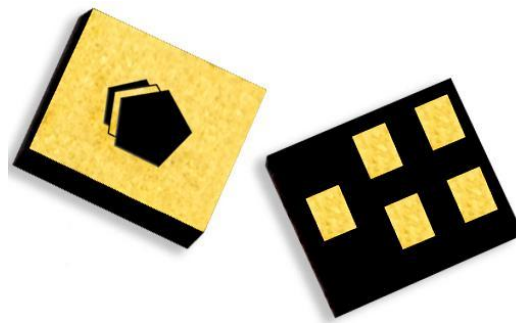


857038

836.5 MHz SAW Filter

Applications

- For CDMA applications
- For Automotive Telematics applications



Product Features

- Usable bandwidth 25 MHz
- Single-ended operation
- Ceramic chip-scale Package (CSP)
- Qualified for automotive applications
- Small Size: 1.40 x 1.20 x 0.46 mm
- Hermetically Sealed
- **RoHS** compliant, **Pb**-free

General Description

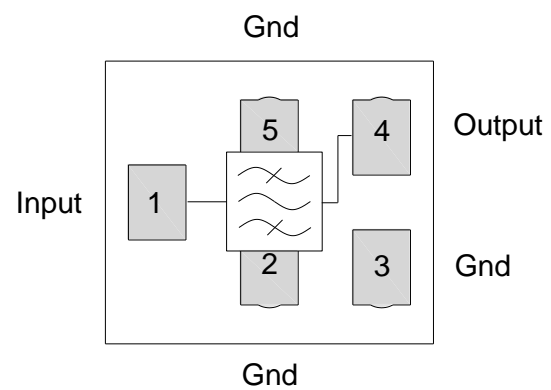
857038 is an 836.5 MHz CDMA filter with low insertion loss & excellent rejection.

857038 is ideal for automotive telematics applications. It achieves its performance over an extended temperature range and has been qualified to AEC-Q200 requirements. In addition, it is fabricated and packaged in TS-16949-certified facilities.

857038 uses advanced and inexpensive packaging techniques to achieve an extremely compact hermetically sealed 1.2 x 1.4 x 0.46 mm package.

Functional Block Diagram

Top view



Pin Configuration

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

Ordering Information

Part No.	Description
857038	packaged part
857038-EVB	evaluation board

Standard T/R size = 10000 units/reel.

Specifications

Electrical Specifications ⁽¹⁾

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

Parameter ⁽³⁾	Conditions	Min	Typical ⁽⁴⁾	Max	Units
Center Frequency		-	836.5	-	MHz
Maximum Insertion Loss	824 – 849 MHz	-	2.3	3.0	dB
Amplitude Variation	824 – 849 MHz	-	1.0	2.0	dB p-p
Absolute Attenuation ⁽⁵⁾	10 – 800 MHz	30	45	-	dB
	869 – 894 MHz	40	50	-	dB
	1574.42 – 1576 MHz	28	39	-	dB
	1638 – 1708 MHz	27	38	-	dB
	1930 – 1990 MHz	25	35	-	dB
	2110 – 2170 MHz	24	34	-	dB
	2462 – 2557 MHz	20	33	-	dB
	3286 – 3406 MHz	10	30	-	dB
Input Return Loss	824 – 849 MHz	8.5	10	-	dB
Output Return Loss	824 – 849 MHz	8.5	10	-	dB
Source Impedance (Single-ended) ⁽⁶⁾		-	50	-	Ω
Load Impedance (Single-ended) ⁽⁶⁾		-	50	-	Ω

Notes:

- All specifications are based on the TriQuint schematic for the main reference design shown on page 3
- In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
- Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances
- Typical values are based on average measurements at room temperature
- Relative to zero dB.
- This is the optimum impedance in order to achieve the performance shown

Absolute Maximum Ratings

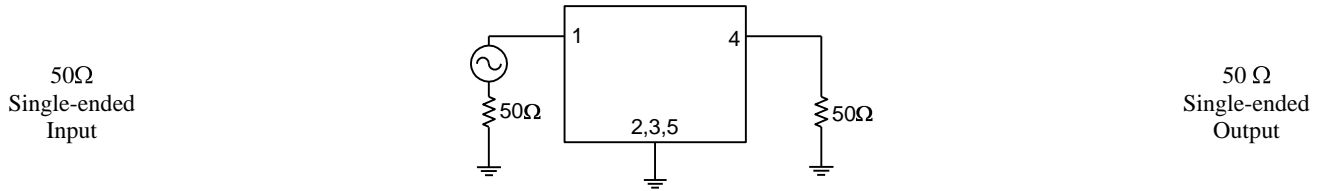
Parameter	Rating
Operating Temperature ⁽⁷⁾	-40 to +85 °C
Storage Temperature	-40 to +85 °C

- Device may operate over this range with degraded Electrical Specifications

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

Reference Design

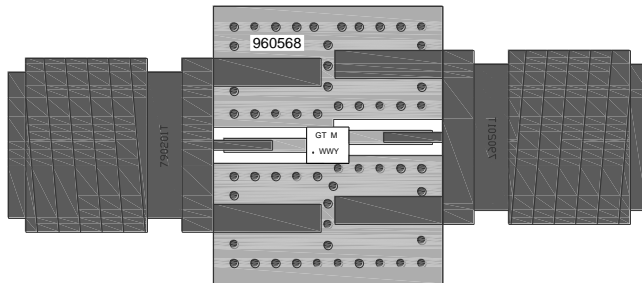
Schematic



Notes:

- Actual matching values may vary due to PCB layout and parasitic

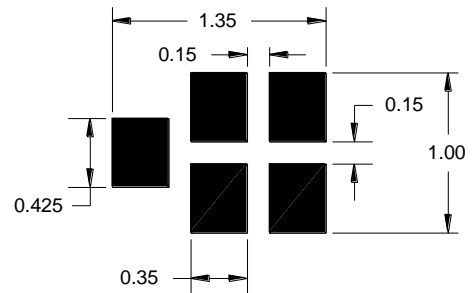
PC Board



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

Mounting Configuration



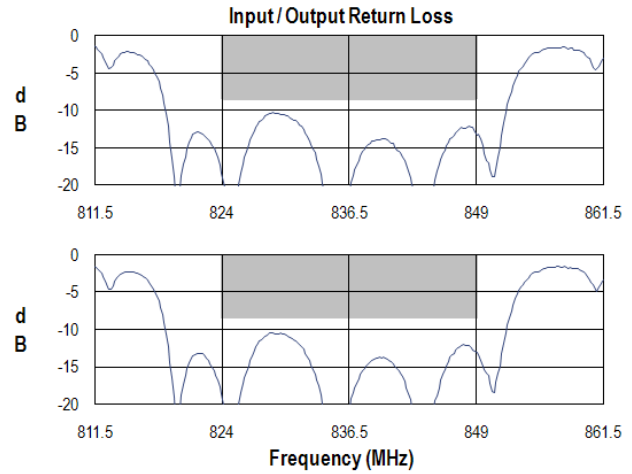
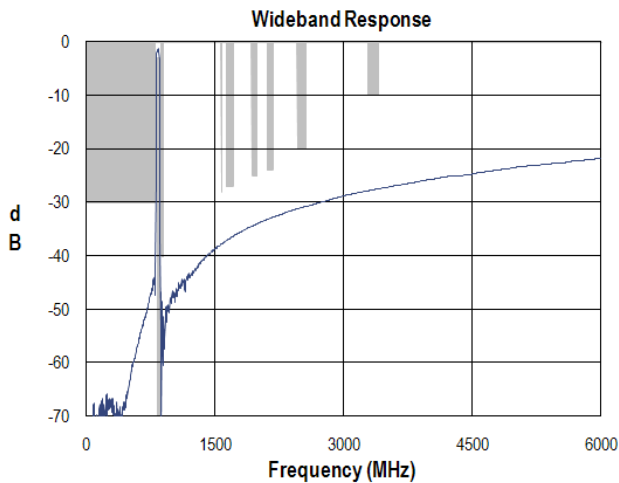
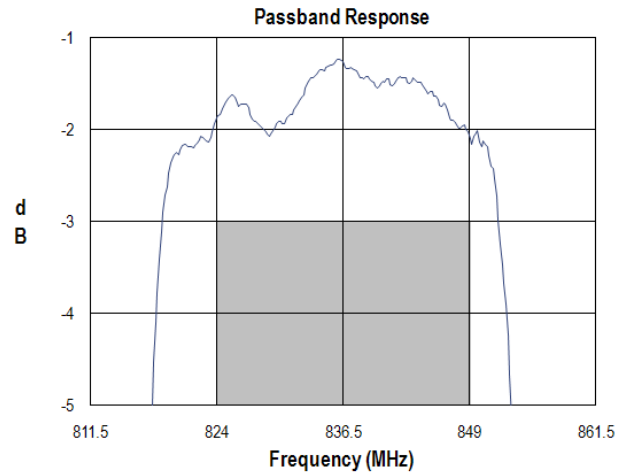
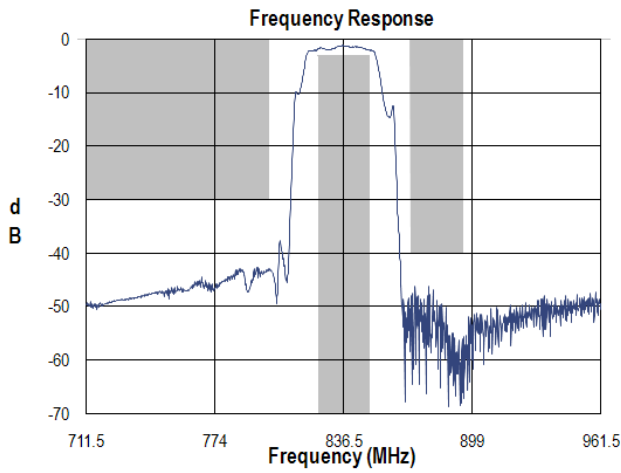
Notes:

- All dimensions are in millimeters.
- This footprint represents a recommendation only.

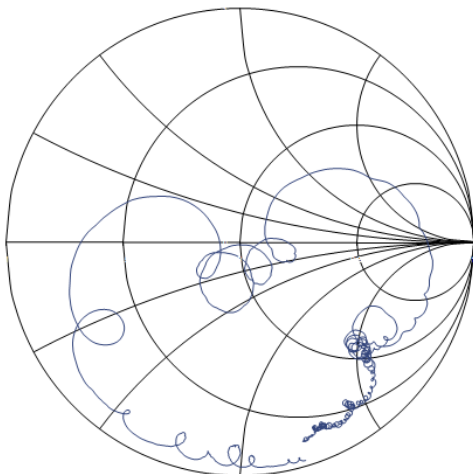
Bill of Material

Reference Desg.	Value	Description	Manufacturer	Part Number
SMA	N/A	SMA connector	Radiall USA Inc.	9602-1111-018
PCB	N/A	3-layer	multiple	960568

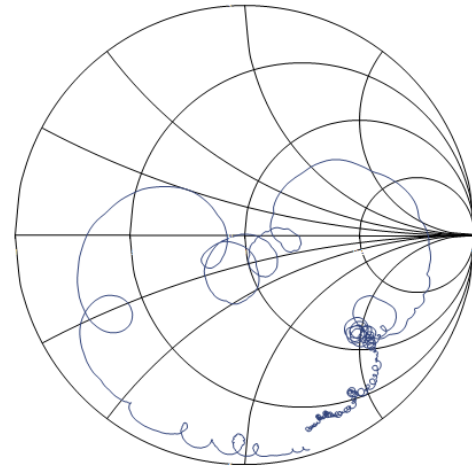
Typical Performance (at room temperature)



Input Smith Chart

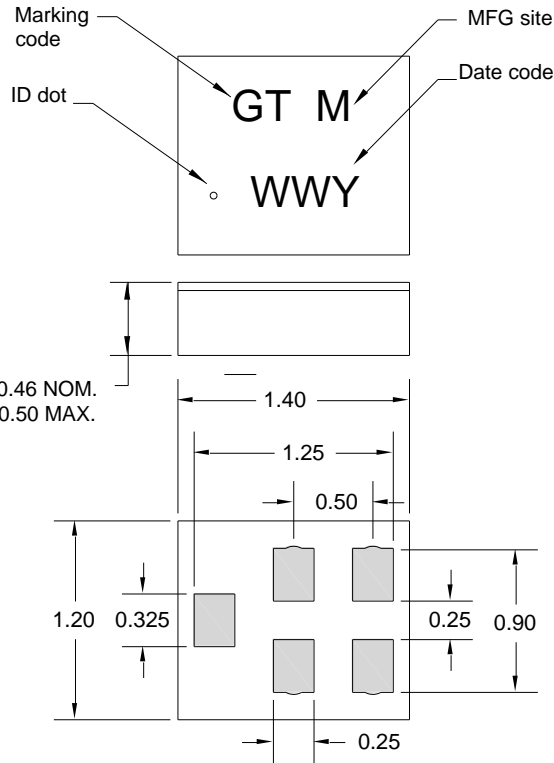


Output Smith Chart



Mechanical Information

Package Information, Dimensions and Marking



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

Body: Al_2O_3 ceramic
 Lid: Kovar or Alloy 42, Au over Ni plated

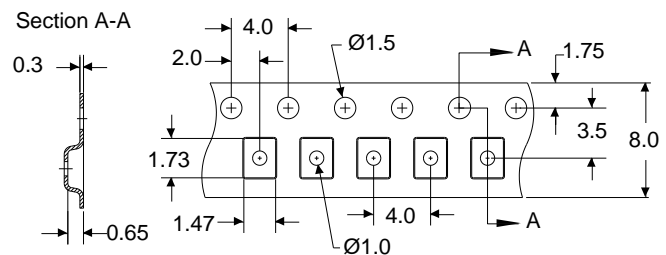
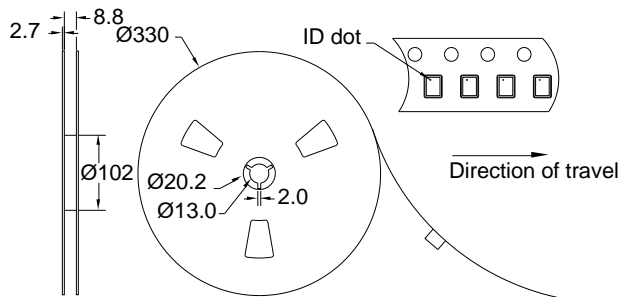
Terminations: Au plating 0.5 - 1.0 μ m, over a 2-6 μ m Ni plating

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: M = manufacturing site code
 WW = 2 digit week and Y = last digit of year

Tape and Reel Information

Standard T/R size = 10000 units/reel. All dimensions are in millimeters



857038

836.5 MHz SAW Filter

Product Compliance Information

ESD Information



Caution! ESD-Sensitive Device

ESD Rating: TBD

Value: Passes \geq TBD V min.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: TBD

Value: Passes \geq TBD V min.
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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