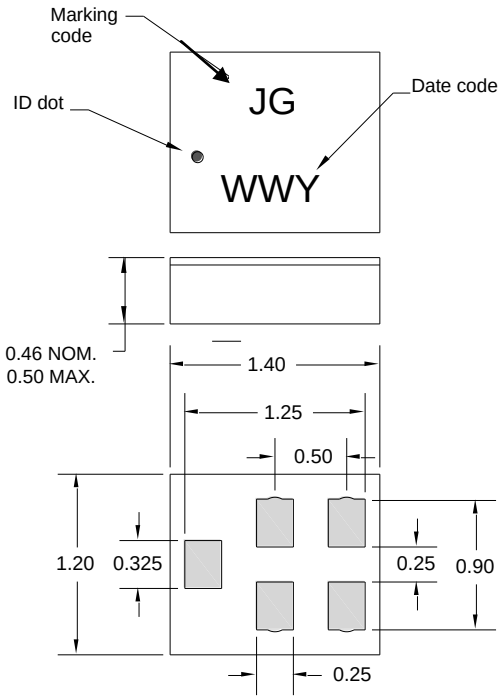








Package Information, Marking and Dimensions



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 - 1.0µm, over a 2-6µm *Ni* plating

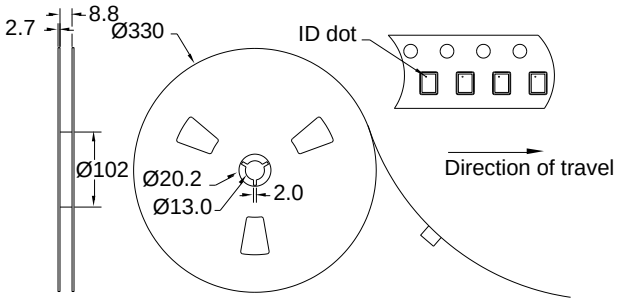
The date code consists of: WW = 2 digit week and Y = last digit of year

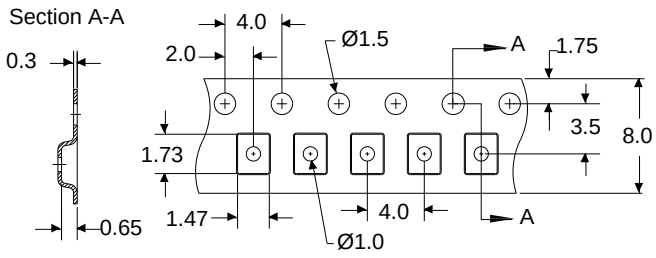
Notes:

1. All dimensions shown are Typical in millimeters
2. All tolerances are ±0.05 mm except overall length and width ±0.10mm.
3. An asterisk (*) in front of the marking code indicates prototype.

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: Class 1A
Test: Human Body Model (HBM)
Standard: ESDA/JEDEC JS-001

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 ($C_{15}H_{12}Br_4O_2$) Free
PFOS Free
SVHC Free

Contact Information

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

Web: www.triquint.com **Tel: 877-800-8584**
Email: customer.support@qorvo.com

For information about the merger of RFMD and TriQuint as Qorvo:

Web: www.qorvo.com

For technical questions and application information: **Email:** flapplication.engineering@tqs.com

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