

## SAW Components

### LTE Band40 Filter

Series type: QGSA2G35AASP2

Ordering code: QGSA2G35AASP2

Date: July 2021

Version: 2.0



These materials, including the information contained herein, may be used only for informational purposes by the customer. QuantGrav assume no responsibility for errors or omissions in these materials or the information contained herein. QuantGrav reserve the right to make changes to the product(s) or information contained herein without notice. The materials and information are provided on an AS IS basis, and QuantGrav assume no liability and make no warranty or representation, either expressed or implied, with respect to the materials, or any output or results based on the use, application, or evaluation of such materials, including, without limitation, with respect to the non-infringement of trademarks, patents, copyrights or any other intellectual property rights or other rights of third parties.

No use of this documentation or any information contained herein grants any license, whether express, implied, by estoppel or otherwise, to any intellectual property rights, including, without limitation, to any patents owned by Hubei QuantGrav Technology Co., Ltd.

Not to be used, copied, reproduced, or modified in whole or in part, nor its contents revealed in any manner to others without the express written permission of Hubei QuantGrav Technology Co., Ltd.

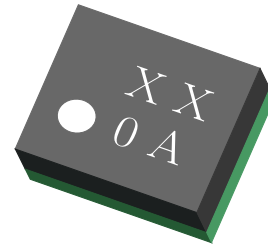
QuantGrav is trademarks of Hubei QuantGrav Technology Co., Ltd., registered in the people's Republic of China.

Contents

|      |                                        |   |
|------|----------------------------------------|---|
| 1    | Applications                           | 3 |
| 2    | Features                               | 3 |
| 3    | Package                                | 4 |
| 4    | Pin configuration                      | 4 |
| 5    | Matching circuit                       | 5 |
| 6    | Absolute Maximum Ratings               | 5 |
| 7    | Characteristics                        | 6 |
| 8    | Transmission coefficients              | 7 |
| 9    | Soldering profile                      | 8 |
| 10   | Tape and Reel                          | 9 |
| 10.1 | Tape . . . . .                         | 9 |
| 10.2 | Reel with diameter of 178 mm . . . . . | 9 |

## 1 Applications

- Low-loss Saw RF filter for mobile telephone
- 2300-2400MHz



## 2 Features

- Package size 1.1 mm x 0.9 mm
- Package height 0.5 mm (max.)
- RoHS compatible
- Package for Surface Mount Technology (SMT)
- Ni/Au-plated terminals
- Electrostatic Sensitive Device (ESD)
- Moisture Sensitivity Level 3 (MSL3)

Figure 1: Picture of component with example of product marking.

### 3 Package

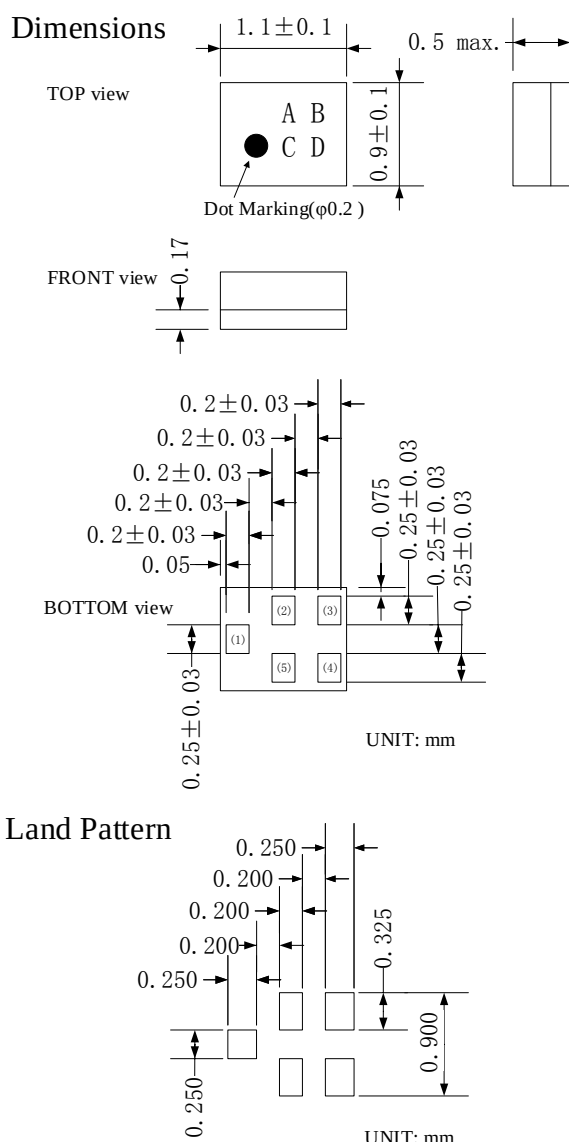


Figure 2: Drawing of package with package height A = 0.5 mm (max.)

### 4 Pin configuration

- 1 Unbalance Port
- 4 Unbalance Port
- 2,3,5 Ground

## 5 Matching circuit

- $L_1 : 6.6nH$   $L_2 : 5.5nH$
- $R_1 : 50\Omega$   $R_2 : 50\Omega$

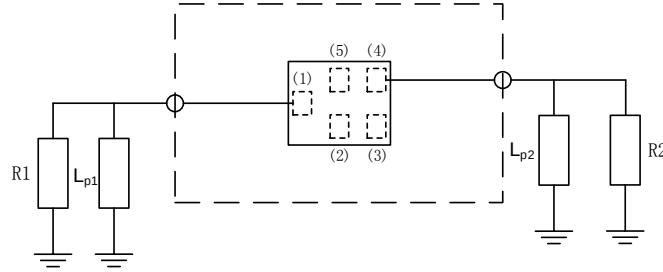


Figure 3: Schematic of matching circuit.

## 6 Absolute Maximum Ratings

Table 1: Absolute Maximum Ratings of Example Data Sheet

| Parameter             | Rating                                     |
|-----------------------|--------------------------------------------|
| Storage temperature   | $T_{STG} = -40^{\circ}C$ to $+85^{\circ}C$ |
| Operating temperature | $T_{opt} = -20^{\circ}C$ to $+85^{\circ}C$ |
| DC voltage            | $V_{DC} = 3.0V(max)$                       |
| Input power           | $P_{IN} = +15dBm$ 5000h $55^{\circ}C$      |

## 7 Characteristics

Temperature range for specification  $T_{SPEC} = -20^{\circ}C to +85^{\circ}C$

Input terminating impedance  $Z_{IN} = 50\Omega$

Output terminating impedance  $Z_{OUT} = 50\Omega$

| Item                 |                  | min. | typ. | max. | Unit | Note |
|----------------------|------------------|------|------|------|------|------|
| Center Frequency     |                  | 2350 |      |      | MHz  |      |
| Insertion Loss       | 2300 to 2400 MHz |      | 2.0  | 2.6  | dB   |      |
| Ripple Deviation     | 2300 to 2400 MHz |      | 1.1  | 2.0  | dB   |      |
| VSWR                 | 2300 to 2400 MHz |      | 1.6  | 2.0  |      |      |
| Absolute Attenuation | 1559 to 1563 MHz | 22   | 27   |      | dB   |      |
|                      | 1565 to 1573 MHz | 22   | 27   |      | dB   |      |
|                      | 1573 to 1577 MHz | 22   | 27   |      | dB   |      |
|                      | 1577 to 1585 MHz | 22   | 27   |      | dB   |      |
|                      | 1598 to 1606 MHz | 22   | 27   |      | dB   |      |
|                      | 2440 to 2500 MHz | 30   | 36   |      | dB   |      |
|                      | 2496 to 2690 MHz | 25   | 29   |      | dB   |      |
|                      | 4600 to 4800 MHz | 27   | 41   |      | dB   |      |
|                      | 5725 to 5825 MHz | 30   | 40   |      | dB   |      |

## 8 Transmission coefficients

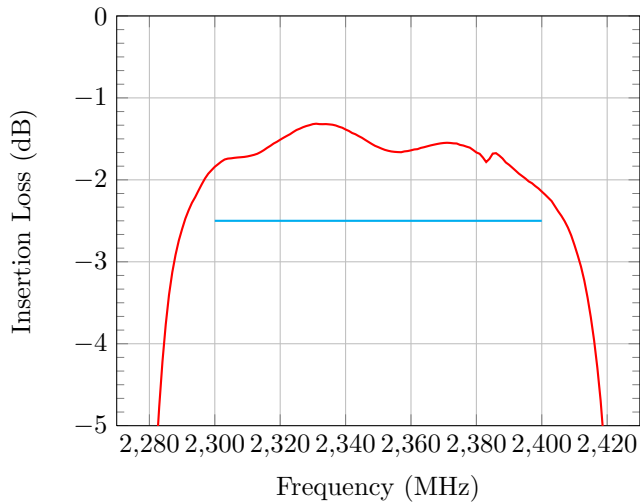


Figure 4: Passband

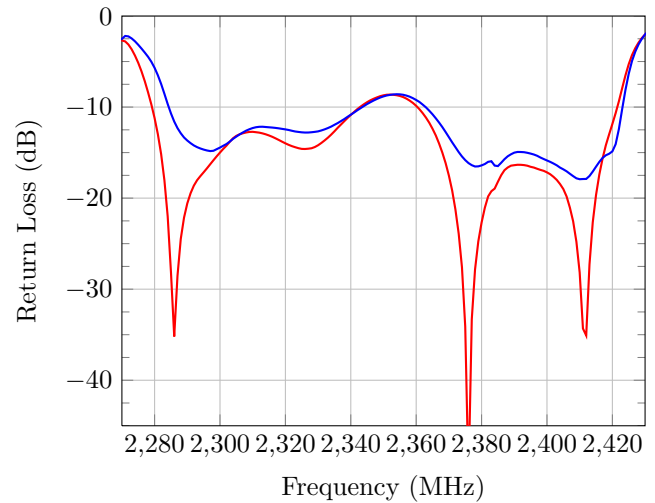


Figure 5: Input/Output Return Loss

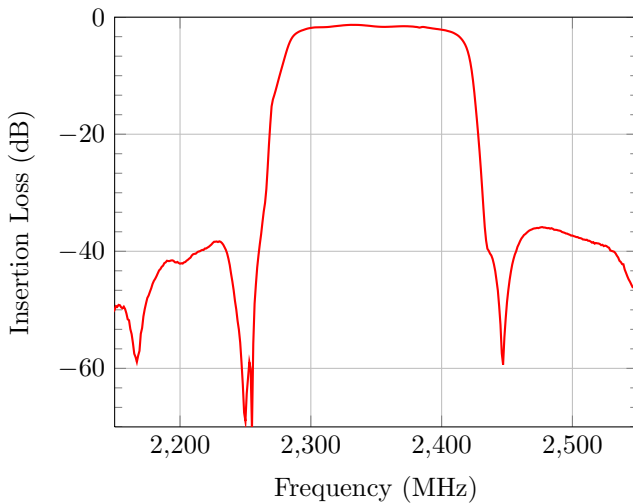


Figure 6: Narrowband

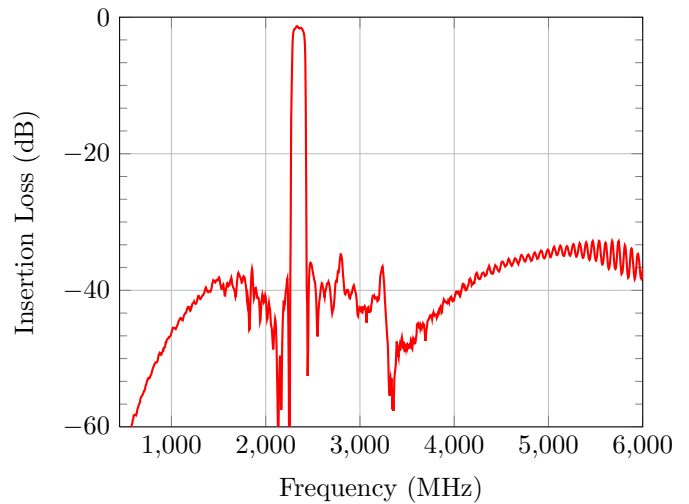
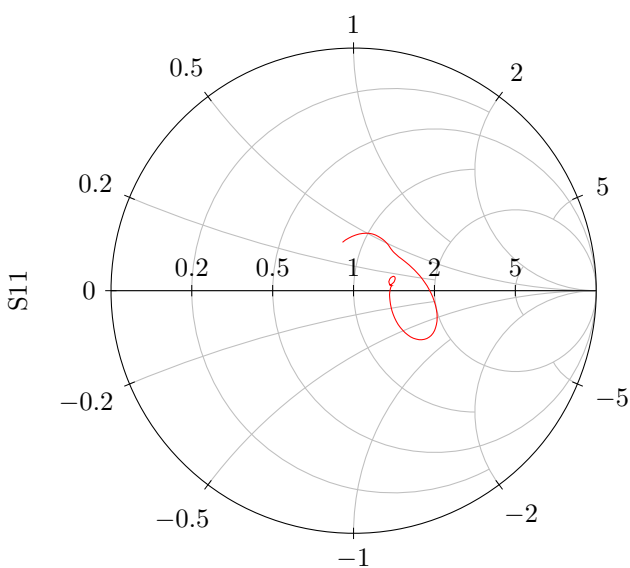
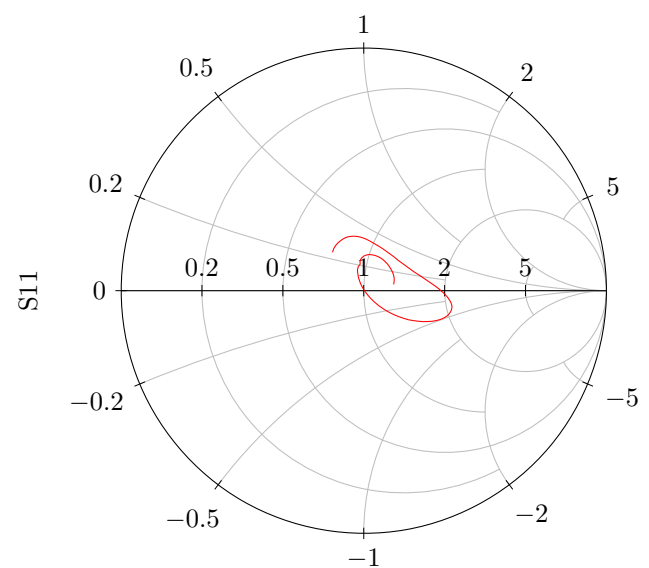


Figure 7: Wideband

Figure 8: Input Smith Chart ( $Z_0 = 50\Omega$ )Figure 9: Output Smith Chart ( $Z_0 = 50\Omega$ )

## 9 Soldering profile

The recommended soldering process is in accordance with IEC 60068-2-58-3rd edit and IPC/JEDECJ-STD-020B.

Table 2: Characteristics of recommended soldering profile for lead-free solder (Sn95.5Ag3.8Cu0.7).

| Parameter                     | Rating                                               |
|-------------------------------|------------------------------------------------------|
| Ramp rate                     | $\geq 3$ K/s                                         |
| Preheat                       | 125 °C to 220 °C, 150 s to 210 s, 0.4 K/s to 1.0 K/s |
| T >220 °C                     | 30 s to 70 s                                         |
| T >230 °C                     | Min. 10 s                                            |
| T >245 °C                     | Max. 20 s                                            |
| T $\leq$ 255 °C               | -                                                    |
| Peak temperature $T_{peak}$   | 220 °C $\pm$ 5°C                                     |
| Wetting temperature $T_{min}$ | 230 °C $\pm$ 5°C for 10s $\pm$ 1s                    |
| Cooling rate                  | $\geq 3$ K/s                                         |
| Soldering temperature T       | Measured at solder pads                              |

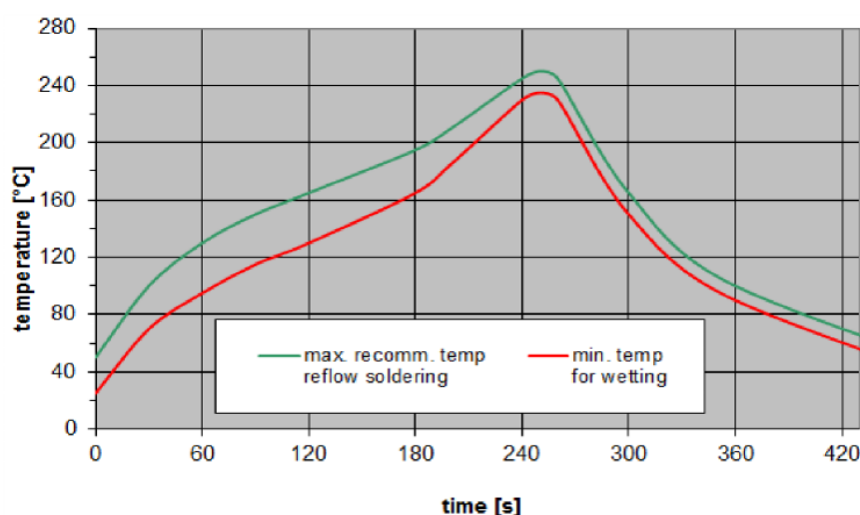


Figure 10: Drawing of reel (Recommended reflow profile for convection and infrared soldering – lead-free solder)



10 Tape and Reel

10.1 Tape

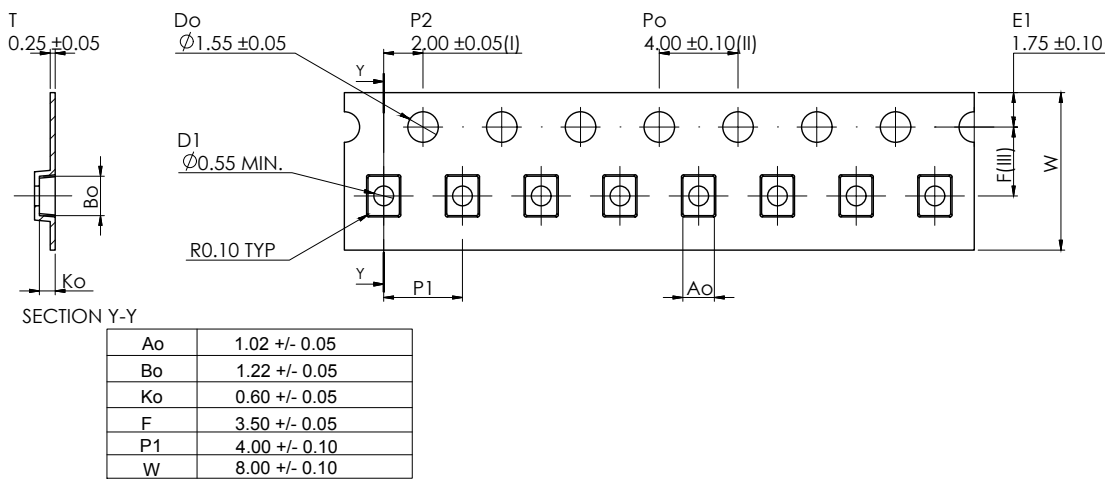


Figure 11: Drawing of tape (first-angle projection) with tape dimensions

10.2 Reel with diameter of 178 mm

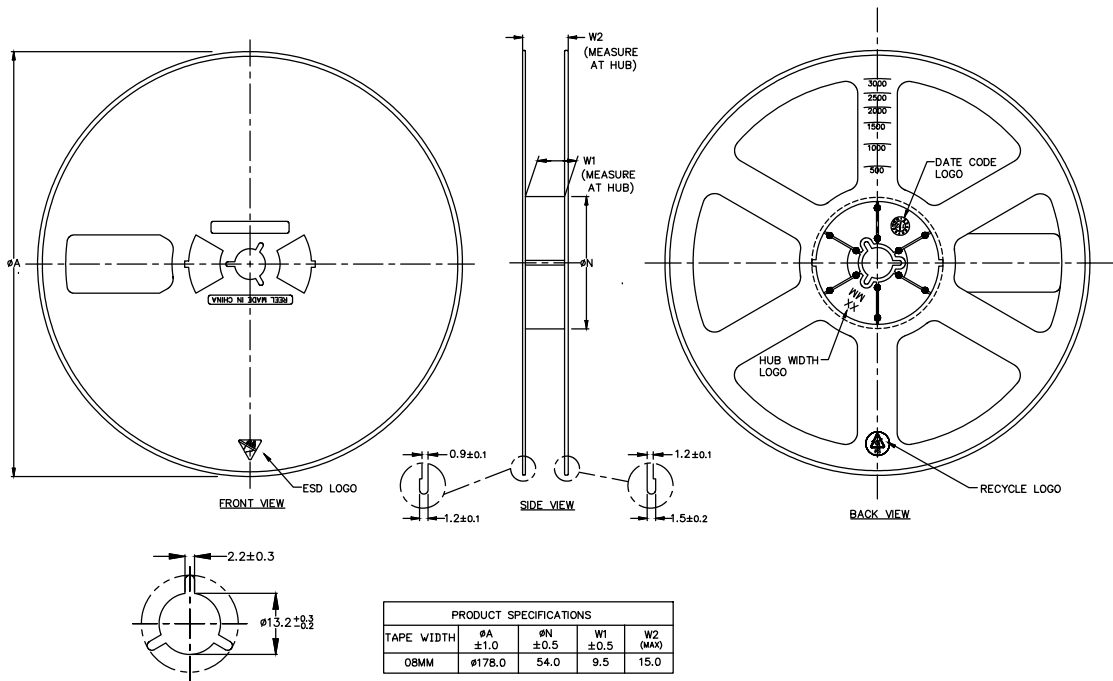


Figure 12: Drawing of reel (first-angle projection) with diameter of 180 mm