

SAW Components

SAW Filter

Cellular / LTE / Band 41-120M

Series type: QGSA2G59NASP2

Ordering code: QGSA2G59NASP2

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 CMCC+Band38
- Narrow Band41 for China, Japan and India
- 2535-2655MHz

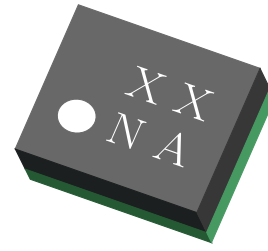


Figure 1: Picture of component with example of product marking.

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)

3 Package

4 Pin configuration

- 1 Input
- 4 Output
- 2,3,5 Ground

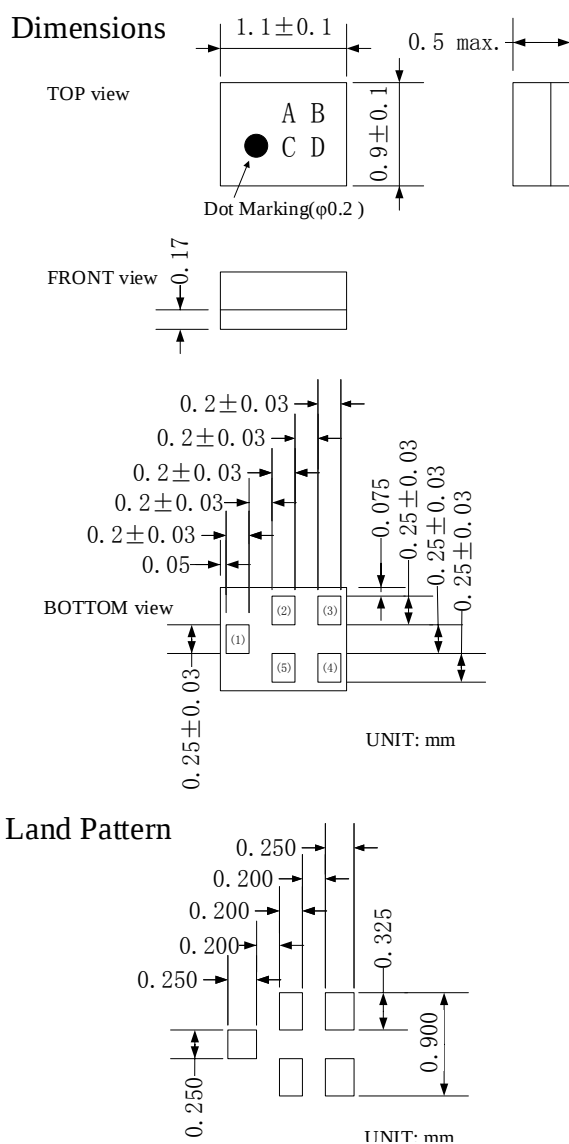


Figure 2: Drawing of package with package height $A = 0.6$ mm (max.)

5 Matching circuit

- $R_1 : 50\Omega$ $R_2 : 50\Omega$ $L_{p1} : 2.7nH$ $L_{p2} : 2.7nH$

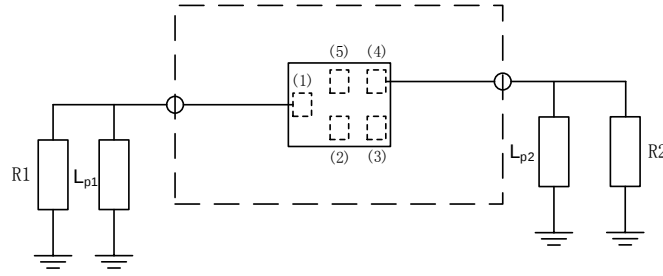


Figure 3: Schematic of matching circuit.

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 ¹	$P_{IN} = +30dBm$ 5000h $+55^{\circ}C$

¹Input signal shall be applied to TX port.

7 Characteristics

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

Input terminating impedance $L_{p1} = 2.7nH$

Output terminating impedance $L_{p2} = 2.7nH$

Item		min.	typ.	max.	Unit	Note
Center Frequency		2595			MHz	
Insertion Loss	2535 to 2655 MHz		1.8	2.6		
Ripple Deviation	2535 to 2655 MHz		0.9	2.1	dB	Any 5MHz
VSWR	2535 to 2655 MHz		1.8	2.2		Ant
Absolute Attenuation	10 to 960 MHz	34	38		dB	
	1225 to 1559 MHz	22	30		dB	
	1559 to 1606 MHz	22	30		dB	
	1606 to 1710 MHz	20	30		dB	
	1710 to 2170 MHz	20	26		dB	
	2170 to 2400 MHz	20	25		dB	
	2401 to 2483 MHz	33	35		dB	
	2750 to 4900 MHz	22	28		dB	
	4900 to 6000 MHz	26	32		dB	

8 Transmission coefficients

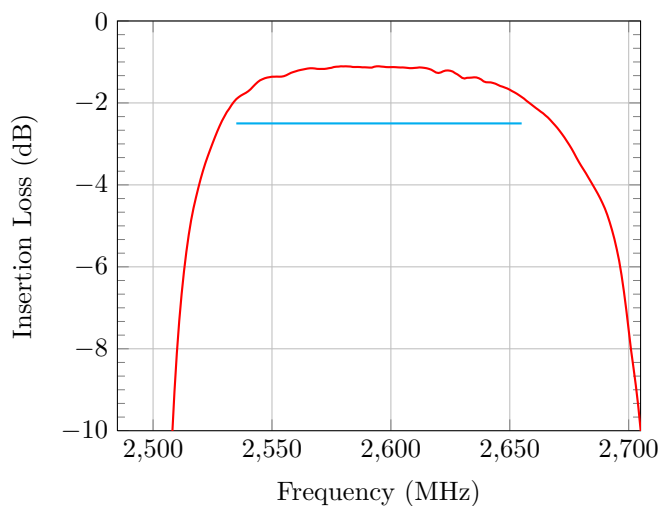


Figure 4: Passband

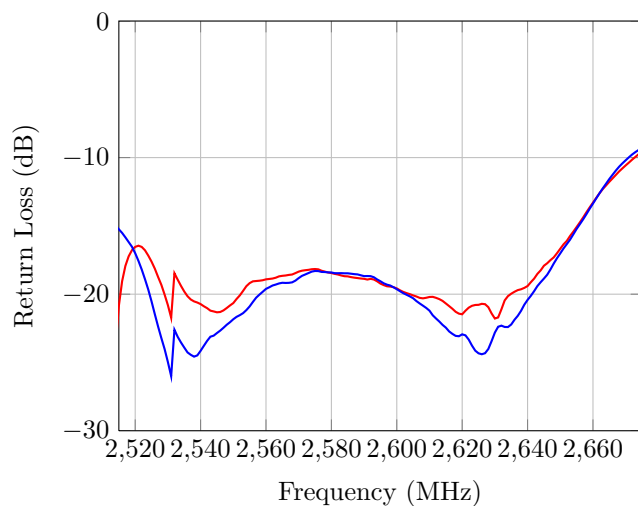


Figure 5: Input/Output Return Loss

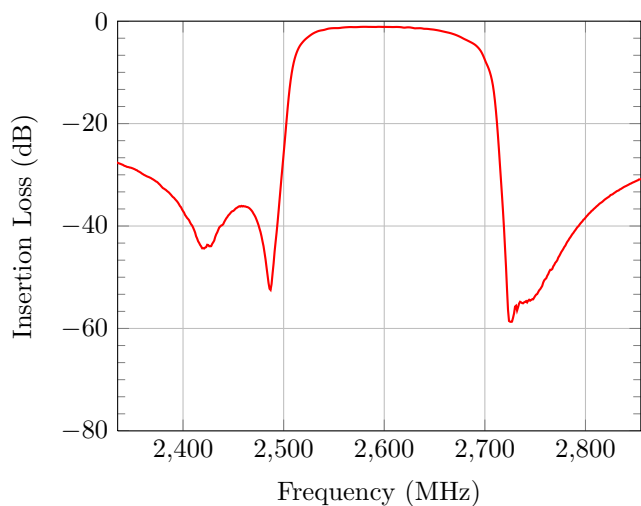


Figure 6: Narrowband

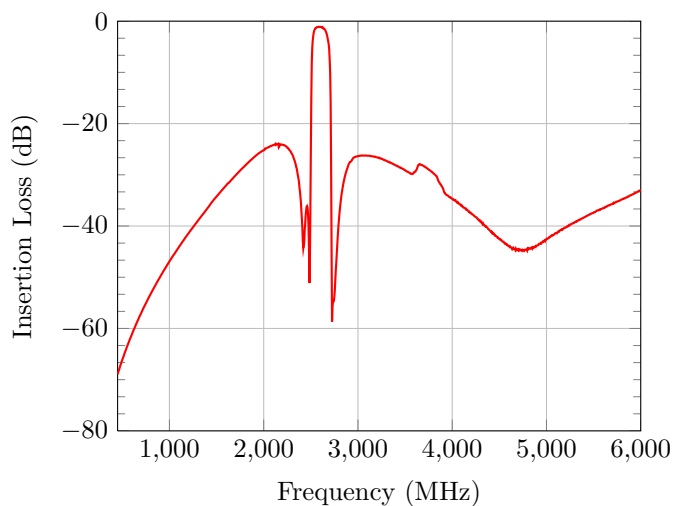
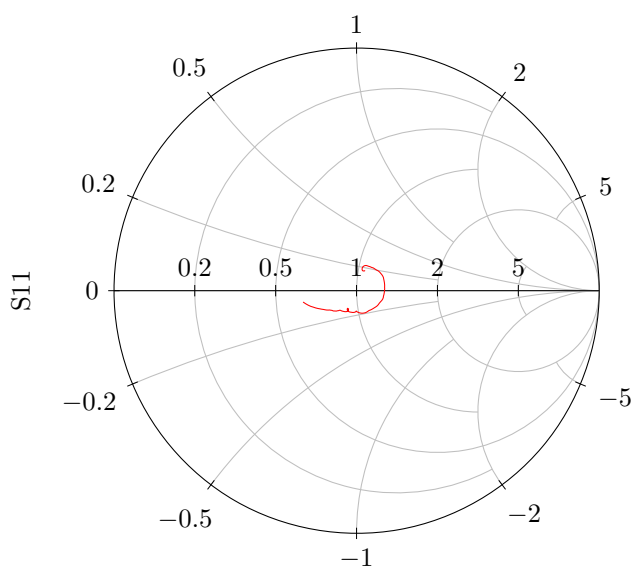
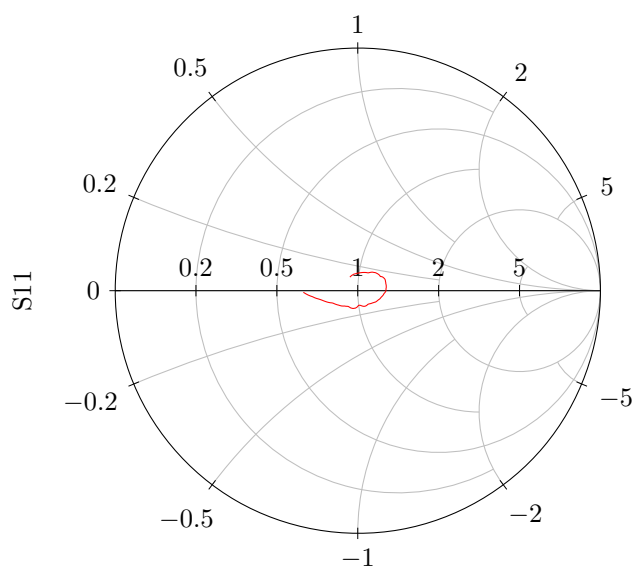


Figure 7: Wideband

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	≥ 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	≥ 3 K/s
Soldering temperature T	Measured at solder pads

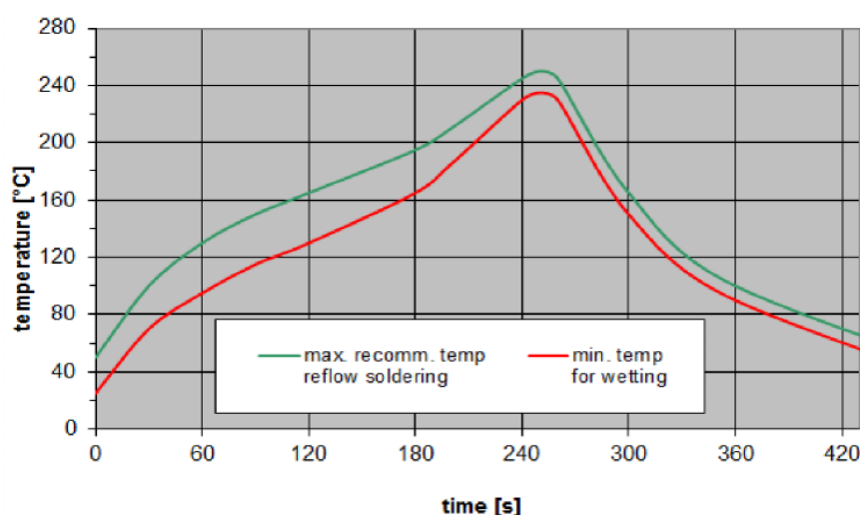


Figure 10: Drawing of reel (Recommended reflow profile for convection and infrared soldering – lead-free solder)

10 Tape and Reel

10.1 Tape

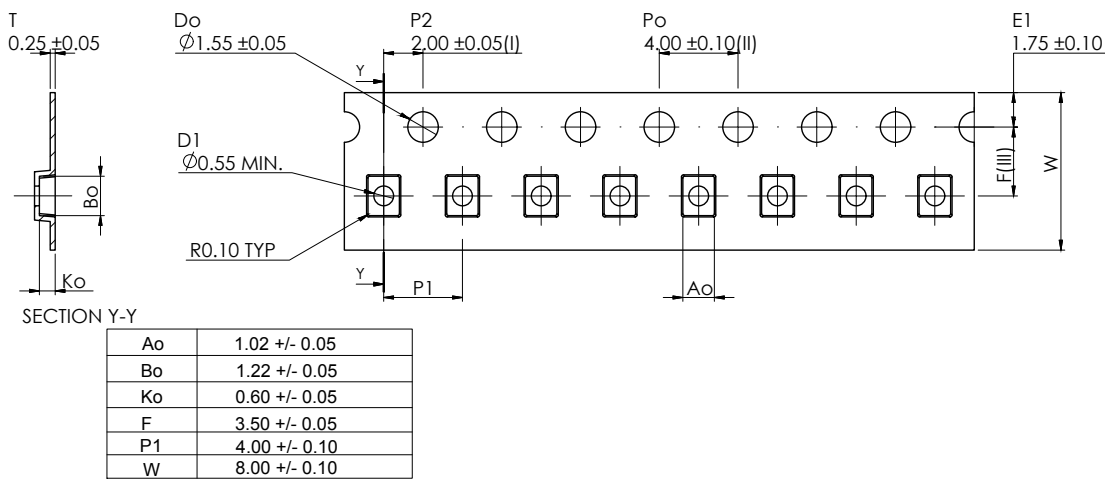


Figure 11: Drawing of tape (first-angle projection) with tape dimensions

10.2 Reel with diameter of 178 mm

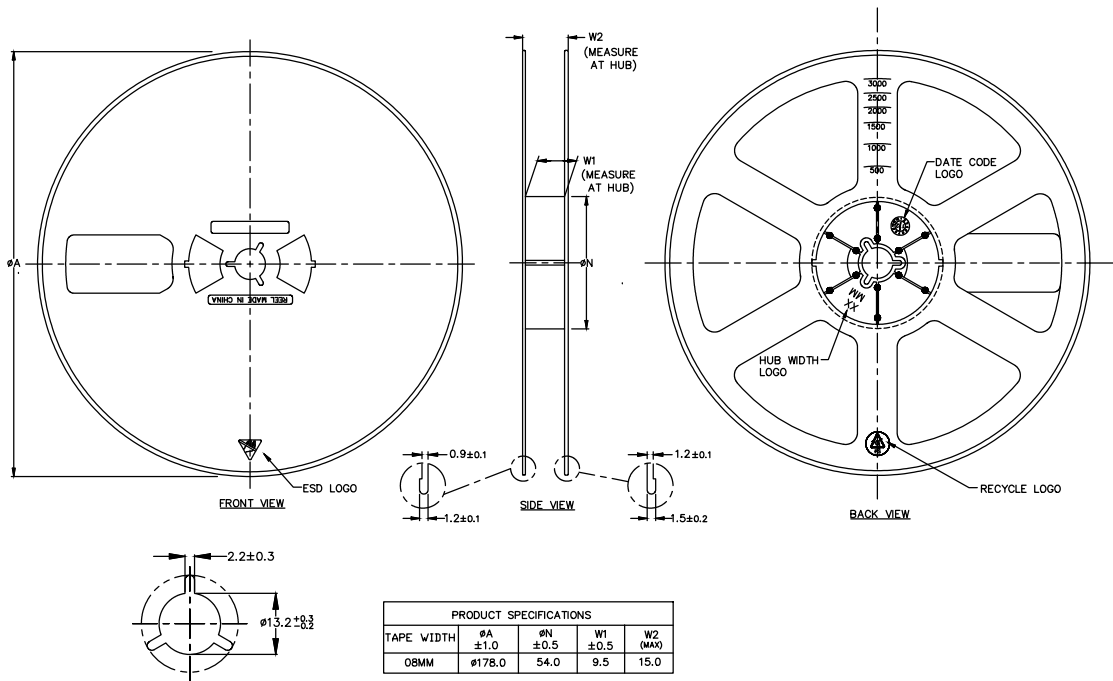


Figure 12: Drawing of reel (first-angle projection) with diameter of 180 mm