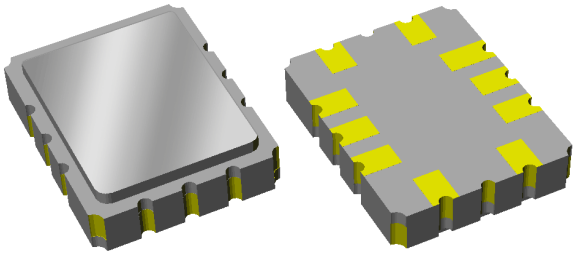
857073

397.5 MHz SAW Filter

Applications

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

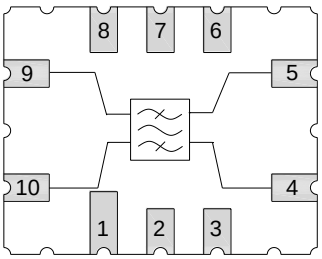


Product Features

- Usable bandwidth 66.7 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 857073 is a high-performance IF SAW filter with a center frequency of 397.5MHz and 1.5 dB bandwidth of 66.7 MHz

It features excellent attenuation and pass band ripple, leading to outstanding EVM performance. 857073 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
857073	packaged part
857073-EVB	evaluation board

Standard T/R size = 3000 units/reel.

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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	-	398.1	-	MHz
Insertion Loss	at 397.5 MHz	-	16.6	19	dB
1.5 dB Bandwidth [10]		65	67.8	-	MHz
2.8 dB Band edge [9]		-	363.9	365	MHz
2.8 dB Band edge [9]		430	432.5	-	MHz
35 dB Bandwidth [10]		-	71.7	76	MHz
Passband Flatness[7]	365 – 430 MHz	-	0.7	2.8	dB p-p
Absolute Delay	over f_o +/- 32.5 MHz	-	0.66	0.70	µs
Group Delay Ripple [6]	over f_o +/- 32.5 MHz	-	36	100	ns p-p
Group Delay Ripple [6]	Any 3.84 MHz channel over f_o +/- 32.5 MHz	-	33	70	ns p-p
EVM [8]	Any 3.84 MHz channel over f_o+/- 32.5 MHz	-	2.3	3	%
Temperature Coeffient		-	-94	-	ppm/ ºC
Input /Output Return Loss	over f_o +/- 32.5 MHz	8.5	14	-	dB
Stopband Attenuation [10]	5 – 100 MHz	45	60	-	dB
	150 – 310 MHz	40	58	-	dB
	310 – 359.5 MHz	35	44	-	dB
	359.5 – 360 MHz	28	44	-	dB
	435 – 435.5 MHz [11]	25	31	-	dB
	435.5 – 437 MHz	22	41	-	dB
	437 – 460 MHz	35	41	-	dB
	460 – 860 MHz	40	46	-	dB
Source/Load Impedance (balanced) [12]		-	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 of 10 devices at room temperature
6. This ripple is defined as the worst peak to adjacent valley within specified frequency range
7. Passband Flatness is defined as the difference between maximum and minimum loss over the specified band
8. The EVM specification is guaranteed by design and measured approximately in production
9. 2.8 db Band edges are relative to Minimum Loss
10. All Bandwidth and Attenuation measurements are relative to loss at 1.5dB Center Frequency
11. 435 to 435.5 MHz Stopband Attenuation applies only for this temperature range : +25 °C to +75 °C
12. This is the optimum impedance in order to achieve the performance shown

Absolute Maximum Ratings

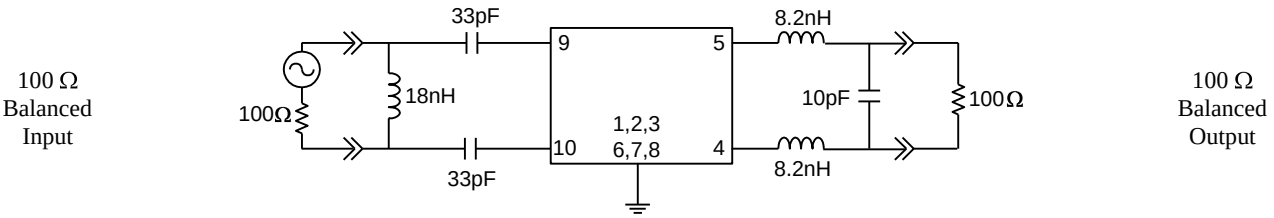
(Operation of this device outside the parameter ranges given above may cause permanent damage.)

Parameter	Rating
Operable /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)

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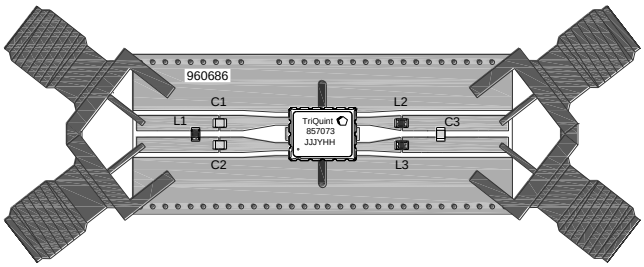
Reference Design – 100Ω Bal Input, 100Ω Bal Output

Schematic



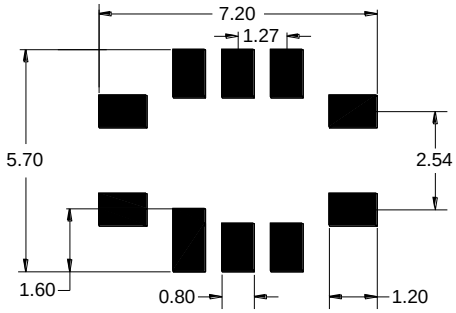
Notes:
1. Actual matching values may vary due to PCB layout and parasitic

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.

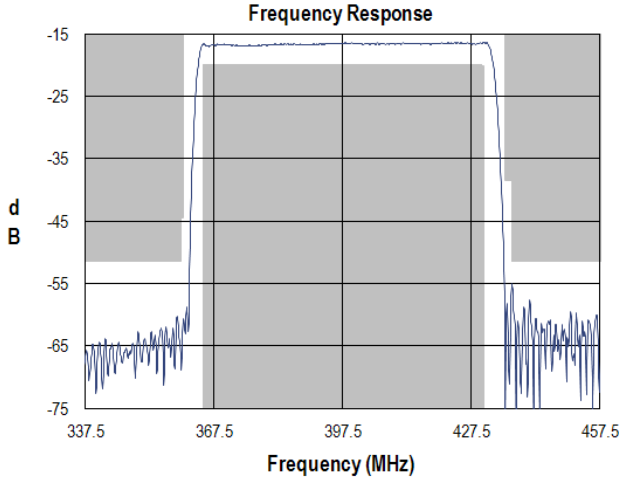
Bill of Material

Reference Desg.	Value	Description	Manufacturer	Part Number
L1	18nH	Coil Wire-wound, 0603 5%	MuRata	LQW18AN18NJ00
L2	8.2nH	Coil Wire-wound, 0603, 5%	MuRata	LQW18AN8N2J00
L3	8.2nH	Coil Wire-wound, 0603, 5%	MuRata	LQW18AN8N2J00
C1	33pF	Chip Ceramic, 0603, 5%	MuRata	GRM1885C1H330JA01
C2	33pF	Chip Ceramic, 0603, 5%	MuRata	GRM1885C1H330JA01
C3	10pF	Chip Ceramic, 0603, 5%	MuRata	GRM1885C1H100JA01
SMA	N/A	SMA connector	Johnson Components	142-0701-801
PCB	N/A	3-layer	multiple	960686

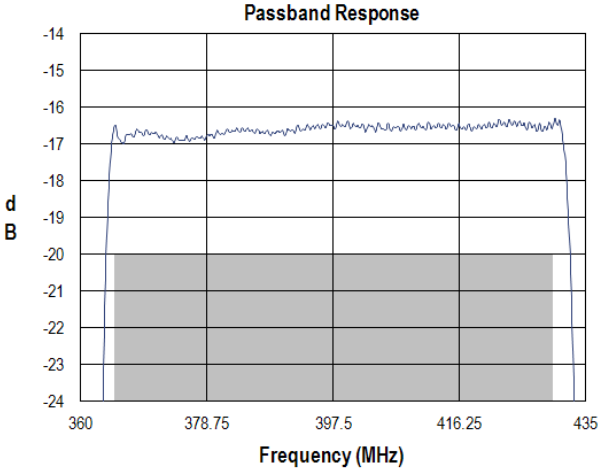
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Typical Performance (at room temperature)

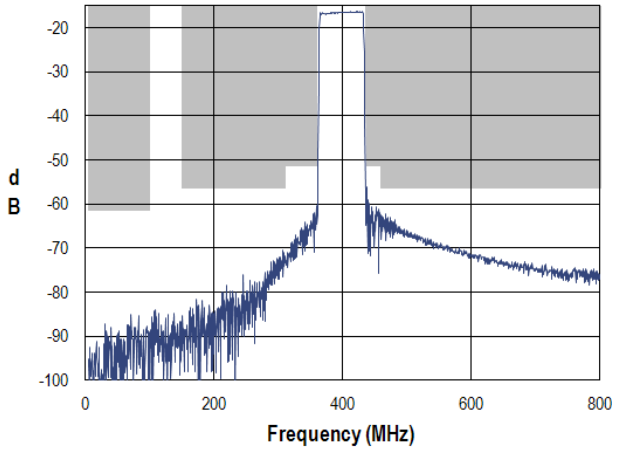
Frequency Response



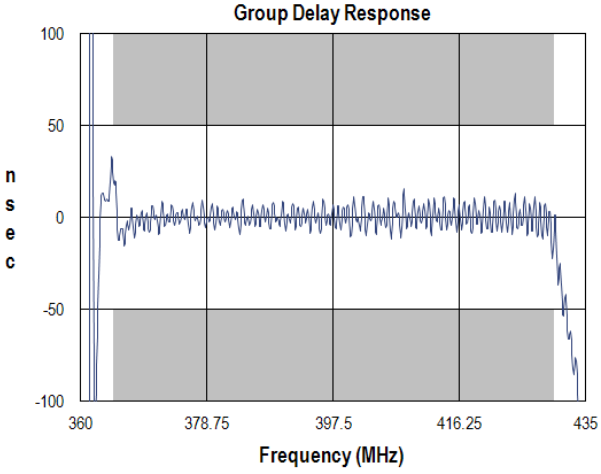
Passband Response



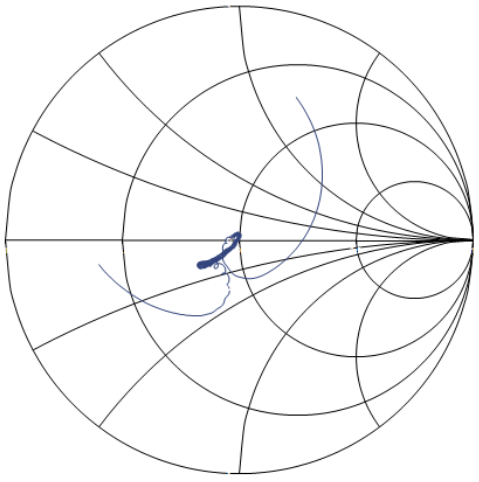
Wideband Response



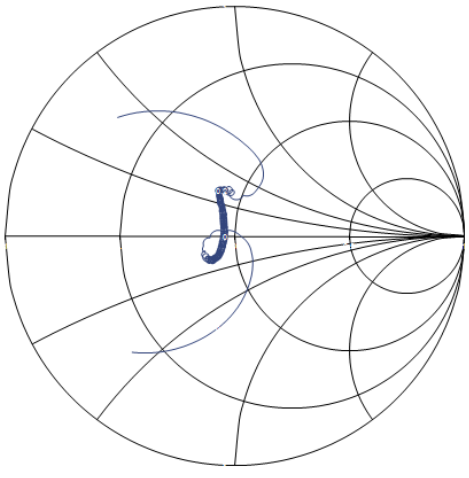
Group Delay Response



Input Smith Chart



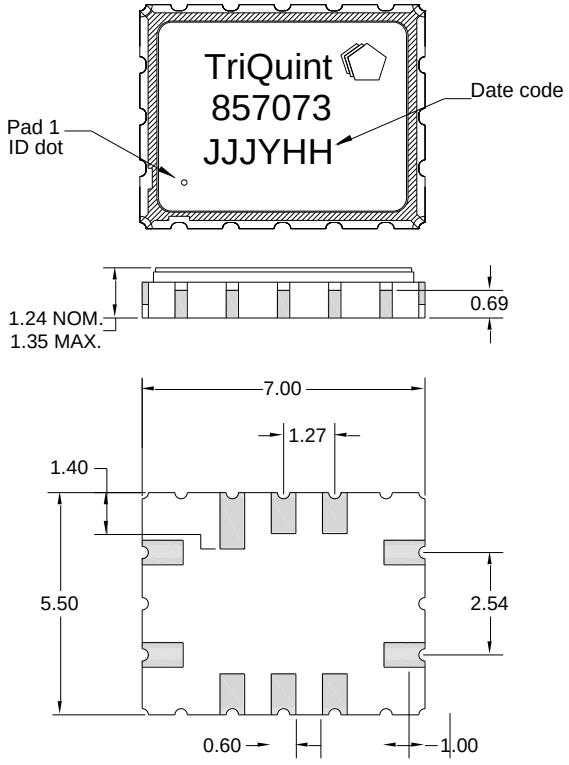
Output Smith Chart



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Mechanical Information

Package Information, Dimensions and Marking



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

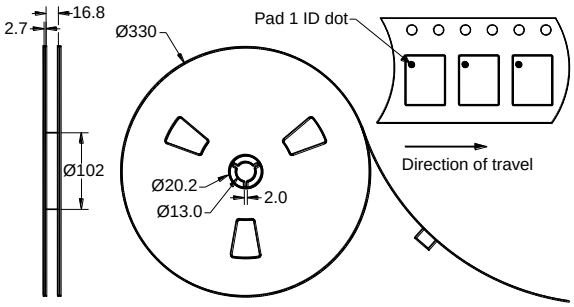
Body: Al_2O_3 ceramic
Lid: *Kovar, Ni* plated
Terminations: *Au* plating 0.5 - 1.0µm, over a 2-6µm *Ni* plating

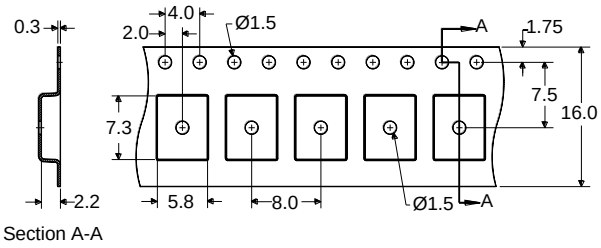
All dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width ±0.10mm

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





Section A-A

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Product Compliance Information

ESD Information



Caution! ESD-Sensitive Device

ESD Rating: 0
Value: Passes ≥ 200 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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Email: info-sales@tqs.com **Fax:** +1.407.886.7061

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Email: flapplication.engineering@tqs.com

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