


857124

184.32 MHz SAW Filter

Applications

- General purpose wireless
- WCDMA/LTE applications
- 3G, 4G, Multistandard

Product Features

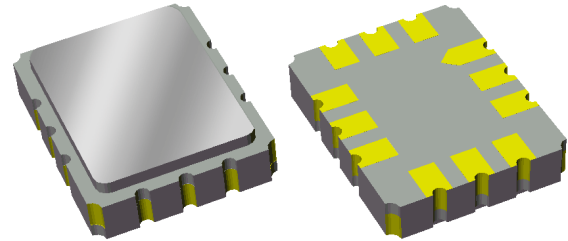
- Usable bandwidth 25 MHz
- Low loss
- High attenuation
- Low EVM
- Balanced operation
- Ceramic Surface Mount Package (SMP)
- Small Size: 7.01 x 5.51 x 1.63 mm
- Hermetically Sealed
- RoHS compliant, Pb-free 

General Description

The 857124 is a high performance IF filter specifically designed for the demanding requirements of 4G wireless infrastructure systems.

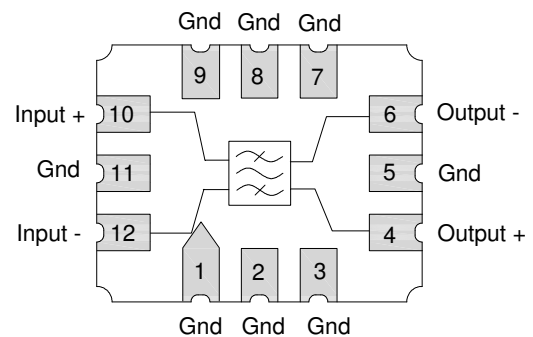
Designed for versatile drive configurations, this filter is optimized for a balanced input and output, leading to elimination of baluns.

Low insertion loss, excellent attenuation and flat in-band performance leading to low EVM contribution, makes this filter an effective choice for our customers LTE and Multi-standard platforms.



Functional Block Diagram

Top view



Pin Configuration

Pin #	Bal/Bal	Description
10		Input +
12		Input -
4		Output +
6		Output -
1,2,3,5		Ground
7,8,9,11		Ground

Ordering Information

Part No.	Description
857124	packaged part
857124-EVB	evaluation board

Standard T/R size = 3000 units/reel.

Specifications

Electrical Specifications ⁽¹⁾

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

Parameter ⁽³⁾	Conditions	Min	Typical ⁽⁴⁾	Max	Units
Center Frequency		-	184.32	-	MHz
Insertion Loss	at 184.32 MHz	-	7.8	9.0	dB
Amplitude Variation ⁽⁵⁾	171.82 – 196.82 MHz (P1dB)	-	0.5	1.0	dB
	Over any 5 MHz span within P1dB	-	0.3	0.8	dB
Group Delay Variation ⁽⁵⁾	171.82 – 196.82 MHz	-	25	40	ns p-p
Absolute Group Delay	at 184.32 MHz	-	0.50	0.55	μs
EVM	Over any 3.84 MHz span within P1dB	-	1.3	2.5	%
IIP3	Tones 5 MHz separated, power >5 dBm per tone	45	54	-	dBm
Temperature Drift ⁽⁶⁾		-	0.23	0.3	dB
Input VSWR	171.82 – 196.82 MHz	-	1.6	2.5	-
Output VSWR	171.82 – 196.82 MHz	-	2.0	2.5	-
Relative Attenuation ⁽⁷⁾	10.0 – 75.0 MHz	55	80	-	dB
	75.0 – 151.82 MHz	40	51	-	dB
	151.82 – 161.82 MHz	30	45	-	dB
	161.82 – 166.82 MHz	10	25	-	dB
	202.82 – 206.82 MHz	10	20	-	dB
	206.82 – 216.82 MHz	30	41	-	dB
	216.82 – 290.0 MHz	40	48	-	dB
	290.0 – 330.0 MHz	50	59	-	dB
	330.0 – 410.0 MHz	30	37	-	dB
	410.0 – 2000 MHz	55	72	-	dB
Source Impedance (balanced) ⁽⁸⁾		-	200	-	Ω
Load Impedance (balanced) ⁽⁸⁾		-	150	-	Ω

Notes:

- All specifications are based on the TriQuint schematic 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
- Variation is defined as the total peak to peak variation over the defined frequency range
- Temperature Drift specification is defined on Page 3 and is guaranteed by design and won't be measured in production
- Relative to insertion loss at center frequency
- This is the optimum impedance in order to achieve the performance shown

Absolute Maximum Ratings

Parameter	Rating
Operating Temperature	-40 to +85 °C
Storage Temperature	-40 to +85 °C
Input Power	+22 dBm (max) CW for 24 hours at +55 °C

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

Temperature Drift Specification

Temperature Drift Equations:

$$\text{Temp Drift}_{\text{high}} = \left| \frac{\max(T_{\text{ambient}} - T_{\text{hot}}) - \min(T_{\text{ambient}} - T_{\text{hot}})}{2} \right|$$

$$\text{Temp Drift}_{\text{low}} = \left| \frac{\max(T_{\text{ambient}} - T_{\text{cold}}) - \min(T_{\text{ambient}} - T_{\text{cold}})}{2} \right|$$

Temperature Drift Terms Defined:

T_{ambient} - Transmission power in dB measured at +25 degrees C.

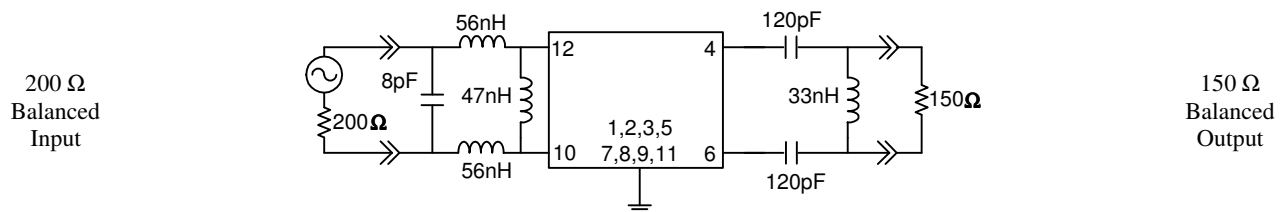
T_{hot} - Transmission power in dB measured at +85 degrees C.

T_{cold} - Transmission power in dB measured at -40 degrees C.

Temperature Drift - Greater of $\text{Temp Drift}_{\text{high}}$ vs $\text{Temp Drift}_{\text{low}}$

Reference Design – 200Ω Bal Input, 150Ω Bal Output

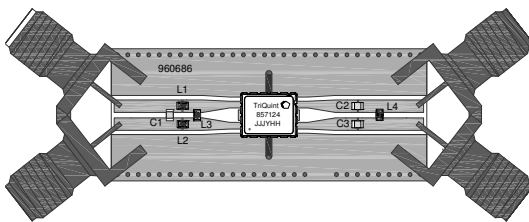
Schematic



Notes:

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

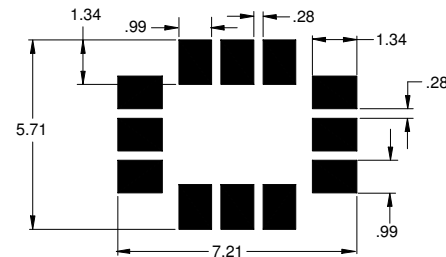
PC Board



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



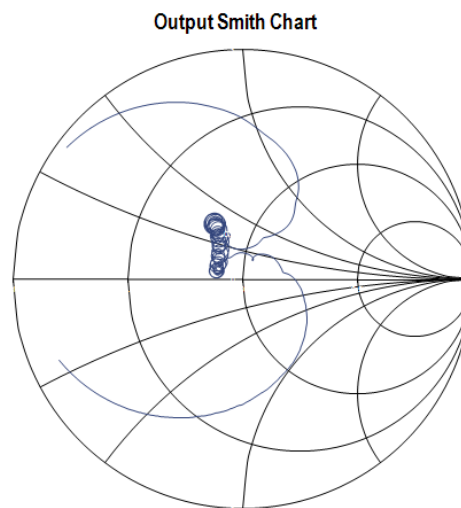
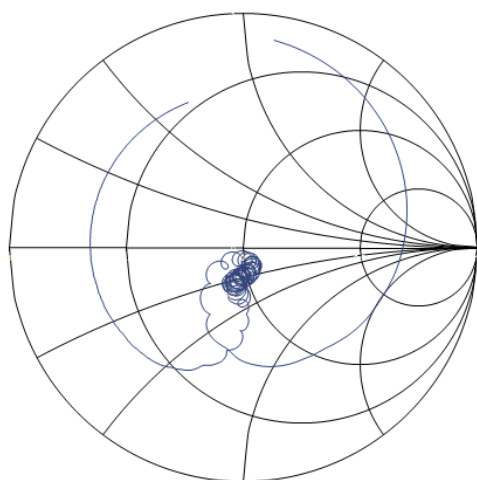
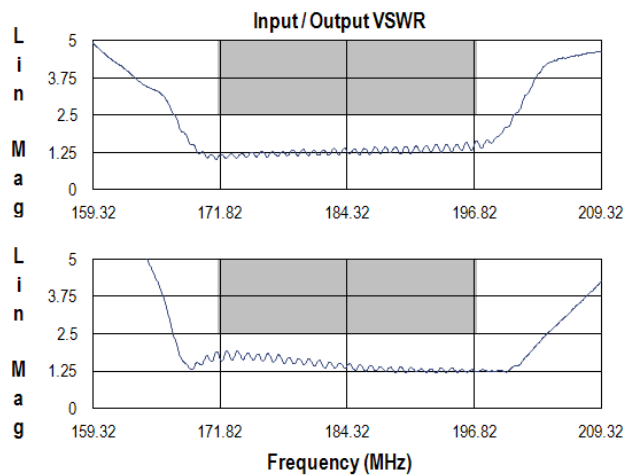
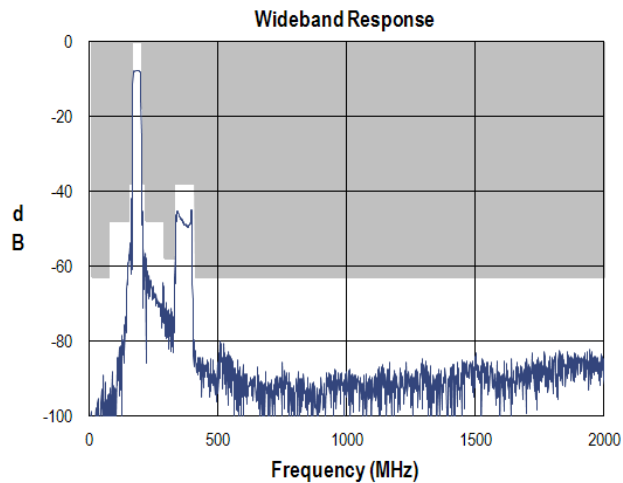
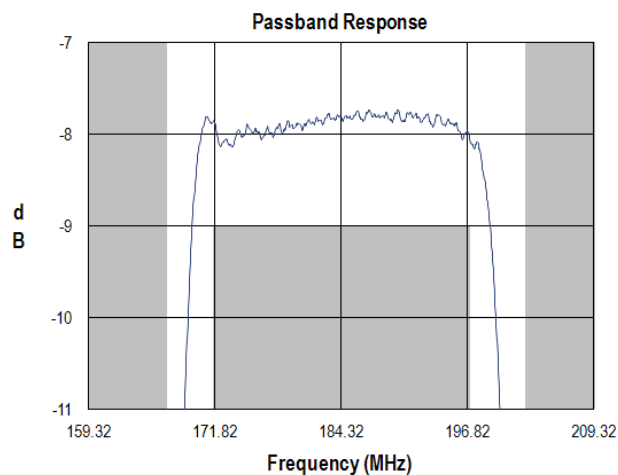
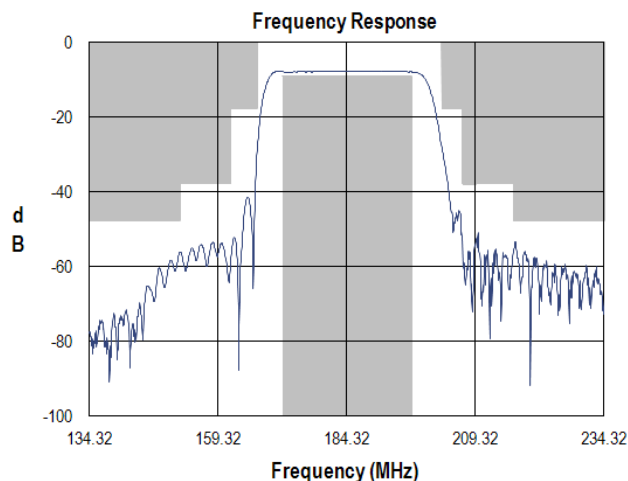
Notes:

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

Bill of Material

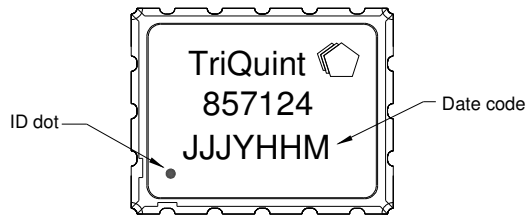
Reference Desg.	Value	Description	Manufacturer	Part Number
L1	56nH	Coil Wire-wound, 0603, 5%	Coilcraft	0603CS-56NXJBC
L2	56nH	Coil Wire-wound, 0603, 5%	Coilcraft	0603CS-56NXJBC
L3	47nH	Coil Wire-wound, 0603, 5%	Coilcraft	0603CS-47NXJBC
L4	33nH	Coil Wire-wound, 0603, 5%	Coilcraft	0603CS-33NXJBC
C1	8pF	Chip Ceramic, 0603, 5%	Panasonic	ECU-V1H080DCV
C2	120pF	Chip Ceramic, 0603, 5%	Panasonic	ECU-V1H121KCV
C3	120pF	Chip Ceramic, 0603, 5%	Panasonic	ECU-V1H121KCV
SMA	N/A	SMA connector	Johnson Components	142-0701-801
PCB	N/A	3-layer	multiple	960686

Typical Performance (at room temperature)



Mechanical Information

Package Information, Dimensions and Marking

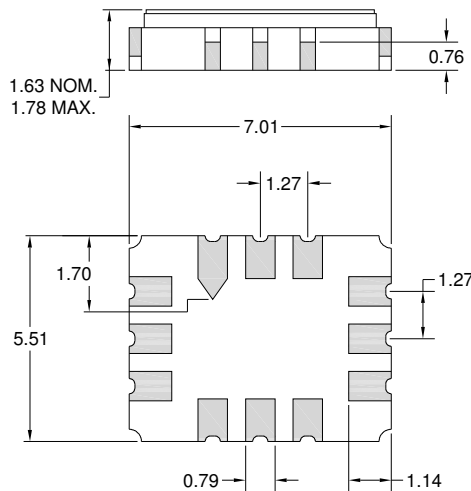


Package Style: SMP-28B
Dimensions: 7.01 x 5.51 x 1.63 mm

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

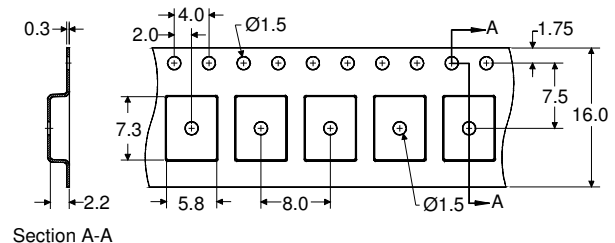
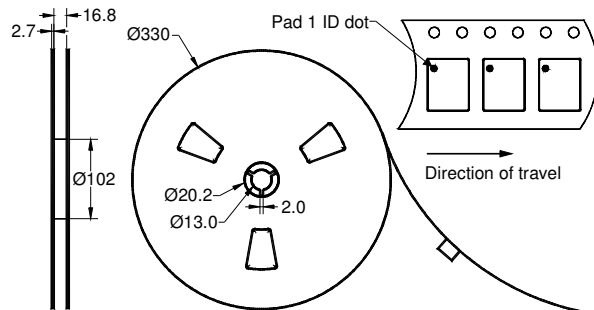
All dimensions shown are nominal in millimeters
All tolerances are $\pm 0.15 mm$ except overall length and width $\pm 0.10 mm$

The date code consists of: day of the year (Julian, 3 digits), Y = last digit of the year (1 digit), HH = hour of the day (Military) and M=Manufacturing Site Code



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: 1B

Value: Passes ≥ 800 V min.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: B

Value: Passes ≥ 300 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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