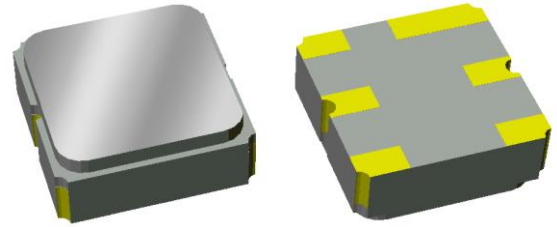


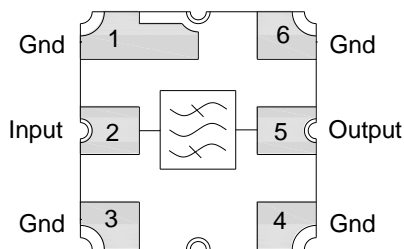
### General Description

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



SMP-12 3.00 X 3.00 X 1.22 mm

### Functional Block Diagram



Top View

### Pin Configuration - Single Ended

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

### 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**

### Applications

- General purpose RF filter

### 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 <sup>(1)</sup>	-55 to +125 °C
Operable Temperature <sup>(2)</sup>	-55 to +85 °C
RF Input Power <sup>(3)</sup>	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 <sup>(1)</sup>

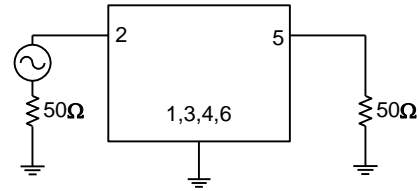
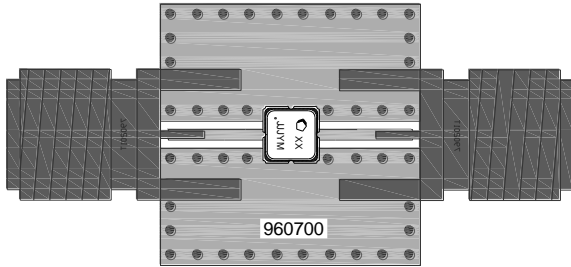
Test conditions unless otherwise noted: <sup>(2)</sup> Temp = -55 to +85 °C

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



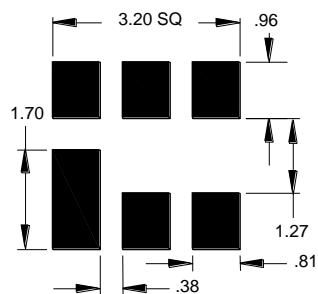
**Notes:**

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

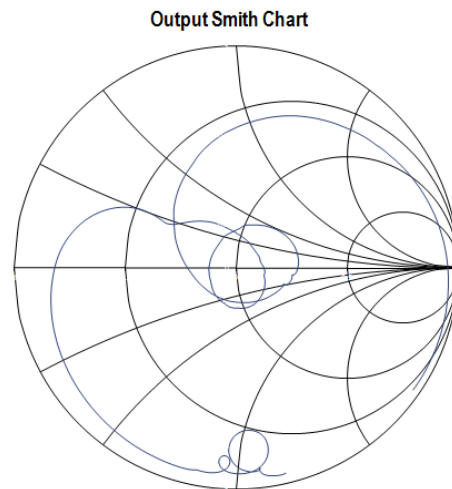
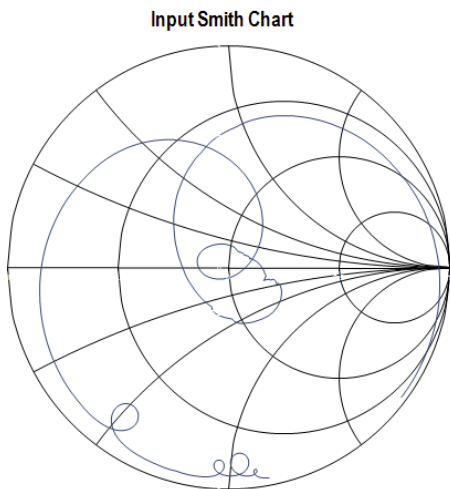
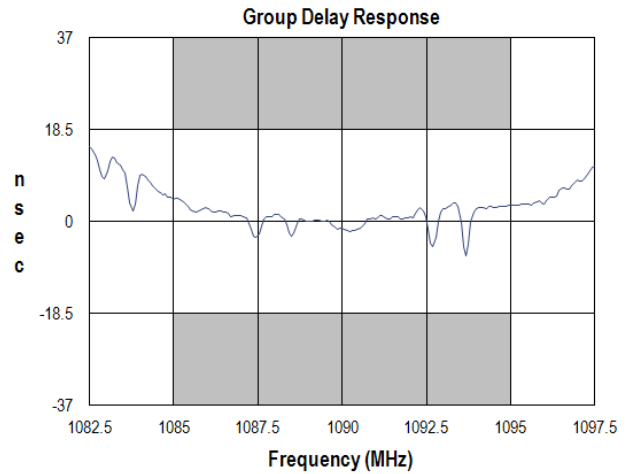
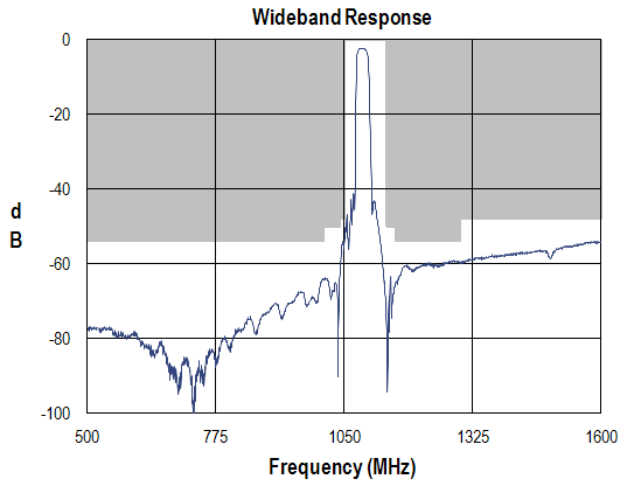
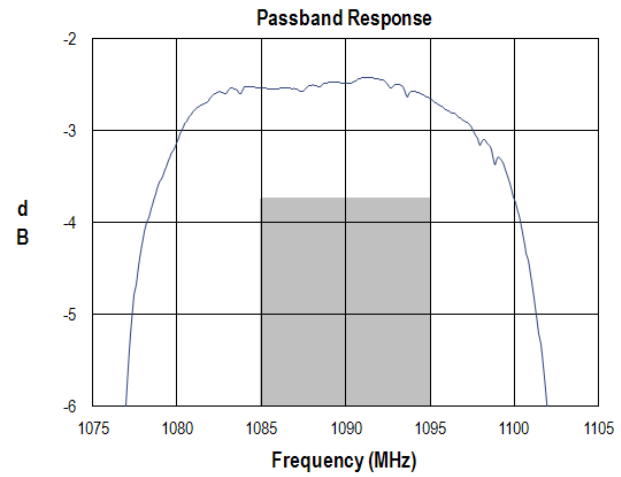
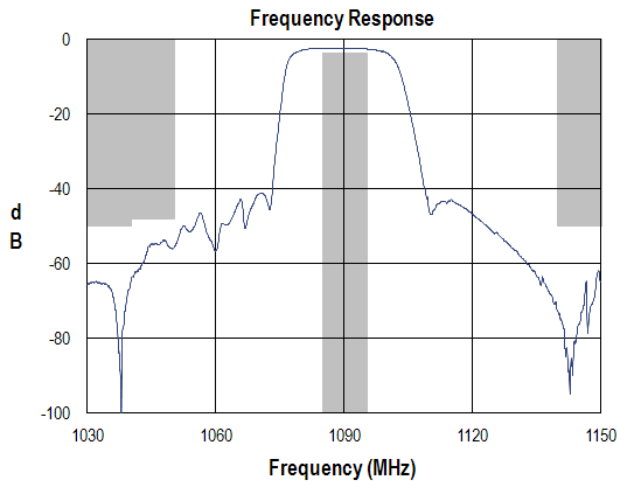


**Notes:**

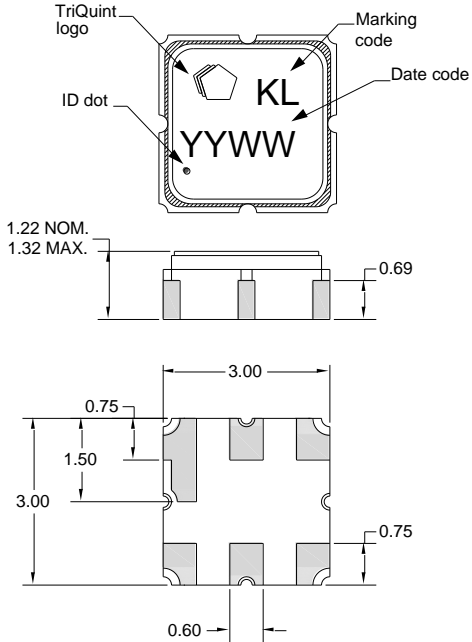
1. All dimensions are in millimeters. Angles are in degrees.
2. This drawing specifies the mounting pattern used on the Qorvo evaluation board for this product. Some modification may be necessary to suit end user assembly materials and processes.

## Typical Performance

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



## 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 - 1.0 $\mu$ m, over a 2-6 $\mu$ m 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

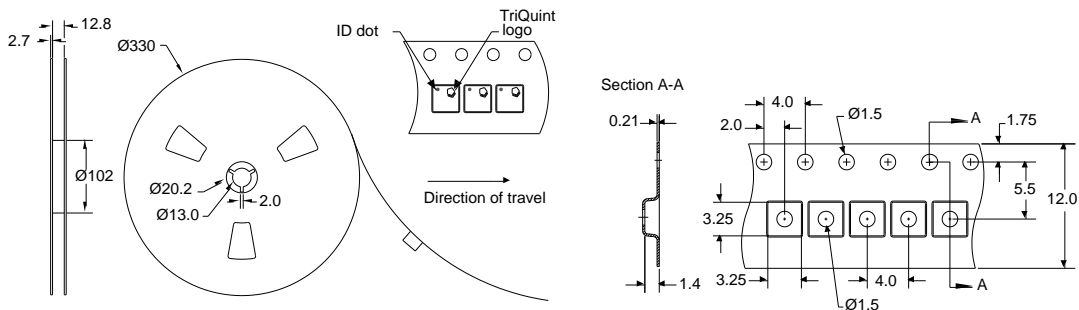
The date code consists of, YY = last 2 digits of the year, and WW = 2 digits of worked week

**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

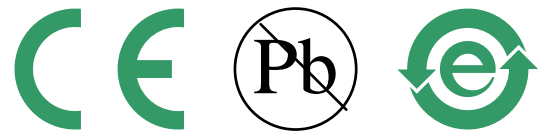
Compatible with both lead-free (260°C max. reflow temp.) and tin/lead (245°C max. reflow temp.) soldering processes. Solder profiles available upon request.

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<sub>15</sub>H<sub>12</sub>Br<sub>4</sub>O<sub>2</sub>) Free
- PFOS Free
- SVHC Free
- Qorvo Green



## Contact Information

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

**Web:** [www.qorvo.com](http://www.qorvo.com)  
**Tel:** 1-844-890-8163  
**Email:** [customer.support@qorvo.com](mailto:customer.support@qorvo.com)

For technical questions and application information: **Email:** [fapplication.engineering@qorvo.com](mailto:fapplication.engineering@qorvo.com)

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