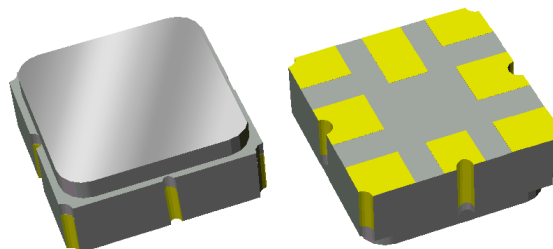


856298

1220 MHz SAW Filter

Applications

- Broadband access applications
- Application B
- Application C



Product Features

- Usable bandwidth 10 MHz
- Low loss
- High attenuation
- Balanced operation
- No impedance matching required for operation at 200 Ω
- Small Size: 3.00 x 3.00 x 1.22 mm
- Ceramic Surface Mount Package (SMP)
- Hermetic **RoHS** compliant, **Pb-free**

General Description

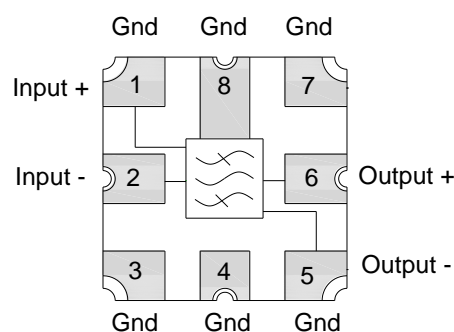
856298 is a high-performance IF SAW filter with a center frequency of 1220 MHz and bandwidth of 10 MHz

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 DOCSIS 3.0 cable modem termination systems and other broadband applications.

This device is RoHS compliant and Pb-free.

Functional Block Diagram

Top view



Pin Configuration

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

Ordering Information

Part No.	Description
856298	packaged part
856298-EVB	evaluation board

Standard T/R size = 5000 units/reel.

Specifications

Electrical Specifications ⁽¹⁾

Specified Temperature Range: ⁽²⁾ -10 to +70 °C

Parameter ⁽³⁾	Conditions	Min	Typical ⁽⁴⁾	Max	Units
Center Frequency		-	1220	-	MHz
Maximum Insertion Loss	1215– 1225 MHz	-	4.5	5.5	dB
Lower 1.5 dB Bandedge ⁽⁵⁾		-	1209.5	1215	MHz
Upper 1.5 dB Bandedge ⁽⁵⁾		1225	1230.5	-	MHz
Amplitude Variation	1215– 1225 MHz	-	0.5	1.5	dB p-p
Group Delay Variation	1215– 1225 MHz	-	30	-	ns p-p
Stopband Rejection ⁽⁵⁾	500 – 1152 MHz	55	60	-	dB
	1152 – 1190 MHz	30	55	-	dB
	1250 – 1288 MHz	30	55	-	dB
	1288 – 2000 MHz	50	55	-	dB
Source/Load Impedance ⁽⁶⁾	Balanced	-	200	-	Ω
Source/Load Impedance ⁽⁶⁾	Balanced	-	200	-	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 insertion loss at center frequency
6. This is the optimum impedance in order to achieve the performance shown

Absolute Maximum Ratings

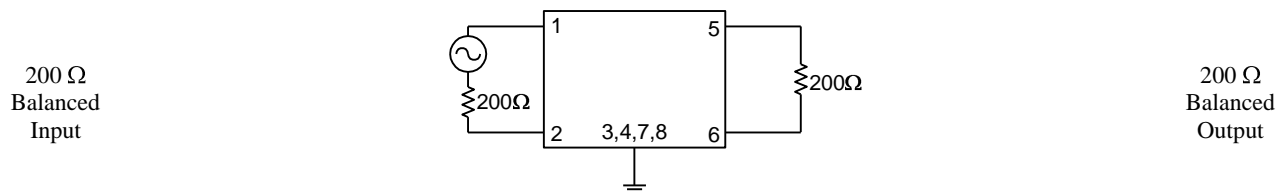
Parameter	Rating
Operating Temperature ⁽⁷⁾	-40 to +85 °C
Storage Temperature	-40 to +85 °C

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.

Reference Design 1 – 200Ω Bal Input/output

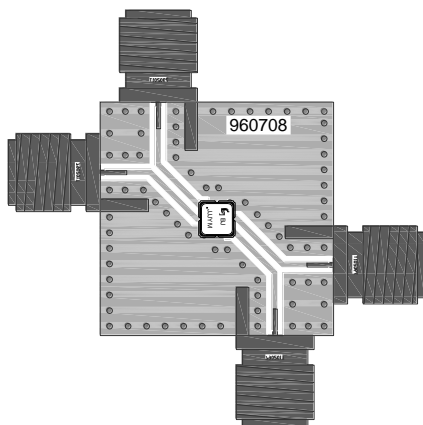
Schematic



Notes:

1. No impedance matching required
2. Actual matching values may vary due to PCB layout and parasitic

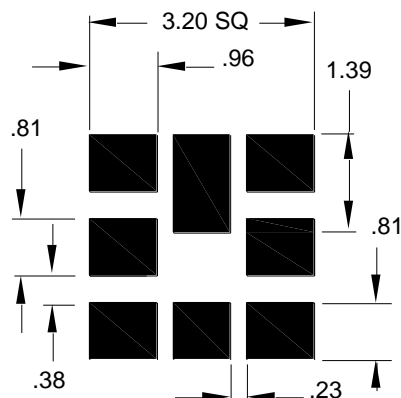
PC Board



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



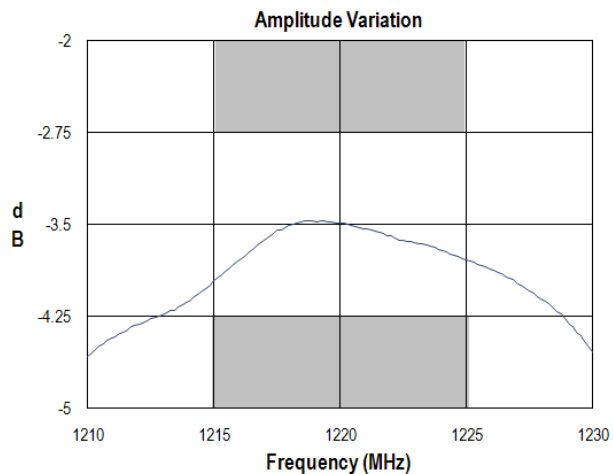
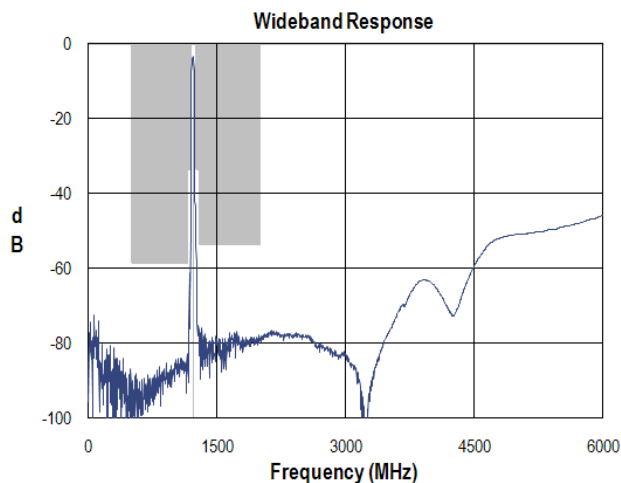
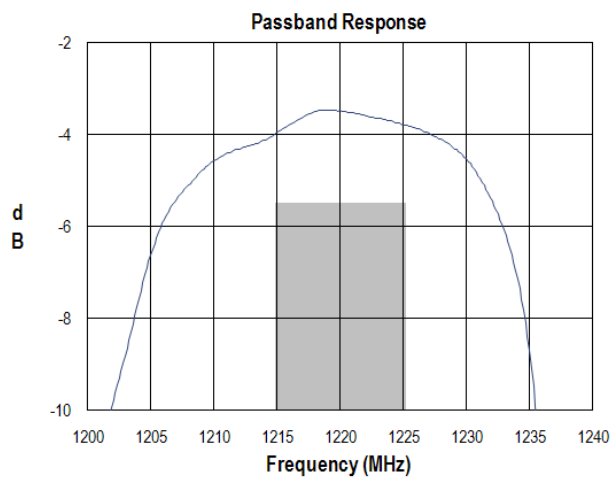
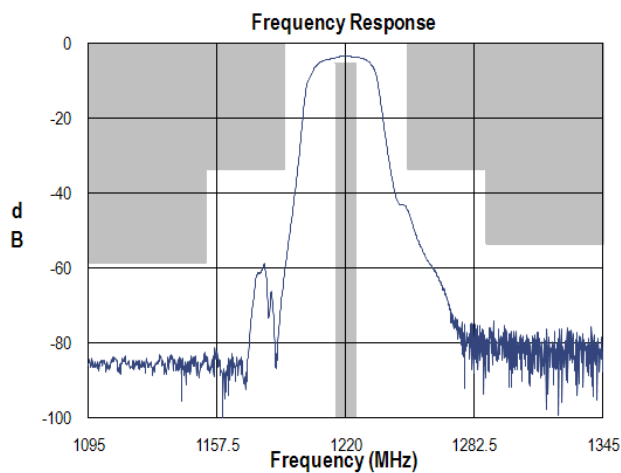
Notes:

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

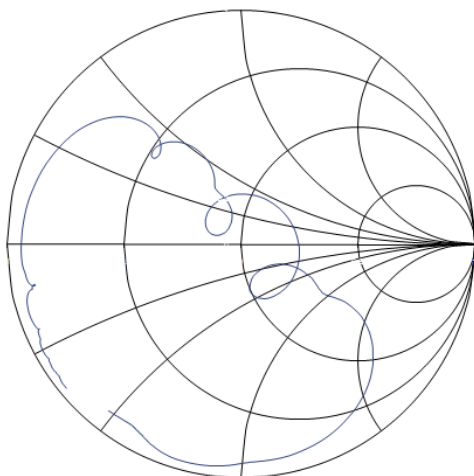
Bill of Material

Reference Desg.	Value	Description	Manufacturer	Part Number
SMA	N/A	SMA connector	Radiall USA Inc.	9602-1111-018
PCB	N/A	3-layer	multiple	960708

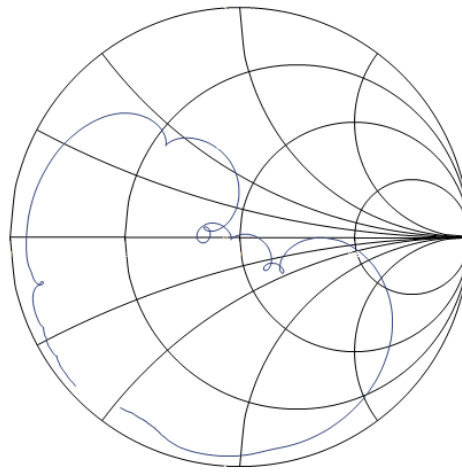
Typical Performance (at room temperature) Reference Design 1



Input Smith Chart

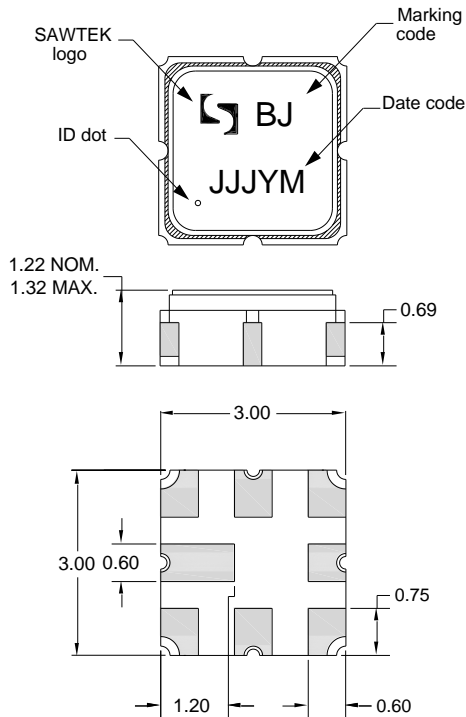


Output Smith Chart



Mechanical Information

Package Information, Dimensions and Marking



Package Style: SMP-12D
Dimensions: 3.00 x 3.00 x 1.22 mm

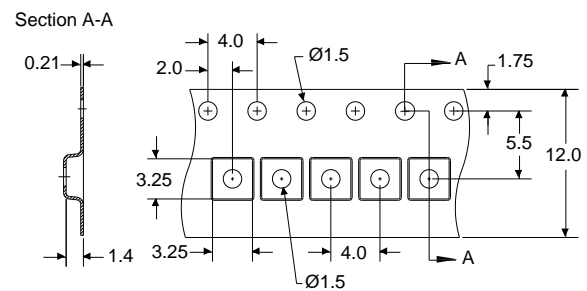
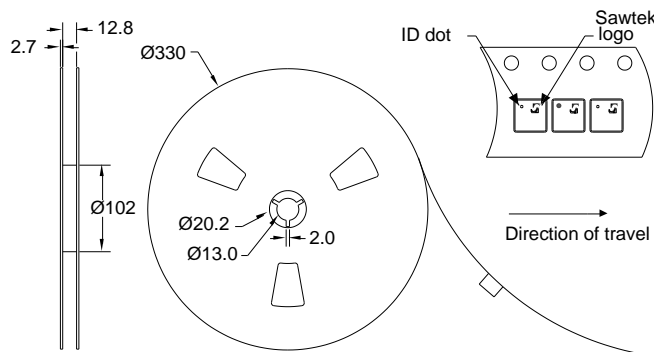
Body: Al_2O_3 ceramic
Lid: Kovar, Ni plated
Terminations: Au plating 0.5 - 1.0 μ m, over a 2-6 μ m Ni plating

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

T The date code consists of day of the current year (Julian, 3 digits), Y = last digit of the year, and M = manufacturing site code

Tape and Reel Information

Standard T/R size = 5000 units/reel. All dimensions are in millimeters



Product Compliance Information

ESD Information



Caution! ESD-Sensitive Device

ESD Rating: 0

Value: Passes $\geq 200V$ min.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: A

Value: Passes $\geq 150 V$ 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 ($C_{15}H_{12}Br_4O_2$) Free
- PFOS Free
- SVHC Free

Contact Information

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