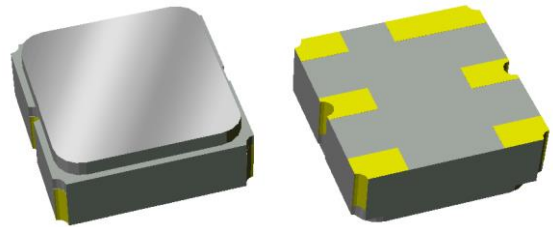


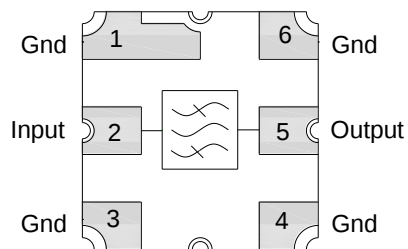
### General Description

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>

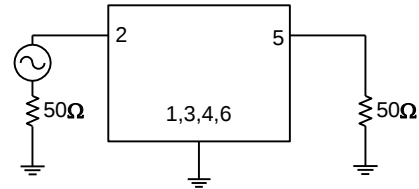
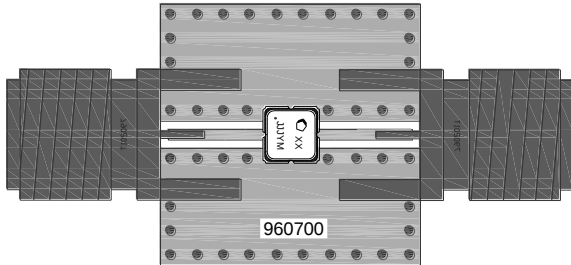
Test conditions unless otherwise noted: <sup>(2)</sup> Temp = -55 to +85 °C

| 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



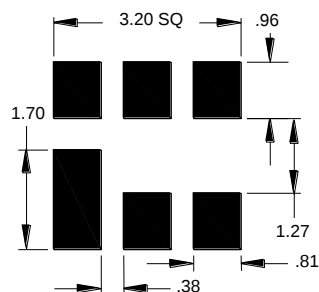
#### Notes:

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

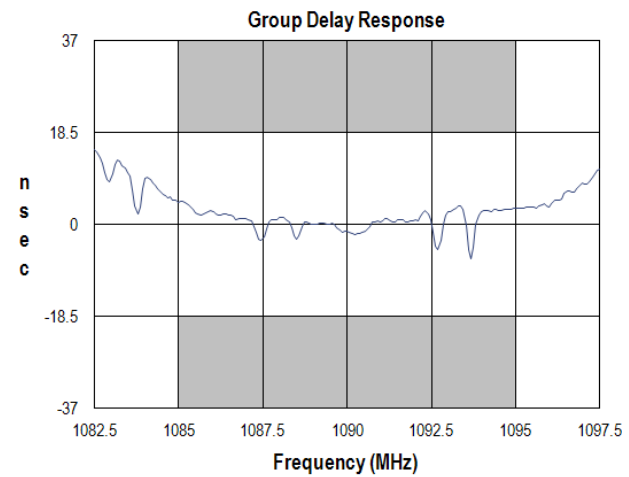
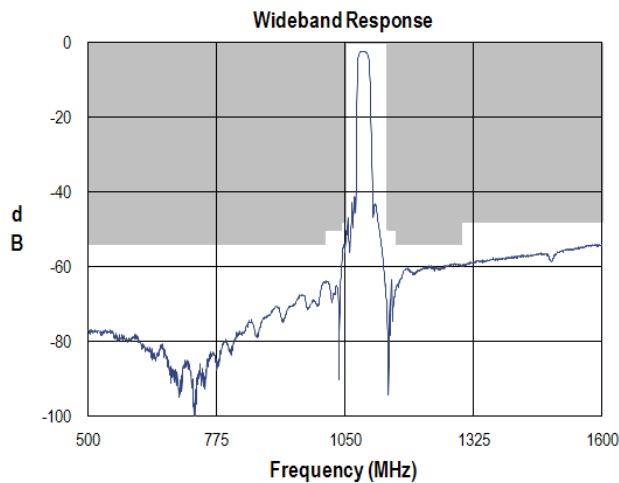
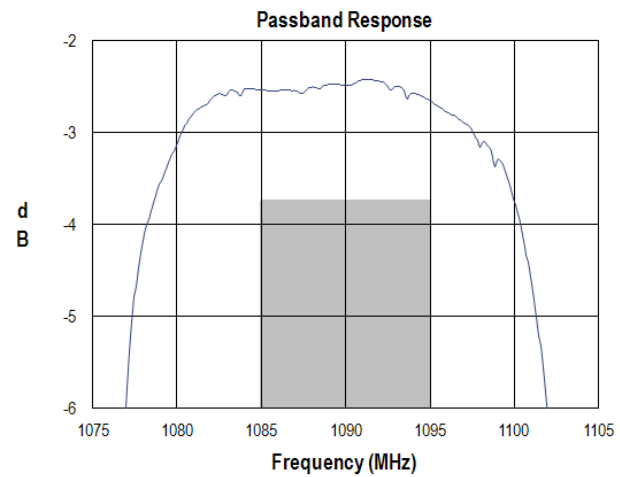
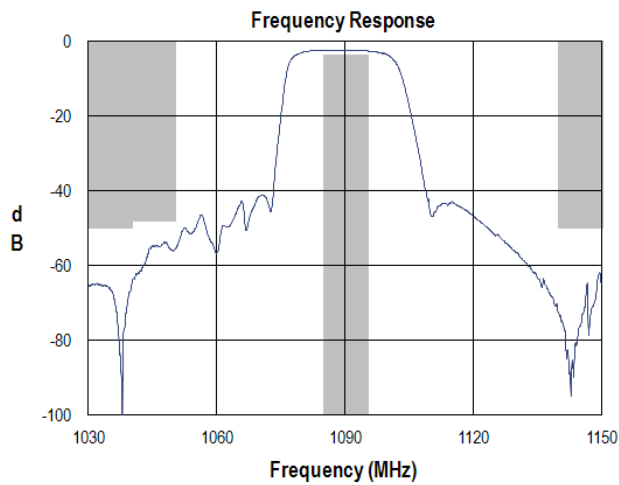


#### Notes:

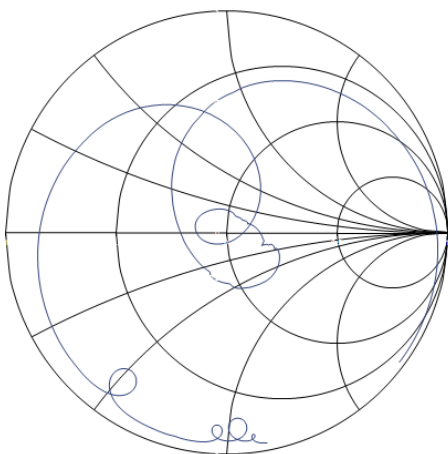
1. All dimensions are in millimeters. Angles are in degrees.
2. This drawing specifies the mounting pattern used on the Qorvo evaluation board for this product. Some modification may be necessary to suit end user assembly materials and processes.

### Typical Performance

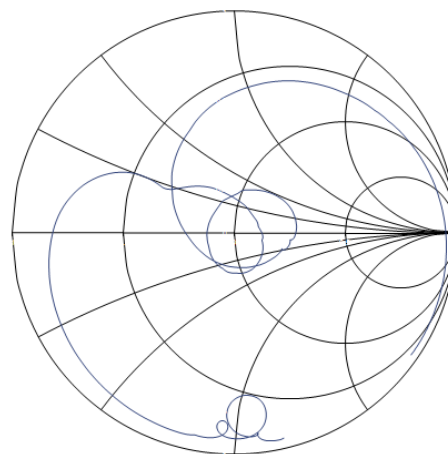
Test conditions unless otherwise noted: Temp= +25°C



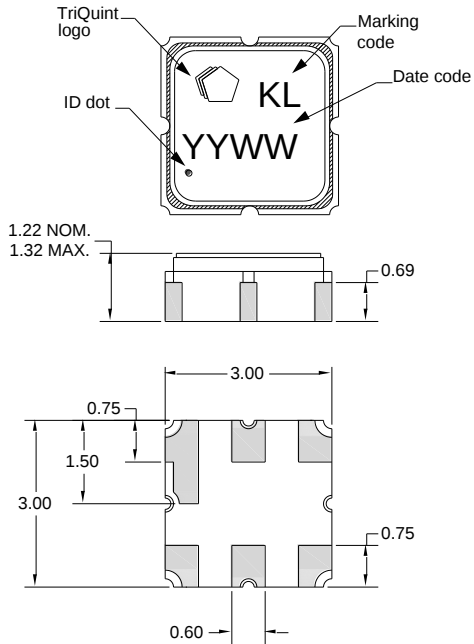
Input Smith Chart



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

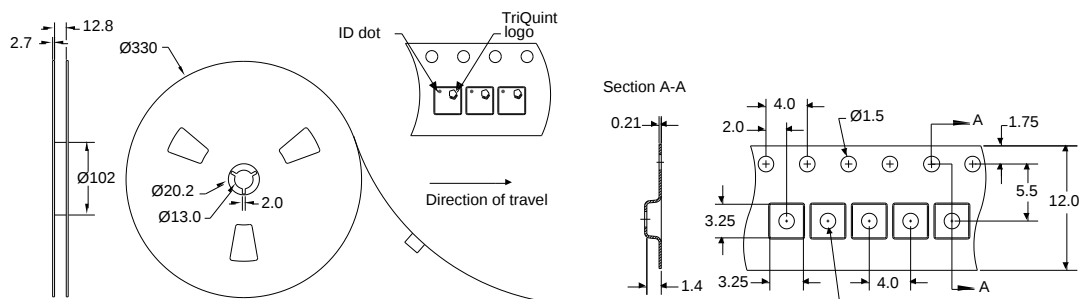
The date code consists of, YY = last 2 digits of the year, and WW = 2 digits of worked week

#### 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<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: [flapplication.engineering@qorvo.com](mailto:flapplication.engineering@qorvo.com)

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