

SAW Components

SAW Filter

Cellular / LTE / Band 8 RX-15MHz

Series type: QGSA896MAASP1

Ordering code: QGSA896MAASP1

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1 Applications

- LTE B8-15MHz Rx bandpass filter for In-building Distribution System
- Low insertion attenuation
- Low amplitude ripple

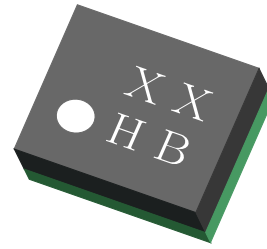
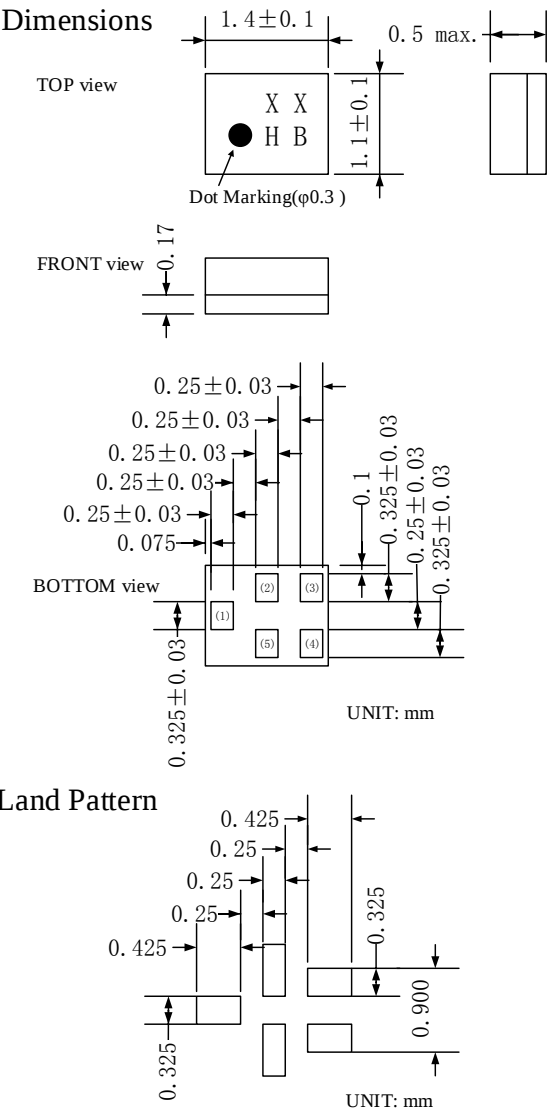


Figure 1: Picture of component with example of product marking.

2 Features

- Package size 1.4 mm x 1.1 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

- $R_1 : 50\Omega$ $R_2 : 50\Omega$

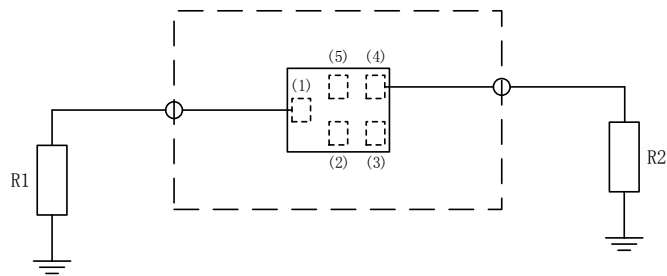


Figure 3: Schematic of matching circuit.

6 Absolute Maximum Ratings

Table 1: Absolute Maximum Ratings of Example Data Sheet

Parameter	Rating
Storage temperature	$T_{STG} = -40^{\circ}C$ to $+95^{\circ}C$
Operating temperature	$T_{opt} = -40^{\circ}C$ to $+95^{\circ}C$
DC voltage	$V_{DC} = 3.0V(max)$
Input power ¹	$P_{IN} = +32dBm$ 5000h $+55^{\circ}C$

¹Input signal shall be applied to TX port.

7 Characteristics

Temperature range for specification $T_{SPEC} = -40^{\circ}C \dots +95^{\circ}C$

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

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

Item		min.	typ.	max.	Unit	Note
Center Frequency		896.5			MHz	
Insertion Loss	889 to 904 MHz		1.1	1.7		
Ripple Deviation	889 to 904 MHz		0.5	1.0	dB	
VSWR	889 to 904 MHz		1.5	2.1		Ant
	889 to 904 MHz		1.5	2.1		Tx
Absolute Attenuation	450 to 793 MHz	30	34		dB	B20 Tx
	832 to 862 MHz	30	36		dB	
	927.5 to 957.5 MHz	34	39		dBINT	
	1559 to 1563 MHz	28	33		dB	
	1565.42 to 1605.89 MHz	28	33		dB	
	1710 to 1785 MHz	30	34		dB	
	1760 to 1880 MHz	30	34		dB	
	1920 to 1980 MHz	30	34		dB	
	2110 to 2170 MHz	30	35		dB	
	2400 to 2500 MHz	30	36		dB	
	2620 to 2745 MHz	32	38		dB	
	3520 to 3660 MHz	50	57		dB	
	4400 to 4575 MHz	28	33		dB	
	4900 to 5950 MHz	19	24		dB	

8 Transmission coefficients

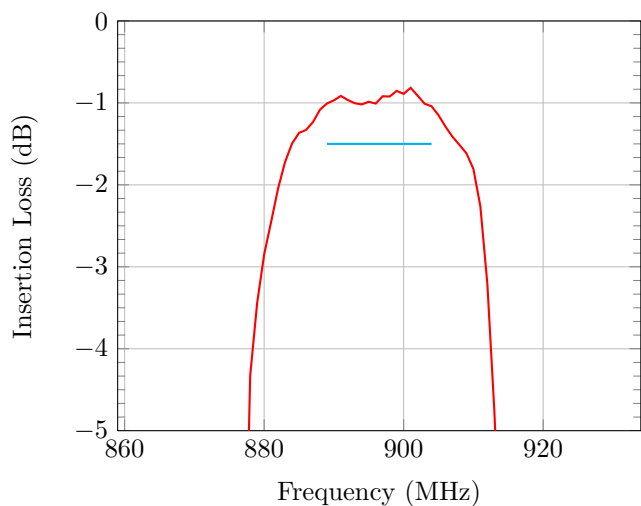


Figure 4: Passband

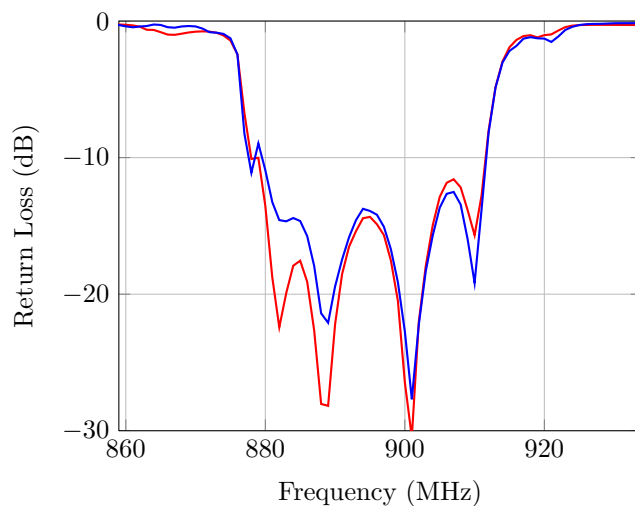


Figure 5: Input/Output Return Loss

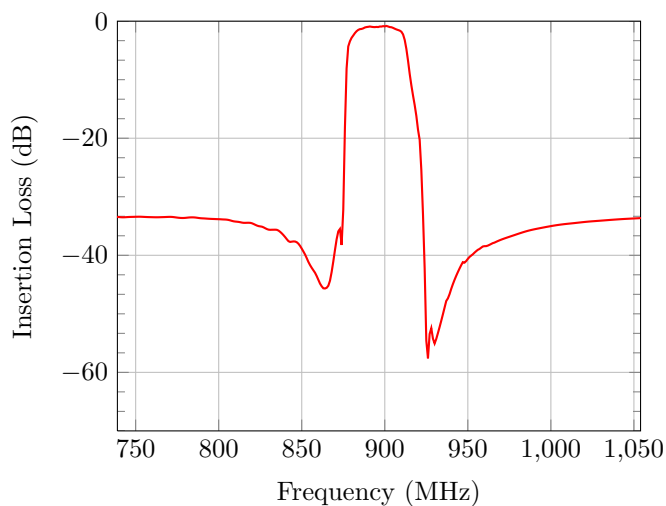


Figure 6: Narrowband

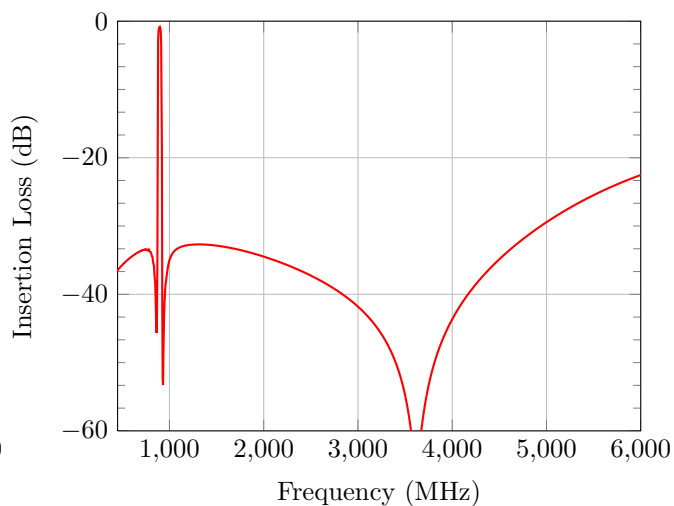
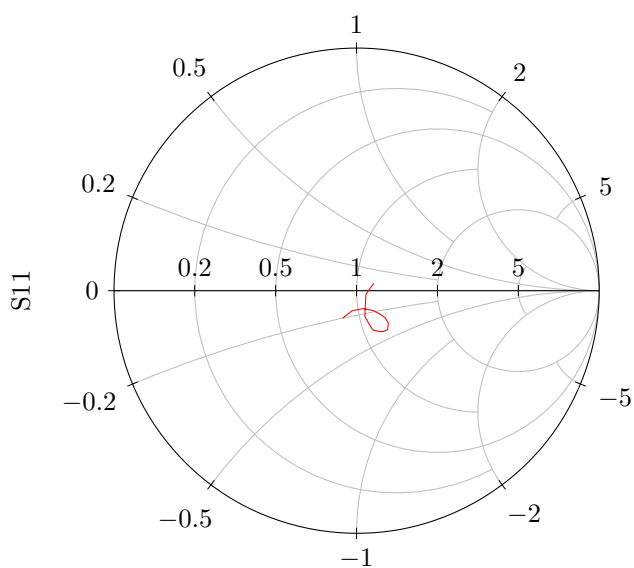
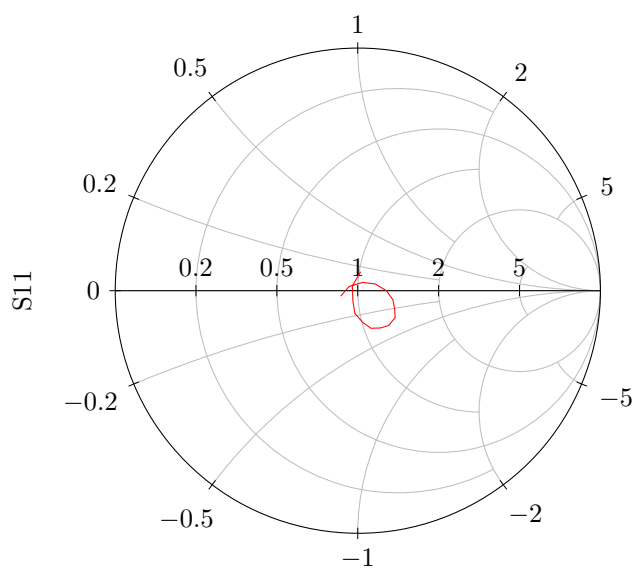


Figure 7: Wideband

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

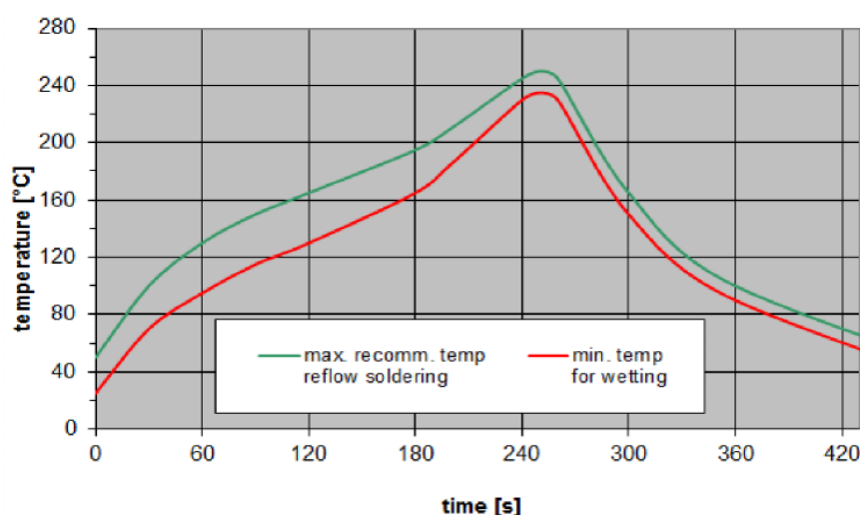


Figure 10: Drawing of reel (Recommended reflow profile for convection and infrared soldering – lead-free solder)

10 Tape and Reel

10.1 Tape

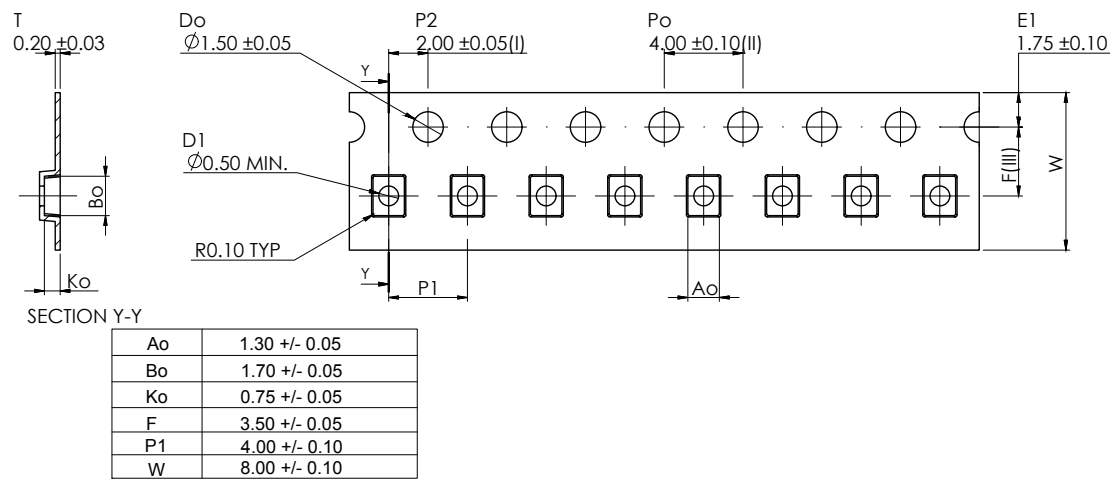


Figure 11: Drawing of tape (first-angle projection) with tape dimensions

10.2 Reel with diameter of 178 mm

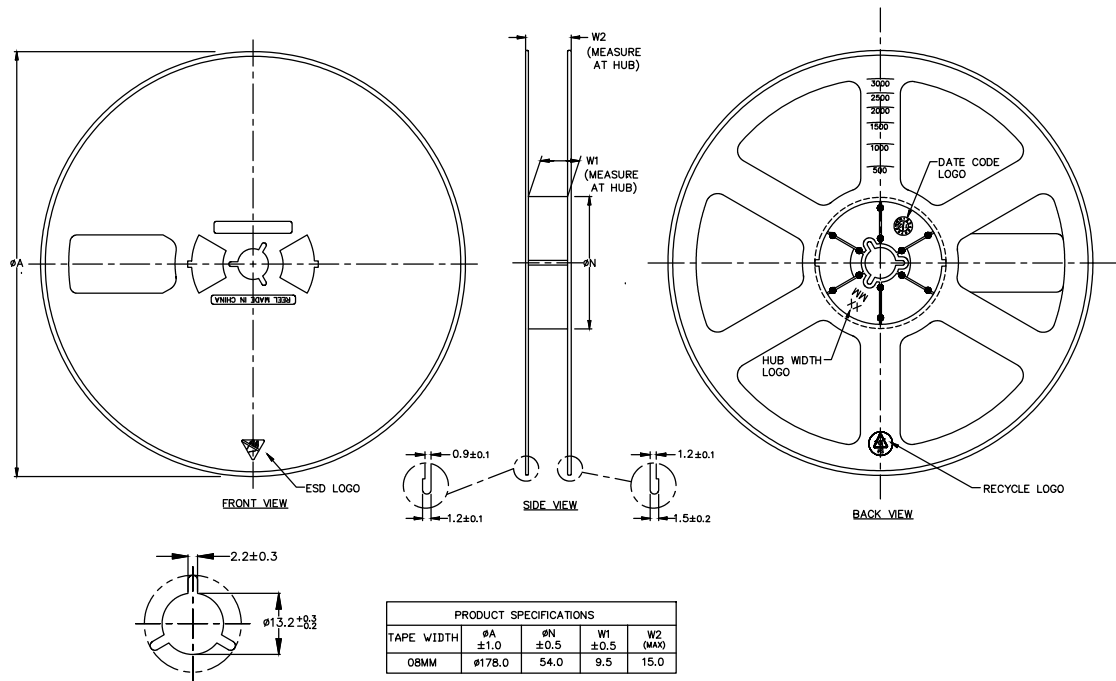


Figure 12: Drawing of reel (first-angle projection) with diameter of 180 mm