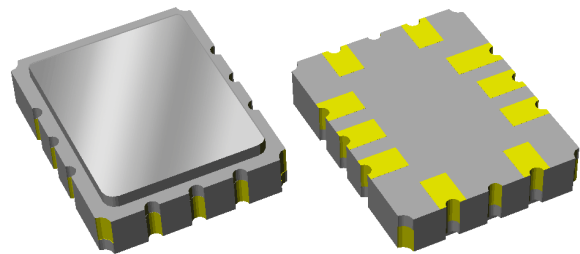


857072

242.5 MHz SAW Filter

Applications

- For WCDMA applications



Product Features

- Usable bandwidth 25 MHz
- Low loss
- High attenuation
- Low EVM
- Balanced operation
- Ceramic Surface Mount Package (SMP-28C)
- Small Size: 7.00 x 5.50 x 1.24 mm
- Hermetically Sealed
- **RoHS** compliant (2002/95/EC), **Pb-free** 

General Description

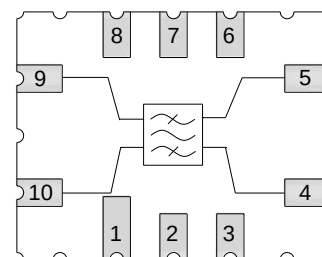
The 857072 is a high-performance IF SAW filter with a center frequency of 242.5 and minimum 1.0 dB bandwidth of 25 MHz

It features low loss with excellent attenuation, and is designed to be used with a balanced input and output. The small size of this surface mounted filter makes it an economical choice for demanding applications such as WCDMA or other similar high data rate communications standards.

This device is RoHS compliant and Pb-free.

Functional Block Diagram

Top view



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
857072	packaged part
857072-EVB	evaluation board

Standard T/R size = 3000 units/reel.

Specifications

Electrical Specifications ^(1, 2)

Specified Temperature Range: ⁽³⁾ +10 to +75 °C

Parameter ⁽⁴⁾	Conditions	Min	Typical ⁽⁵⁾	Max	Units
Center Frequency	f_o	-	242.5	-	MHz
Insertion Loss	at 242.5 MHz	-	9	10.5	dB
1.0 dB Bandwidth ⁽¹⁰⁾		25	27.6	-	MHz
2.0 dB Lower Band edge ⁽⁹⁾		-	228.7	230	MHz
2.0 dB Upper Band edge ⁽⁹⁾		255	256.8	-	MHz
35 dB Bandwidth ⁽¹⁰⁾		-	32.2	35.5	MHz
Pass Band Flatness ⁽⁷⁾	230 – 255 MHz	-	0.4	1.0	dB
Absolute Delay	over f_o +/- 12.5 MHz	-	0.67	0.70	μs
Group Delay Ripple ⁽⁶⁾	over f_o +/- 12.5 MHz	-	30	60	ns p-p
Group Delay Ripple ⁽⁶⁾	Any 3.84 MHz channel over f_o +/- 12.5 MHz	-	29	50	ns p-p
EVM ⁽⁸⁾	Any 3.84 MHz channel over f_o +/- 12.5 MHz	-	1.2	2	%
Temperature Coefficient		-	-94	-	ppm/ °C
Input Return Loss	over f_o +/- 12.5 MHz	8.5	12	-	dB
Output Return Loss	over f_o +/- 12.5 MHz	8.5	19	-	dB
Stopband Attenuation ⁽¹⁰⁾	5 – 25 MHz	40	46	-	dB
	25 – 100 MHz	45	50	-	dB
	100 – 225 MHz	35	42	-	dB
	260 – 260.7 MHz	26	36	-	dB
	260.7 – 310 MHz	35	38	-	dB
	310 – 500 MHz	40	53	-	dB
Source/Load Impedance (balanced) ⁽¹¹⁾		-	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 $\pm 2\%$ 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 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. 2.0 db Band edges are relative to Minimum Loss
10. All Bandwidth and Attenuation measurements are relative to loss at 1dB Center Frequency
11. 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)

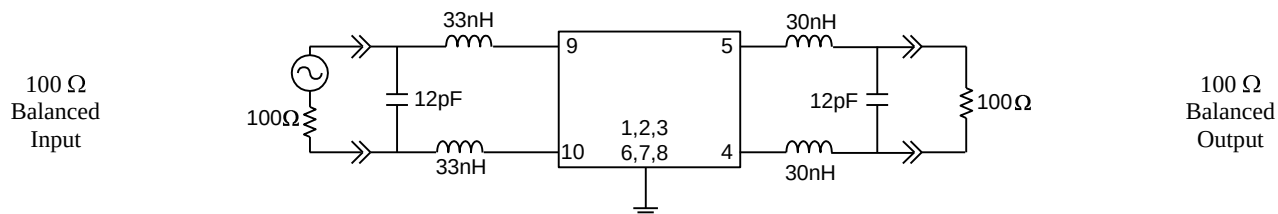
Parameter	Rating
Operable /Storage Temperature	-40 to +85 °C
Input Power	+10dBm (Measured with continuous sine wave signal. Expected lifetime of greater than or equal to 10K Hrs at 55 °C)

857072

242.5 MHz SAW Filter

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

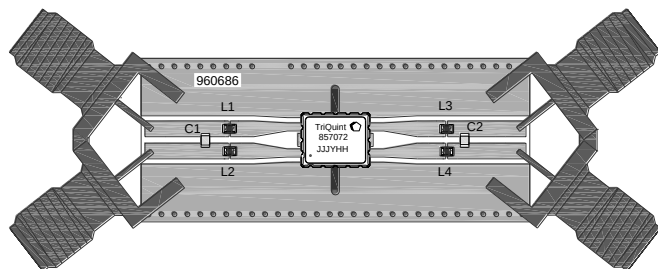
Schematic



Notes:

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

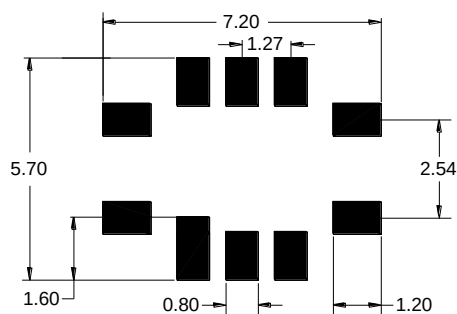
PC Board



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.

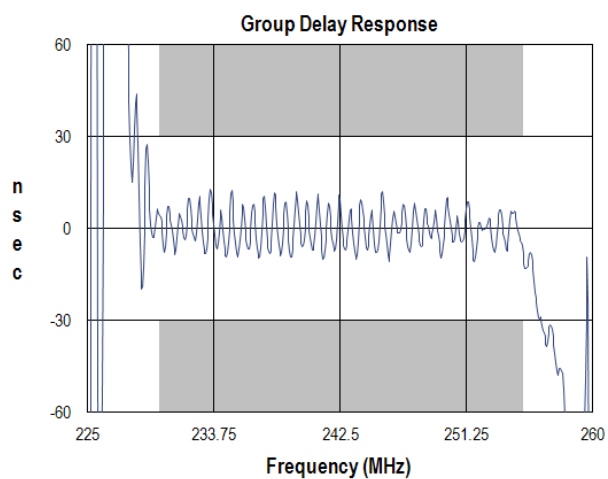
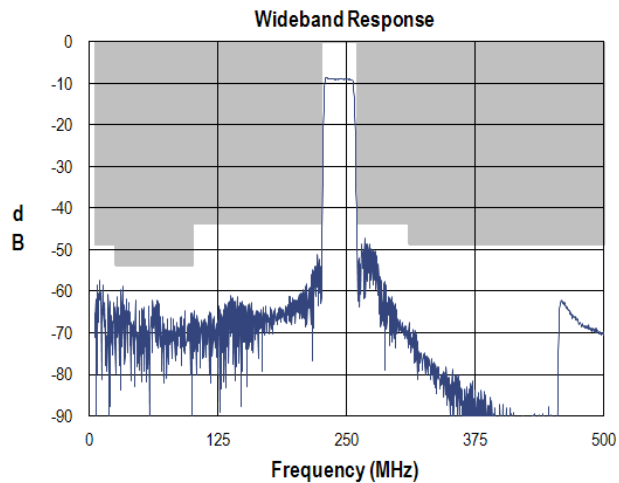
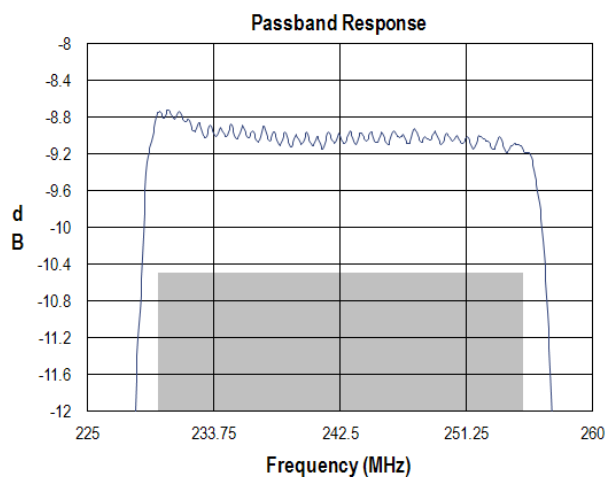
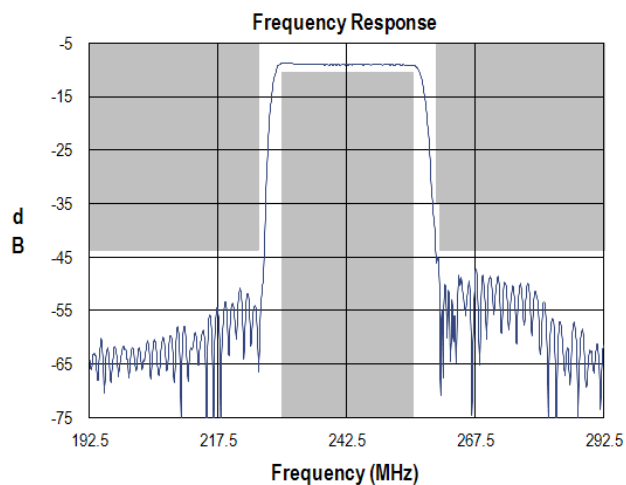
Bill of Material

Reference Desg.	Value	Description	Manufacturer	Part Number
L1	33nH	Coil Wire-wound, 0603 5%	MuRata	LQW18AN33NJ00
L2	33nH	Coil Wire-wound, 0603, 5%	MuRata	LQW18AN33NJ00
L3	30nH	Coil Wire-wound, 0603, 5%	MuRata	LQW18AN30NJ00
L4	30nH	Coil Wire-wound, 0603, 5%	MuRata	LQW18AN30NJ00
C1	12pF	Chip Ceramic, 0603, 5%	MuRata	GRM1885C1H120JA01
C2	12pF	Chip Ceramic, 0603, 5%	MuRata	GRM1885C1H120JA01
SMA	N/A	SMA connector	Johnson Components	142-0701-801
PCB	N/A	3-layer	multiple	960686

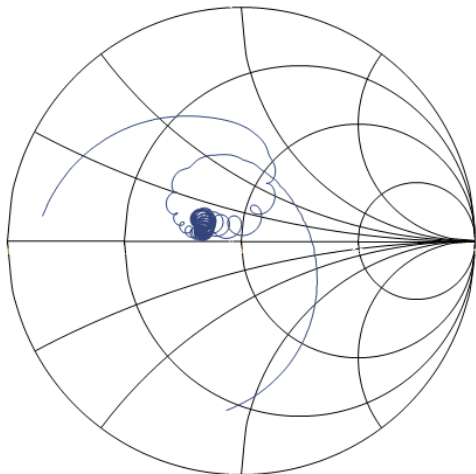
857072

242.5 MHz SAW Filter

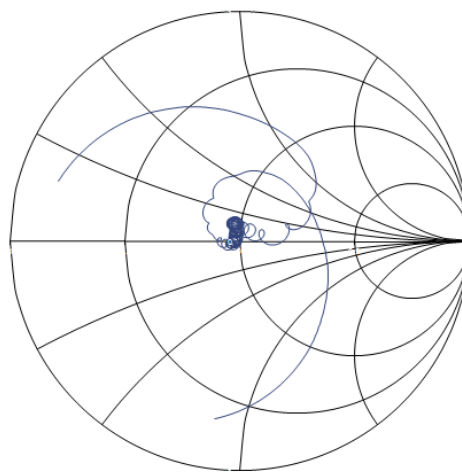
Typical Performance (at room temperature)



Input Smith Chart



Output Smith Chart

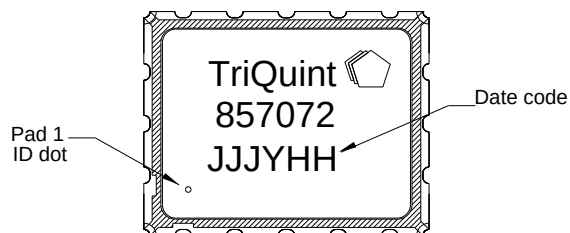


857072

242.5 MHz SAW Filter

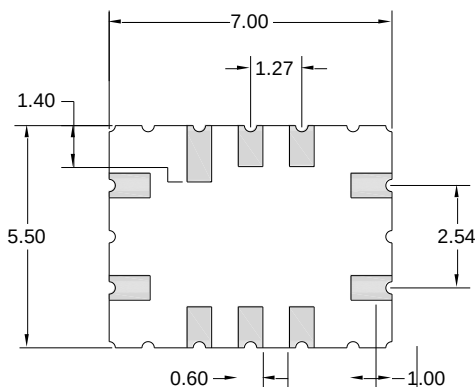
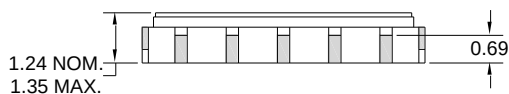
Mechanical Information

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 - 1.0 μm , over a 2-6 μm Ni plating

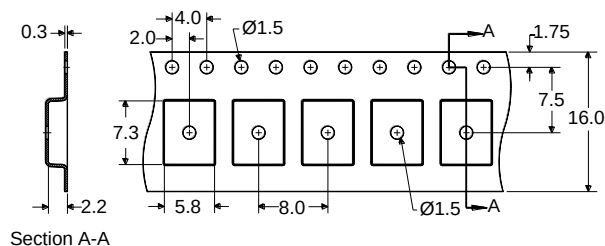
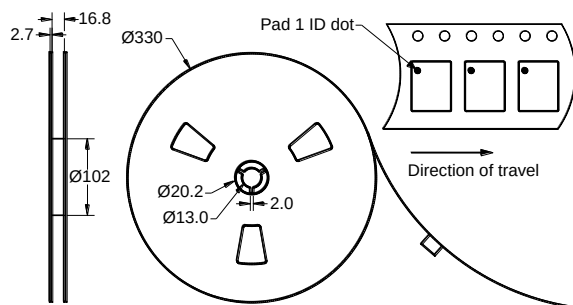


All dimensions shown are nominal in millimeters
All tolerances are ± 0.15 mm except overall length and width ± 0.10 mm

The date code consists of: 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 $\geq 250V$ min.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: B

Value: Passes $\geq 200V$ 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

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

Web: www.triquint.com
Email: info-sales@tqs.com

Tel: +1.407.886.8860
Fax: +1.407.886.7061

For technical questions and application information:

Email: flapplication.engineering@tqs.com

Important Notice

The information contained herein is believed to be reliable. TriQuint makes no warranties regarding the information contained herein. TriQuint assumes no responsibility or liability whatsoever for any of the information contained herein. TriQuint assumes no responsibility or liability whatsoever for the use of the information contained herein. The information contained herein is provided "AS IS, WHERE IS" and with all faults, and the entire risk associated with such information is entirely with the user. All information contained herein is subject to change without notice. Customers should obtain and verify the latest relevant information before placing orders for TriQuint products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information.

TriQuint products are not warranted or authorized for use as critical components in medical, life-saving, or life-sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.