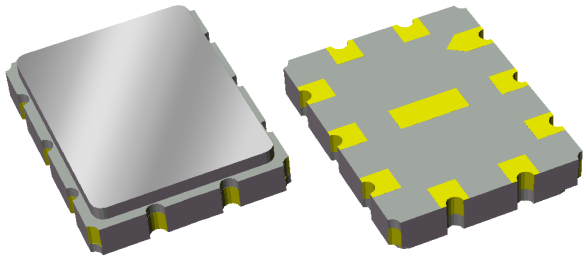
855596

320 MHz SAW Filter

Applications

- General Purpose
- For IF applications

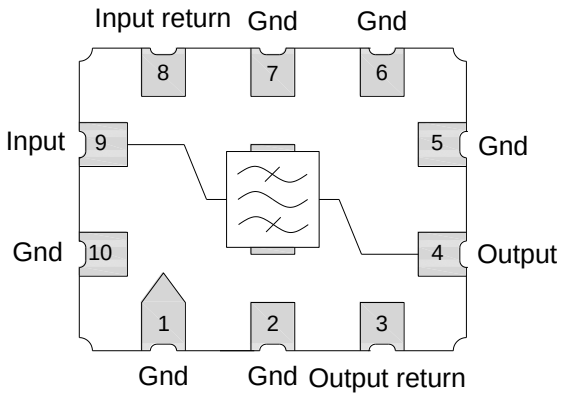


Product Features

- Typical 1dB Bandwidth of 22 MHz
- Low loss
- High attenuation
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Small Size
- Dimensions: 9.0 x 7.0 x 1.5mm
- Hermetic **RoHS** compliant, **Pb**-free

Functional Block Diagram

Top view



General Description

The 855596 is a high-performance IF SAW filter with a center frequency of 320 MHz and a 1 dB bandwidth of 22 MHz.

It features low loss with excellent attenuation, and is designed to be used with a single ended input and output.

The device is RoHS compliant and Pb-free.

Pin Configuration

Pin # SE	Description
8	Input Return
9	Input
3	Output Return
4	Output
1,2,5,6,7,10	Case Ground

Ordering Information

Part No.	Description
855596	packaged part
855596-EVB	evaluation board

Standard T/R size = 2000 units/reel.

© 2011 TriQuint Semiconductor, Inc.

Specifications

Electrical Specifications [1]

Specified Temperature Range: [2] +25 ºC

Parameter [3]	Conditions	Min	Typical [4]	Max	Units
Center Frequency		-	320	-	MHz
Minimum Insertion Loss	At Center Frequency	-	19.4	24	dB
Lower 1dB Band Edge [5]		-	307.9	308.8	MHz
Upper 1dB Band Edge [5]		332.2	332.5	-	MHz
Lower 45dB Band Edge [5]		301.3	302.3	-	MHz
Upper 45dB Band Edge [5]		-	337.4	338.5	MHz
Amplitude Variation	309 – 331 MHz	-	0.47	1.0	dB p-p
Group Delay Variation	309 – 331 MHz	-	32	60	ns p-p
Group Delay	309 – 331 MHz	-	0.56	-	µs
Relative Attenuation [5]	235 – 275 MHz	41	49	-	dB
	275 – 301 MHz	45	49	-	dB
	339 – 395 MHz	45	48	-	dB
	395 – 435 MHz	41	54	-	dB
Source Impedance (single-ended) [6]		-	50	-	Ω
Load Impedance (single-ended) [6]		-	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. Relative to loss at center frequency
6. This is the optimum impedance in order to achieve the performance shown

Absolute Maximum Ratings

Parameter	Rating
Operating Temperature [7]	-40 to +85 °C
Storage Temperature	-40 to +85 °C

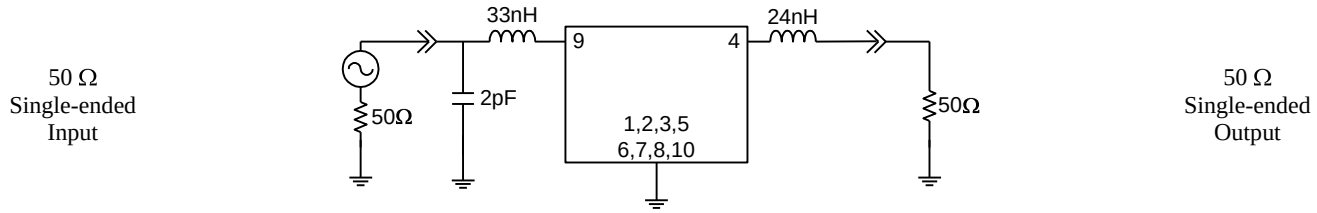
7. Device may operate over this range with degraded Electrical Specifications

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

© 2011 TriQuint Semiconductor, Inc.

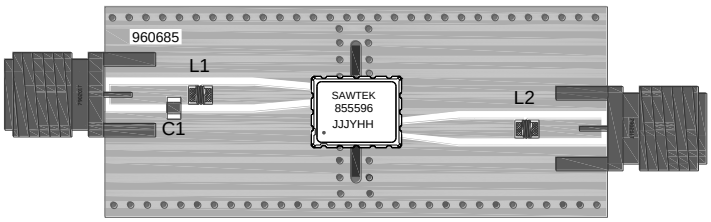
Reference Design – 50Ω SE Input, 50Ω SE Output

Schematic



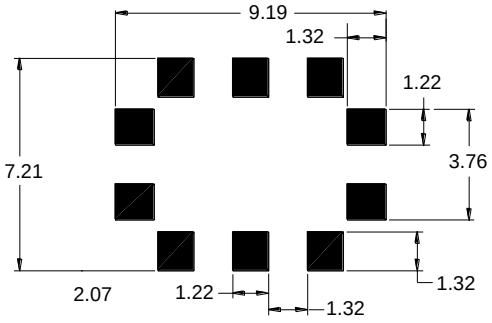
Notes:
1. Actual matching values may vary due to PCB layout and parasitics

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.

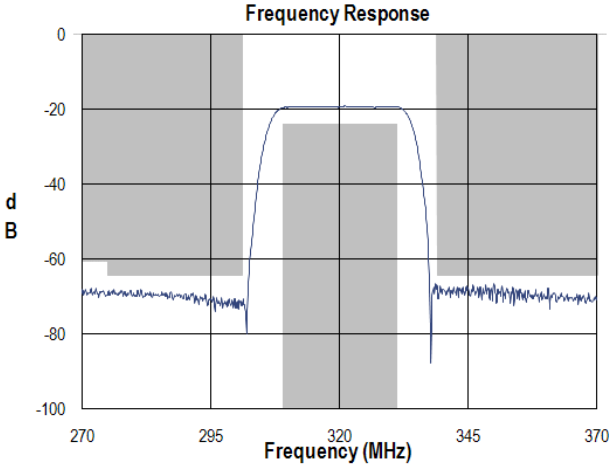
Bill of Material

Reference Desg.	Value	Description	Manufacturer	Part Number
L1	33 nH	Coil Wire-wound,0805, 5%	Coillcraft	0805CS-330XJLC
L2	24 nH	Coil Wire-wound, 0805, 5%	Coilcraft	0805CS-240XJLC
C1	2.0 pF	Chip Capacitor,0805, 5%	MuRata	GRM2166T1H2R0CD01
SMA	N/A	SMA connector	Radiall USA Inc.	9602-1111-018
PCB	N/A	3-layer	multiple	960685

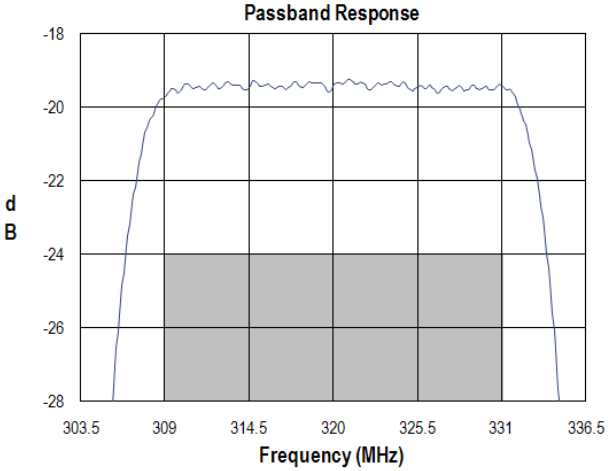
© 2011 TriQuint Semiconductor, Inc. *Connecting the Digital World to the Global Network*

Typical Performance (at room temperature)

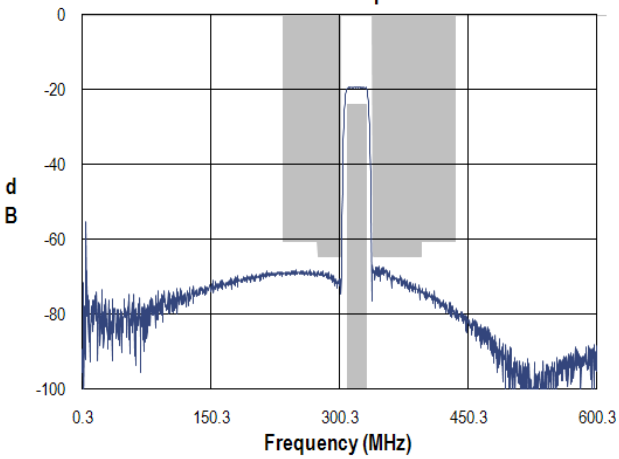
Frequency Response



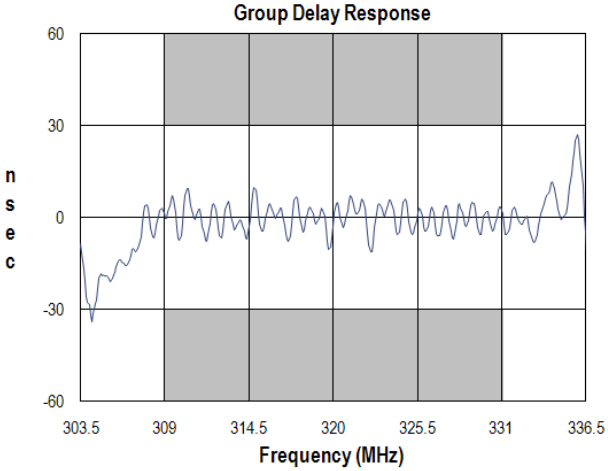
Passband Response



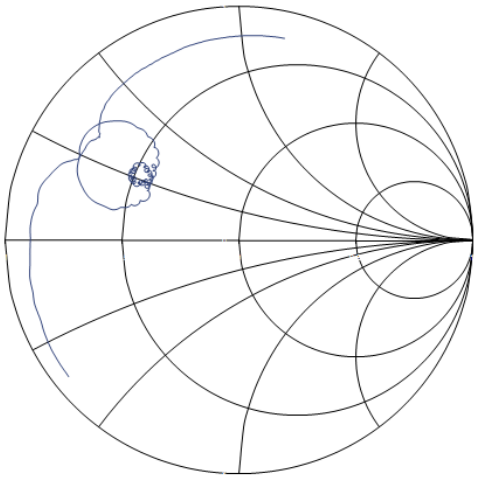
Wideband Response



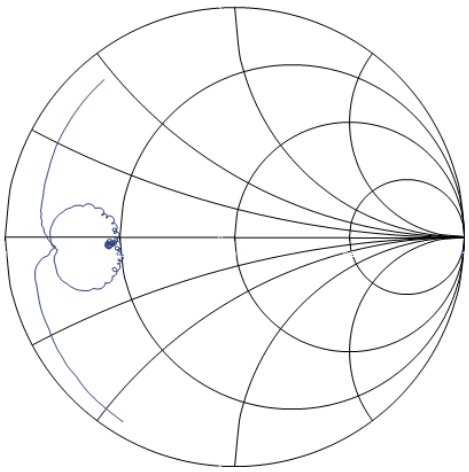
Group Delay Response



Input Smith Chart



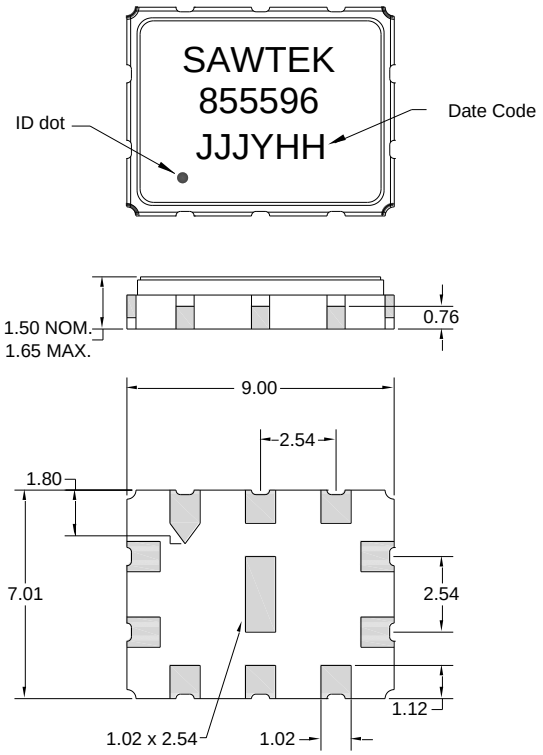
Output Smith Chart



© 2011 TriQuint Semiconductor, Inc.

Mechanical Information

Package Information, Dimensions and Marking



Package Style: SMP-35B
Dimensions: 9.00 x 7.01 x 1.50 mm

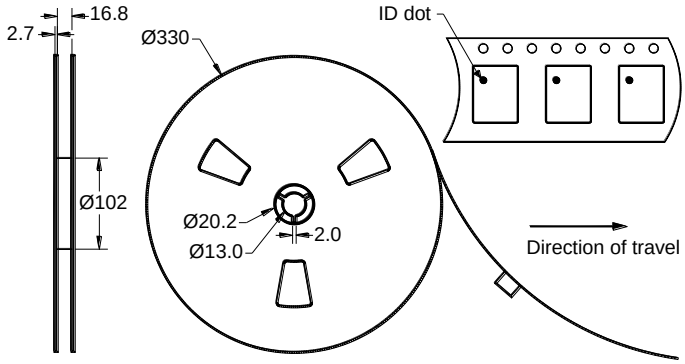
Body: Al_2O_3 ceramic
Lid: *Kovar, Ni* plated
Terminations: *Au* plating 0.5 - 1.0µm, over a 2-6µm *Ni* plating

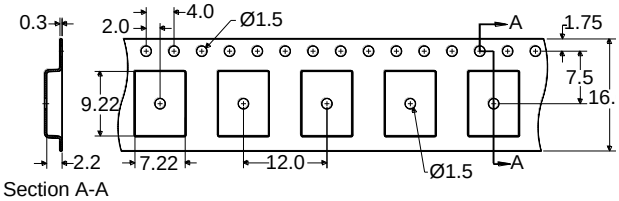
All dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width ±0.10mm

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

Tape and Reel Information

Standard T/R size = 2000 units/reel. All dimensions are in millimeters





© 2011 TriQuint Semiconductor, Inc.

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: A
Value: Passes ≥ 150 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

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

Web: www.triquint.com **Tel:** +1.407.886.8860
Email: info-sales@tqs.com **Fax:** +1.407.886.7061

For technical questions and application information:

Email: applications.engineering@tqs.com

Important Notice

The information contained herein is believed to be reliable. TriQuint makes no warranties regarding the information contain 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.

© 2011 TriQuint Semiconductor, Inc.