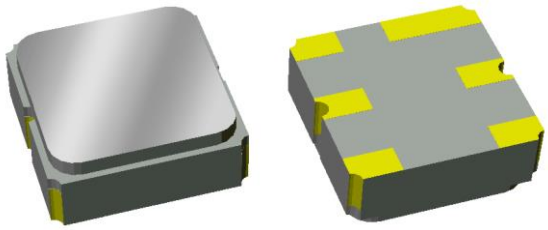
857215
1090 MHz SAW Filter

General Description

857215 is a general purpose RF filter designed in a 3x3mm hermetic package

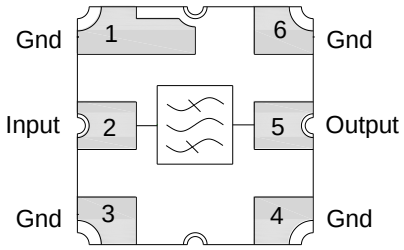


SMP-12 3.00 X 3.00 X 1.22 mm

Product Features

- Usable bandwidth 10 MHz
- High attenuation
- Low Loss
- Excellent power handling
- Single-ended operation
- No matching required for operation at 50Ω
- Small Size: 3.00 x 3.00 x 1.22 mm
- Ceramic Surface Mount Package (SMP)
- Hermetically sealed
- **RoHS** compliant, **Pb**-free

Functional Block Diagram



Top View

Applications

- General purpose RF filter

Pin Configuration - Single Ended

Pin No.	Label
1, 3, 4 6	Ground
2	Input
5	Output

Ordering Information

Part No.	Description
857215	Packaged Part
857215-EVB	Evaluation board
Standard T/R size = 5000 units/reel	

Absolute Maximum Ratings

Parameter	Rating
Storage Temperature (1)	−55 to +125 °C
Operable Temperature (2)	−55 to +85 °C
RF Input Power (3)	15 dBm

Notes:
1. Operation of this device outside the parameter ranges given may cause permanent damage.
2. Specifications are not guaranteed over all operable conditions
3. Input power with applied CW signal at +85 °C for 10K hours

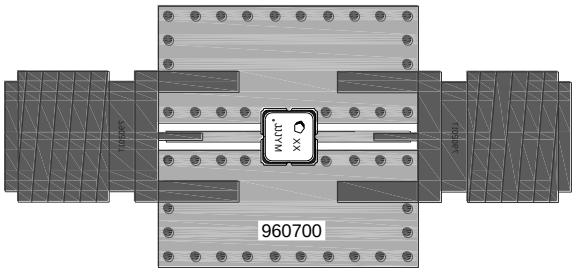
Electrical Specifications (1)

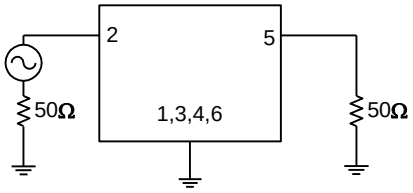
Test conditions unless otherwise noted: (2) Temp = −55 to +85 °C

Parameter (3)	Conditions	Min	Typical (4)	Max	Units
Center Frequency		-	1090	-	MHz
Maximum Insertion Loss	1085 – 1095 MHz	-	2.6	4.0	dB
Amplitude Variation (5)	1085 – 1095 MHz	-	0.2	1.25	dB p-p
Group Delay Variation	1085 – 1095 MHz	-	17.45	37	ns
1.25 dB Lower Bandedge (6) 1.25 dB Upper Bandedge		- 1095	1079.39 1100.89	1085 1095	MHz MHz
Relative Attenuation (7)	500 – 1006 MHz 1006 – 1040 MHz 1040 – 1050 MHz 1140 – 1160 MHz 1160 – 1300 MHz 1300 – 1600 MHz	54 50 48 50 54 48	61 61 52 61 58 53	- - - - - -	dB dB dB dB dB dB
Source Impedance (8)	Single-ended	-	50	-	Ohms
Load Impedance (8)	Single-ended	-	50	-	Ohms

Notes:
1. All specifications are based on the Qorvo schematics for the reference designs shown on page 3.
2. In production, devices will be tested at room temperature to a guard banded 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. Amplitude Variation is defined as the difference between the lowest loss and the highest loss within defined frequency points
6. Relative to loss 1090 MHz
7. Relative to zero dB
8. This is the optimum impedance in order to achieve the performance shown

Evaluation Board – 857215-EVB



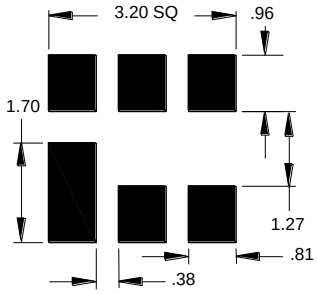


Notes:
1. No Impedance matching required.
2. PCB Fab Notes:
   - Top & bottom layers: 1 oz. copper per layer
   - Substrates: FR4 dielectric, 031" thick
   - Finish plating: Nickel: 3-8µm thick, Gold: .03 - .2µm thick
   - Hole plating: Copper min .0008µm thick

Bill of Material – 857215-EVB

Reference Des.	Value	Description	Manuf.	Part Number
DUT	-	1090 MHz SAW filter	Qorvo	857215
SMA	-	SMA connector	Radiall USA Inc.	9602-1111-018
PCB	-	3-Layer	Multiple	960700

PCB Mounting Pattern

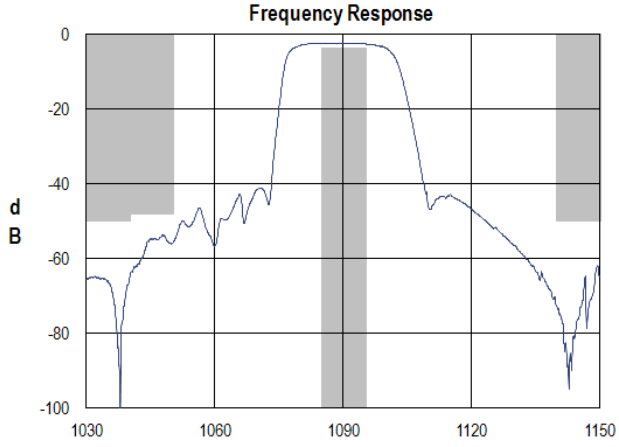


Notes:
1. All dimensions are in millimeters. Angles are in degrees.
2. This drawing specifies the mounting pattern used on the Qorvo evaluation board for this product. Some modification may be necessary to suit end user assembly materials and processes.

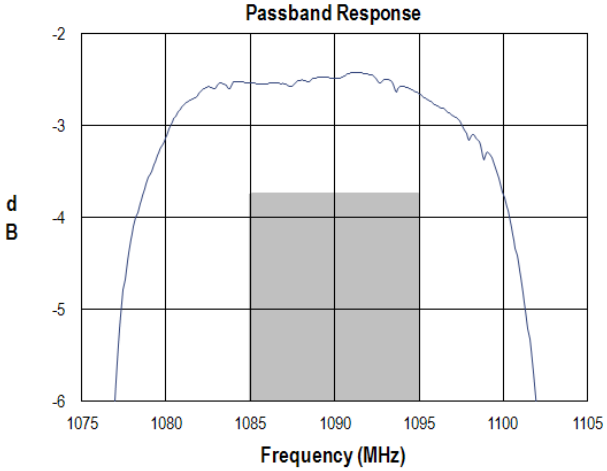
Typical Performance

Test conditions unless otherwise noted: Temp= +25°C

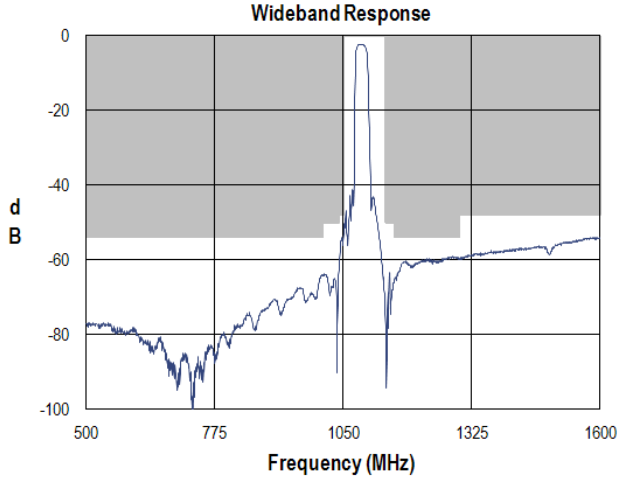
Frequency Response



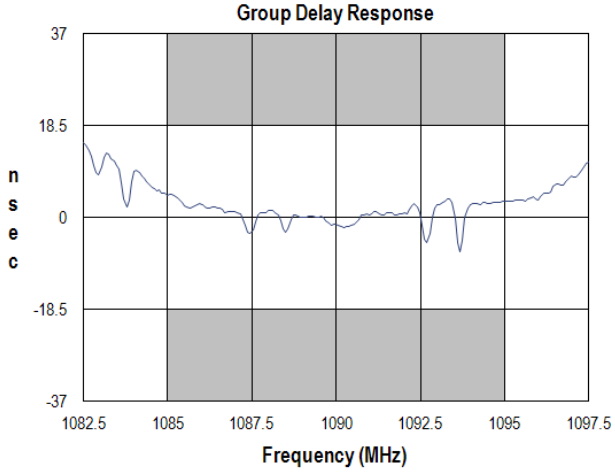
Passband Response



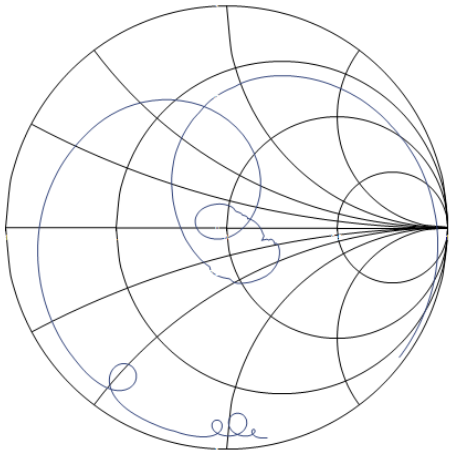
Wideband Response



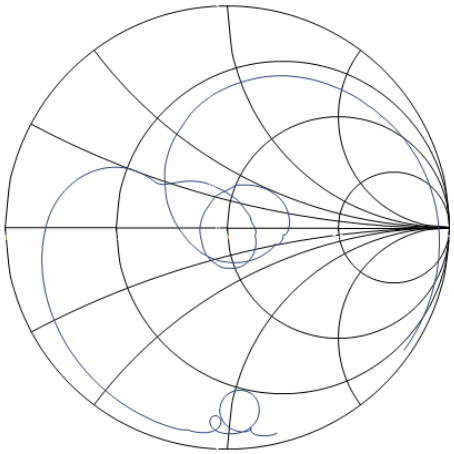
Group Delay Response



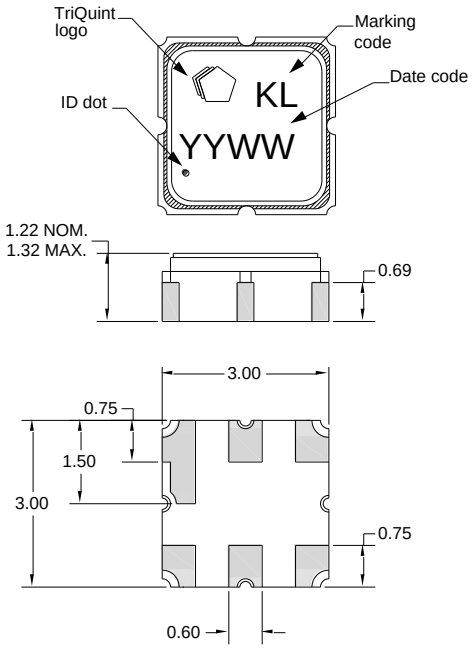
Input Smith Chart



Output Smith Chart



Package Information, Marking and Dimensions



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

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

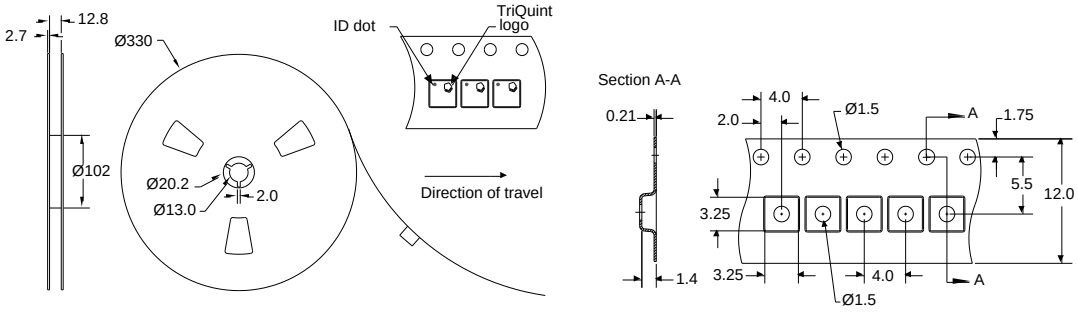
All dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width ±0.10mm

The date code consists of, YY = last 2 digits of the year, and WW = 2 digits of worked week

Notes:
1. All dimensions shown are typical in millimeters
2. An asterisk (*) in front of the marking code indicates prototype.

Tape and Reel Information

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



Handling Precautions

Parameter	Rating	Standard
ESD – Human Body Model (HBM)	Class 1A	ESDA / JEDEC JS-001-2012
ESD – Charged Device Model (CDM)	Class C1	JEDEC Standard JESD22-A115
MSL – Moisture Sensitivity Level	N/A, Hermetic Package	IPC/JEDEC J-STD-020

Caution!
ESD-Sensitive Device

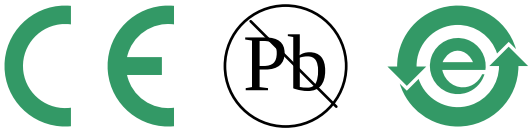
Compatible with both lead-free (260°C max. reflow temp.) and tin/lead (245°C max. reflow temp.) soldering processes.
Solder profiles available upon request.

Refer to **Soldering Profile** for recommended guidelines

RoHS Compliance

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:

- Lead Free
- Halogen Free (Chlorine, Bromine)
- Antimony Free
- TBBP-A ($C_{15}H_{12}Br_4O_2$) Free
- PFOS Free
- SVHC Free
- Qorvo Green



Contact Information

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