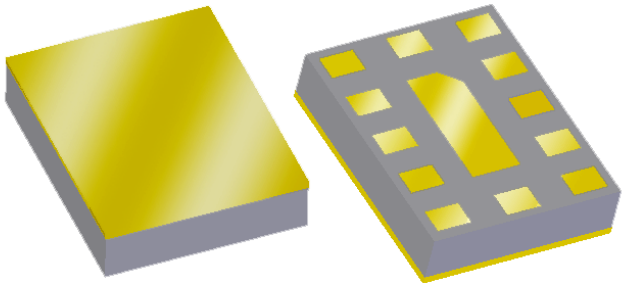
857031

826 MHz Notch Filter

Applications

- BC0 notch filter for SVLTE applications
- Applicable passbands: 751 MHz B13 LTE, 782 MHz B13 LTE
- Handsets

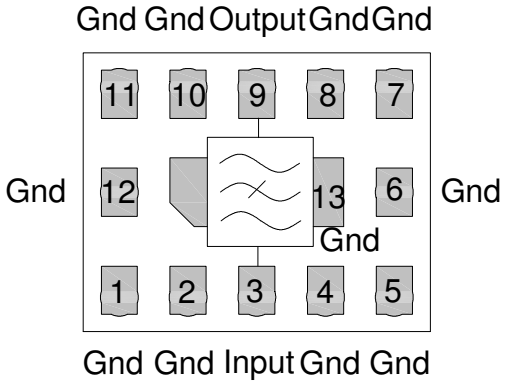


Product Features

- High linear notch filter
- Usable reject band 4 MHz
- Low loss in 746-756 MHz/777-787 MHz
- High BC0 attenuation
- Ceramic chip-scale Package (CSP)
- Small Size: 2.5 x 2.00 x 0.56 mm
- Hermetic **RoHS** compliant, **Pb**-free

Functional Block Diagram

Top view



General Description

The 857031 is a high performance Surface Acoustic Wave (SAW) Notch Filter designed to reject emissions in the BC0 band while passing Band 13 LTE band.

857031 is specifically designed to enable simultaneous voice and LTE for Band 13 application. It is specified to support Band 13 requirements in the entire 746 - 787 MHz band.

The 857031 uses advanced packaging techniques to achieve an industry-leading 2.5 x 2.0 x 0.56 mm package. The filter exhibits excellent power handling capabilities.

Pin Configuration

Pin # SE-Balanced	Description
3	Input
9	Output
1,2,4,5,7,8,10,11	Ground
6,12,13	Case Ground

Ordering Information

Part No.	Description
857031	packaged part
857031-EVB	evaluation board

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

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Specifications

Electrical Specifications (1)

Specified Temperature Range: (2) -30 to +85 ºC

Parameter (3)	Conditions	Min	Typical (4)	Max	Units
Center Frequency		-	826	-	MHz
Maximum Insertion Loss	746 – 756 MHz 777– 787 MHz	- -	0.5 0.65	0.75 0.9	dB dB
Amplitude Variation	746 – 756 MHz 777– 787 MHz	- -	0.05 0.15	0.1 0.25	dB p-p dB p-p
Absolute Attenuation	824 – 828 MHz 1564 – 1574 MHz 1574 – 1577 MHz 2331 – 2361 MHz 2400 – 2484 MHz	28 2 2 5 5	32 4 4 8 8	- - - - -	dB dB dB dB dB
Input /Output Return Loss	746 – 756 MHz 777– 787 MHz	15 15	20 20	- -	dB dB
IMD3 product (5)		-	-105		dBm
Source Impedance (single-ended) (5)		-	50	-	Ω
Load Impedance (single-ended) (5)		-	50	-	Ω

Notes:
1. All specifications are based on the TriQuint schematic for the main reference design 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. All power levels are referenced to the antenna port. Two CW tones are applied at frequencies f1 and f2, and the resultant intermodulation product in the 746-756 MHz band is measured. The first tone (f1 = 785 to 787 MHz, 24 dBm referenced to the antenna port) is applied at the input port. The second tone (f2 = 824 to 828 MHz, 13 dBm referenced to the antenna port) is applied at the output port. The intermodulation product is measured at 746 to 750 MHz

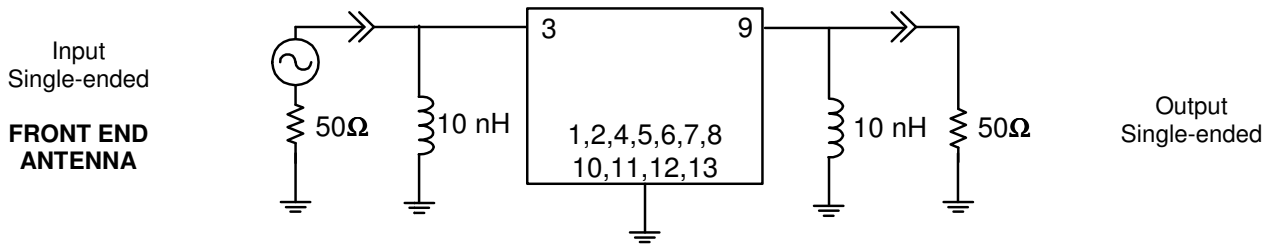
Absolute Maximum Ratings (6)

Parameter	Rating
Operating Temperature	-30 to +85 °C
Storage Temperature	-40 to +85 °C
Input Power(7)	+29 dBm

6. Operation of this device outside the parameter ranges given above may cause permanent damage.
7. All ports matched to 50 Ohms. (55°C, equivalent 5000 hours).

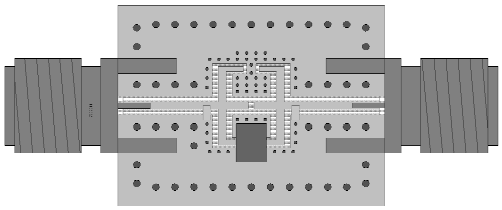
Reference Design 50Ω SE In, 50Ω SE Out

Schematic



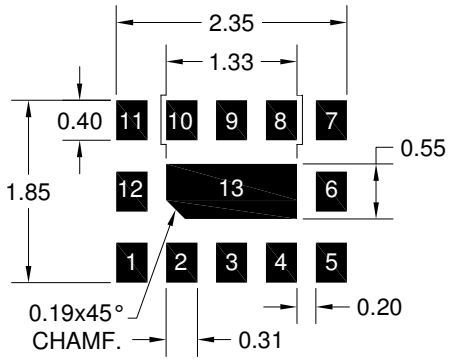
Notes:
Actual matching values may vary due to PCB layout and parasitic

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



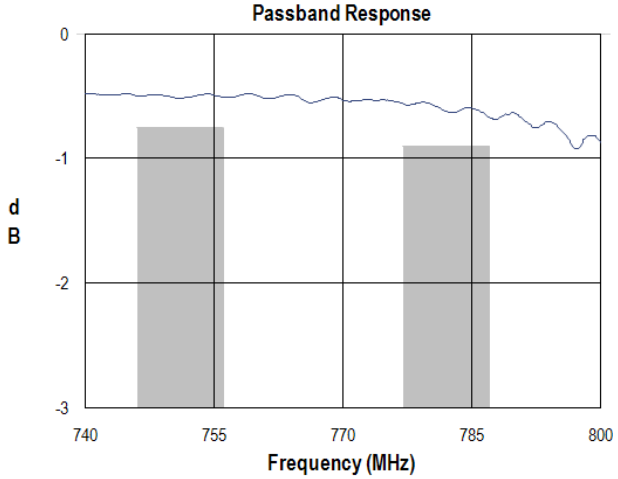
Notes:
1. Top view of the product.
2. All dimensions are in millimeters.
3. This footprint represents a recommendation only.

Bill of Material

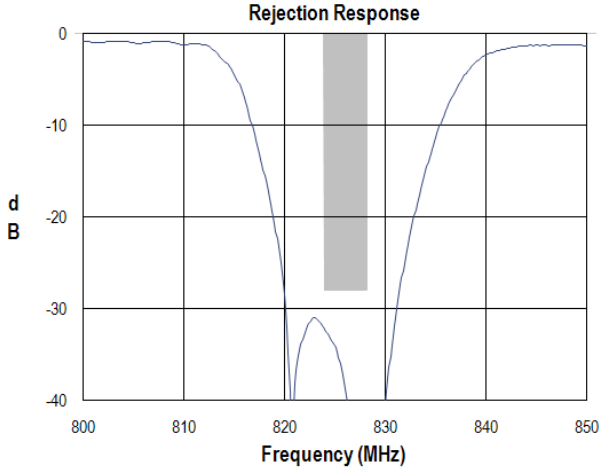
Reference Desg.	Value	Description	Manufacturer	Part Number
L1	10 nH	Coil Wire-wound, 0402, y%	MuRata	LQW15AN10NH00
L2	10 nH	Coil Wire-wound, 0402, y%	MuRata	LQW15AN10NH00
SMA	N/A	SMA connector	Radiall USA Inc.	9602-1111-018
PCB	N/A	3-layer	Multiple	960930

Typical Performance (at room temperature)

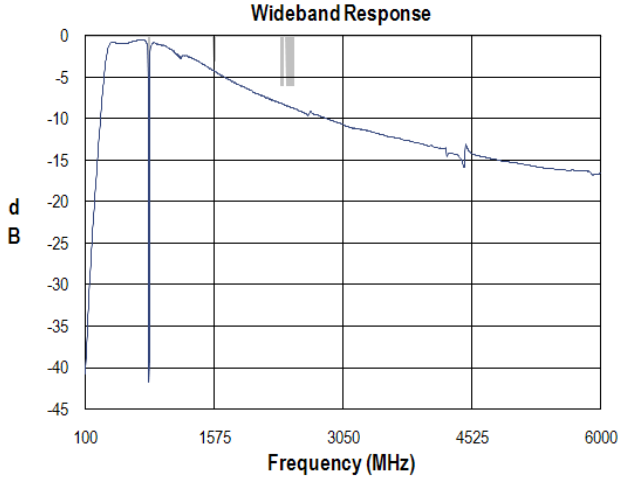
Passband Response



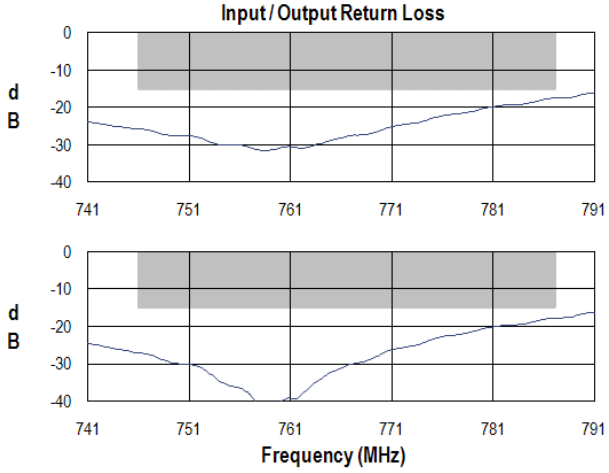
Rejection Response



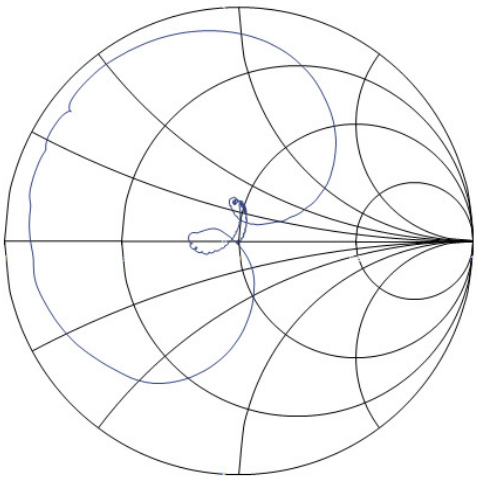
Wideband Response



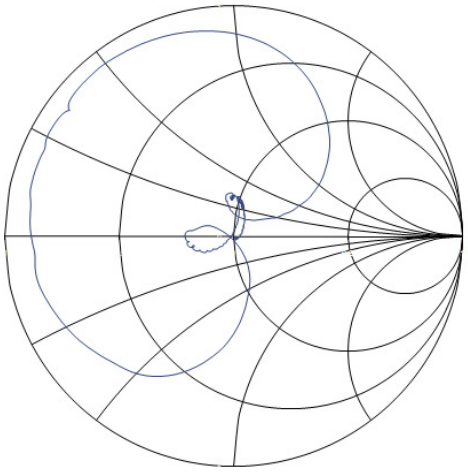
Input / Output Return Loss



Input Smith Chart

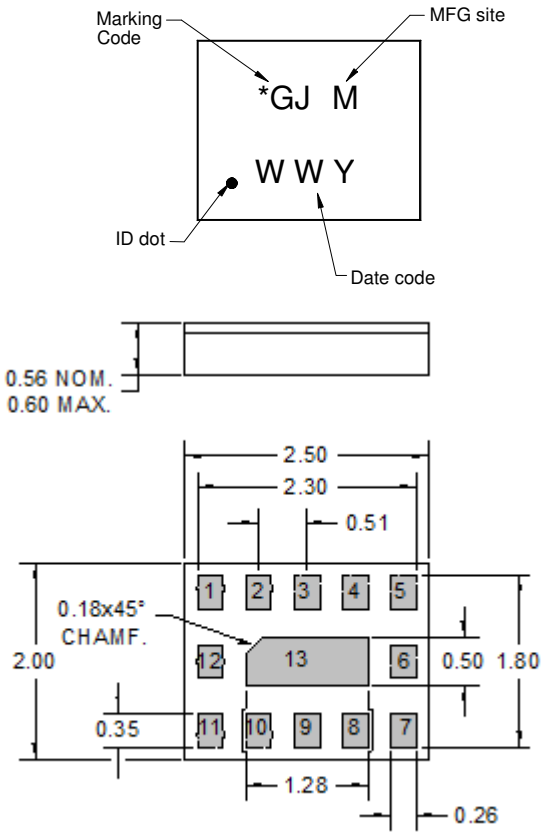


Output Smith Chart



Mechanical Information

Package Information, Dimensions and Marking



Package Style: CSP-10GT
Dimensions: 2.5 x 2.00 x 0.56 mm

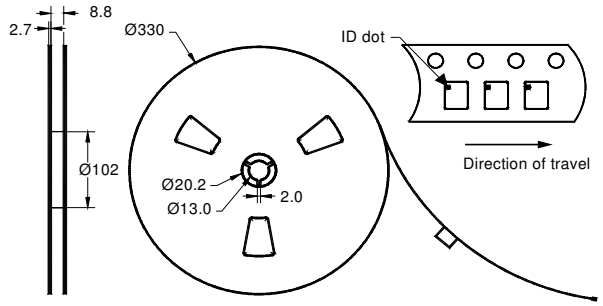
Body: Al_2O_3 ceramic
Lid: Kovar or Alloy 42, Au over Ni plated
Terminations: *Au* plating 0.5 - 1.0µm, over a 2-6µm *Ni* plating

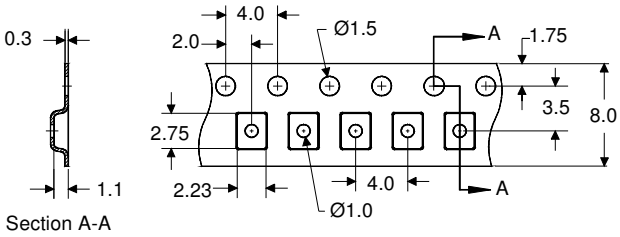
All dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width ±0.10mm

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: 0
Value: Passes ≤ 150 V min.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: M1
Value: Passes ≤ 100 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 ($C_{15}H_{12}Br_4O_2$) Free
- PFOS Free
- SVHC Free

Contact Information

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