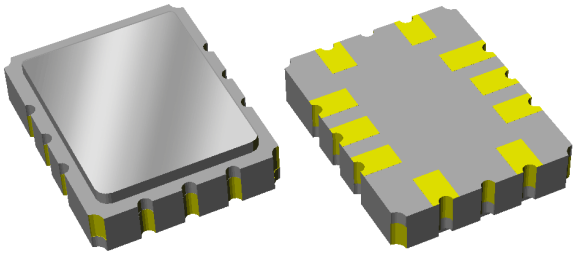
857071

192.5 MHz SAW Filter

Applications

- General purpose wireless
- Wireless infrastructure
- 3G, 4G, Multistandard
- Distributed Antenna Systems (DAS)

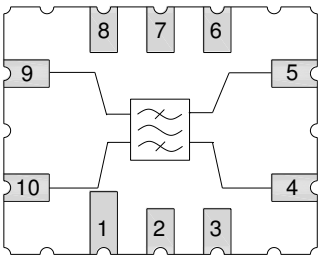


Product Features

- Usable bandwidth 65 MHz
- High attenuation
- Low EVM
- Balanced operation
- Ceramic Surface Mount Package (SMP-28C)
- Small Size: 7.00 x 5.50 x 1.24 mm
- Hermetic **RoHS** compliant, **Pb**-free

Functional Block Diagram

Top view



General Description

The 857071 is a high-performance IF SAW filter with a center frequency of 192.5MHz and 1.5 dB bandwidth of 65 MHz

It features excellent attenuation and pass band ripple, leading to outstanding EVM performance. 857071 is designed to be used in a balanced configuration, thereby eliminating the need for Baluns on the input and output. The high performance coupled with the small size of this surface mount filter makes it a natural choice for our customers filtering needs in demanding high data rate communications standards.

This device is RoHS compliant and Pb-free.

Pin Configuration

Pin # Bal/Bal	Description
10	Input +
9	Input -
5	Output +
4	Output -
1,2,3	Case Ground
6,7,8	Case Ground

Ordering Information

Part No.	Description
857071	packaged part
857071-EVB	evaluation board

Standard T/R size = 3000 units/reel.

Specifications

Electrical Specifications [1, 2]

Specified Temperature Range: [3] +10 to +75 ºC

Parameter [4]	Conditions	Min	Typical [5]	Max	Units
Center Frequency	f_o	-	192.5	-	MHz
Insertion Loss	at 192.5 MHz	-	17	19	dB
1.5 dB Bandwidth[8]		65	67.5	-	MHz
35 dB Bandwidth[8]		-	74	76	MHz
Passband Ripple[6]	over f_o +/- 32.5 MHz	-	0.5	1.5	dB p-p
Absolute Delay	over f_o +/- 32.5 MHz	-	0.61	0.67	µs
Group Delay Ripple[6]	over f_o +/- 32.5 MHz	-	60	100	ns p-p
Group Delay Ripple[6]	Any 3.84 MHz channel over f_o +/- 32.5 MHz	-	55	70	ns p-p
EVM [7]	Any 3.84 MHz channel over f_o +/- 32.5 MHz	-	2.6	3	%
Temperature Coefficient		-	-94	-	ppm/ ºC
Input Return Loss	over f_o+/- 32.5 MHz	7	8.7	-	dB
Output Return Loss	over f_o+/- 32.5 MHz	7	7.9	-	dB
Stopband Attenuation[8]	5 – 100 MHz	50	60	-	dB
	100 – 152.5 MHz	35	38	-	dB
	230.5 – 231.0 MHz	32	36	-	dB
	231.0 – 237.0 MHz	35	37	-	dB
	237.0 – 310.0 MHz	35	40	-	dB
	310 – 500 MHz	35	56	-	dB
	500 – 860 MHz	50	60	-	dB
Source Impedance (balanced) [9]		-	100	-	Ω
Load Impedance (balanced) [9]		-	100	-	Ω

Notes:
1. All specifications are based on the TriQuint schematic for the main reference design shown on page 3
2. An external impedance matching network with ±2% tolerance will be necessary to achieve the proposed specifications
3. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
4. Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances
5. Typical values are based on average measurements at room temperature
6. This ripple defined as the worst peak to adjacent valley within the specified frequency ranges
7. The EVM specification is guaranteed by design and measured approximately in production
8. All bandwidths and attenuation measurements are referenced from minimum loss
9. This is the optimum impedance in order to achieve the performance shown

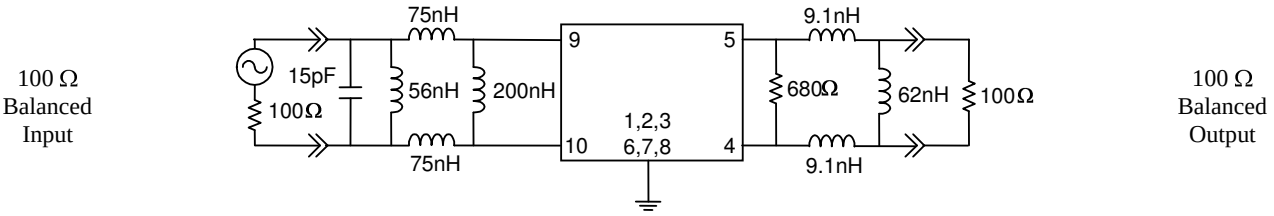
Absolute Maximum Ratings

Parameter	Rating
Operable Temperature	-40 to +85 °C
Storage Temperature	-40 to +85 °C
Input Power	10dBm (Measured with continuous sine wave signal. Expected Lifetime of greater than or equal to 10K Hrs at 55 °C)

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

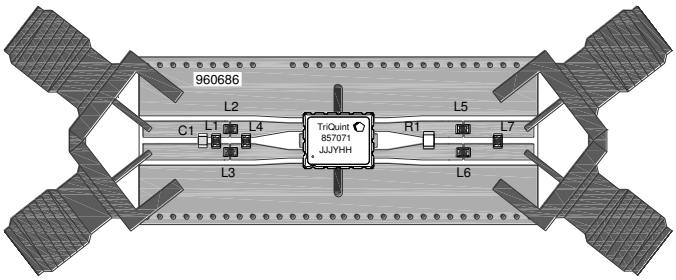
Reference Design – 100Ω Bal Input, 100Ω Bal Output

Schematic



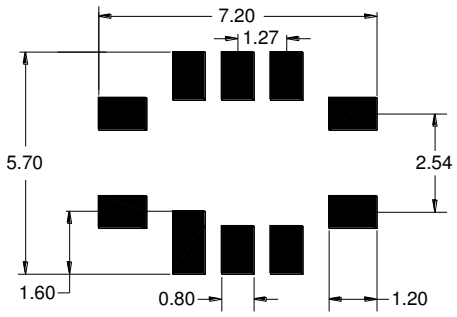
Notes:
1. Actual matching values may vary due to PCB layout and parasitic

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



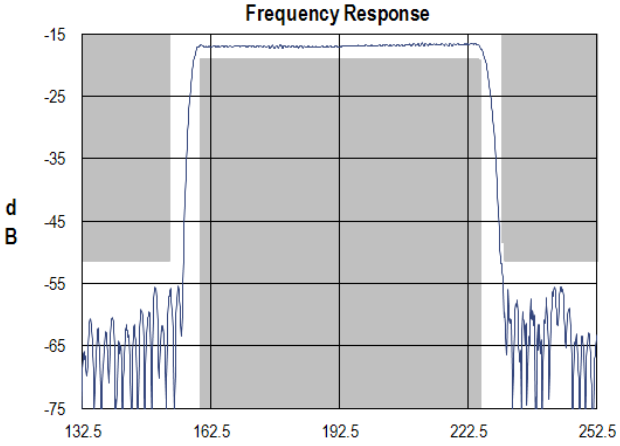
Notes:
1. All dimensions are in millimeters.
2. This footprint represents a recommendation only.

Bill of Material

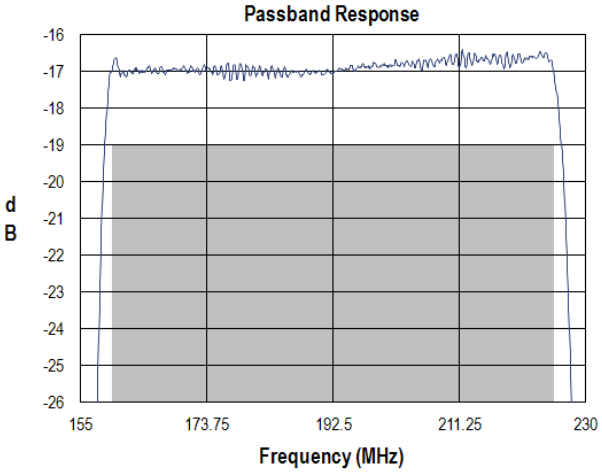
Reference Desg.	Value	Description	Manufacturer	Part Number
L1	56nH	Coil Wire-wound, 0603 5%	MuRata	LQW18AN56NJ00
L2	75nH	Coil Wire-wound, 0603, 5%	MuRata	LQW18AN75NJ00
L3	75nH	Coil Wire-wound, 0603, 5%	MuRata	LQW18AN75NJ00
L4	200nH	Coil Wire-wound, 0603, 5%	MuRata	LQW18ANR20J00
L5	9.1nH	Coil Wire-wound, 0603, 5%	MuRata	LQW18AN9N1D00
L6	9.1nH	Coil Wire-wound, 0603, 5%	MuRata	LQW18AN9N1D00
L7	62nH	Coil Wire-wound, 0603, 5%	MuRata	LQW18AN62NJ00
C1	15pF	Chip Ceramic, 0603, 5%	MuRata	GRM1885C1H150JA01
R1	680Ω	Chip Ceramic, 1206, 5%	KOA	RM73B2BJ681
SMA	N/A	SMA connector	Johnson Components	142-0701-801
PCB	N/A	3-layer	multiple	960686

Typical Performance (at room temperature)

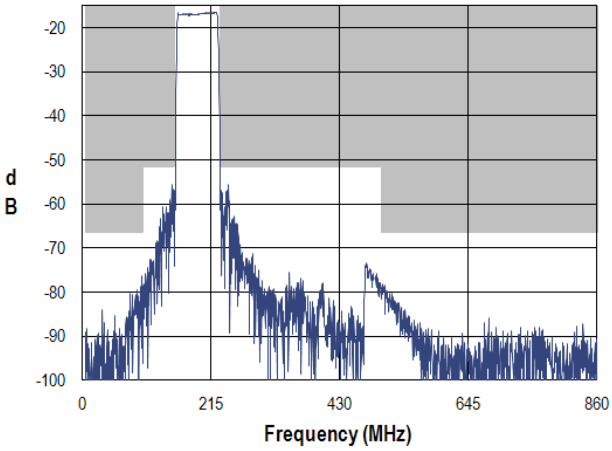
Frequency Response



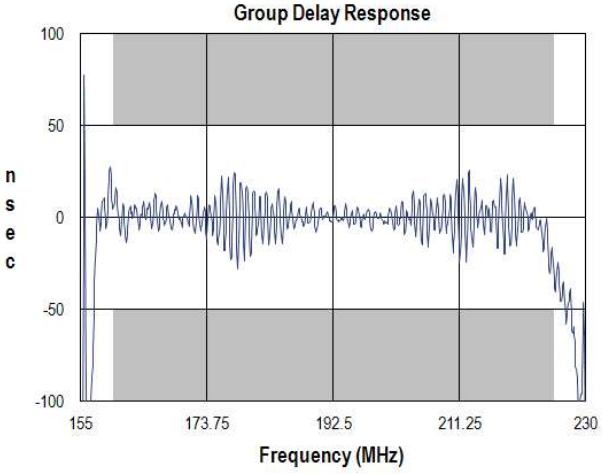
Passband Response



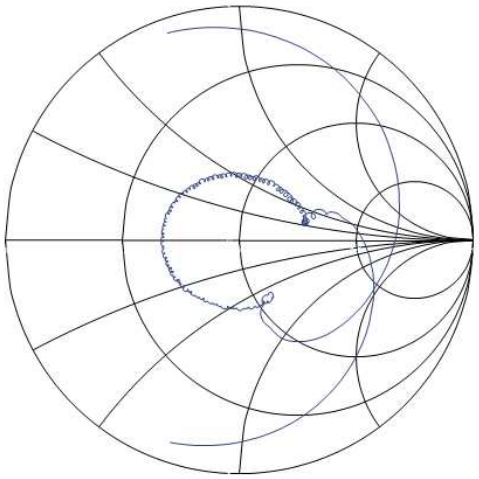
Wideband Response



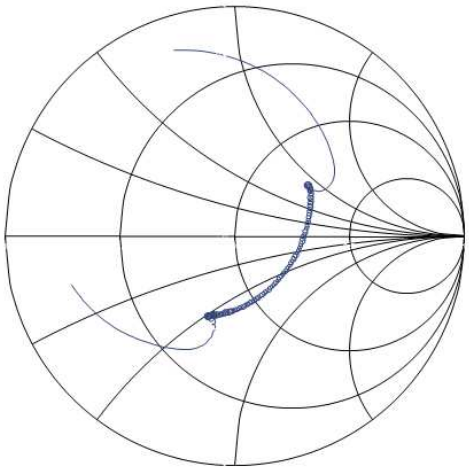
Group Delay Response



Input Smith Chart

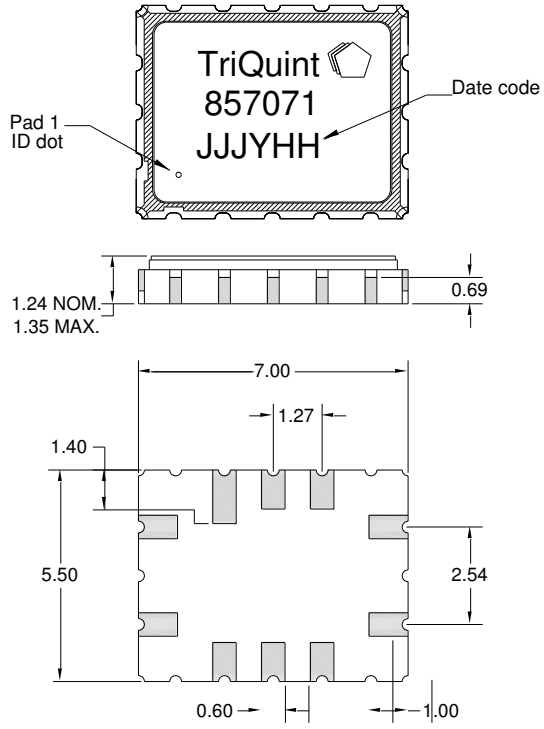


Output Smith Chart



Mechanical Information

Package Information, Dimensions and Marking



Package Style: SMP-28C
Dimensions: 7.00 x 5.50 x 1.24 mm

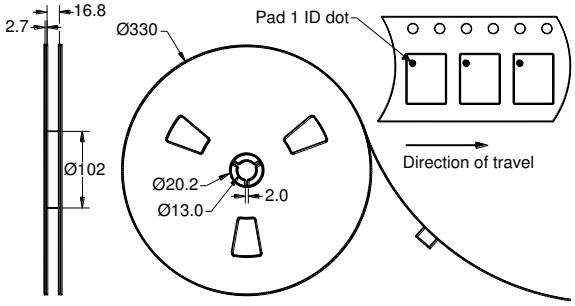
Body: Al_2O_3 ceramic
Lid: Kovar, Ni plated
Terminations: Au plating 0.5 - 1.0µm, over a 2-6µm Ni plating

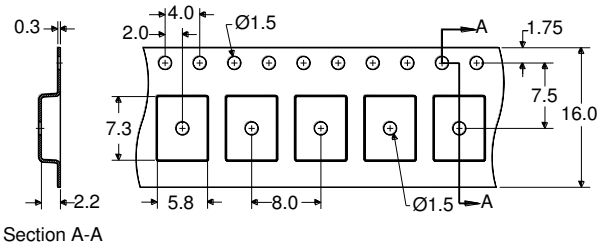
All dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width ±0.10mm

The date code consists of: day of the current year (Julian, 3 digits), Y = last digit of the year (1 digit), and HH = hour (2 digits)

Tape and Reel Information

Standard T/R size = 3000 units/reel. All dimensions are in millimeters





Product Compliance Information

ESD Information

Caution! ESD-Sensitive Device

ESD Rating: 1A
Value: Passes ≥ 250 V min.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: B
Value: Passes ≥ 200 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 ($C_{15}H_{12}Br_40_2$) Free
- PFOS Free
- SVHC Free

Contact Information

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