

SAW Components

SAW Filter

Cellular / LTE / Band 39-30M

Series type: QGSA1G90BASP1

Ordering code: QGSA1G90BASP1

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1 Applications

- LTE B39-30M Tx/Rx bandpass filter for In-building Distribution System
- Low insertion attenuation
- Low amplitude ripple

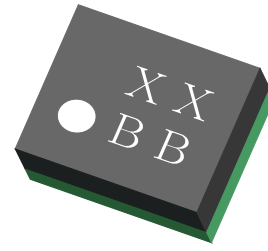


Figure 1: Picture of component with example of product marking.

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

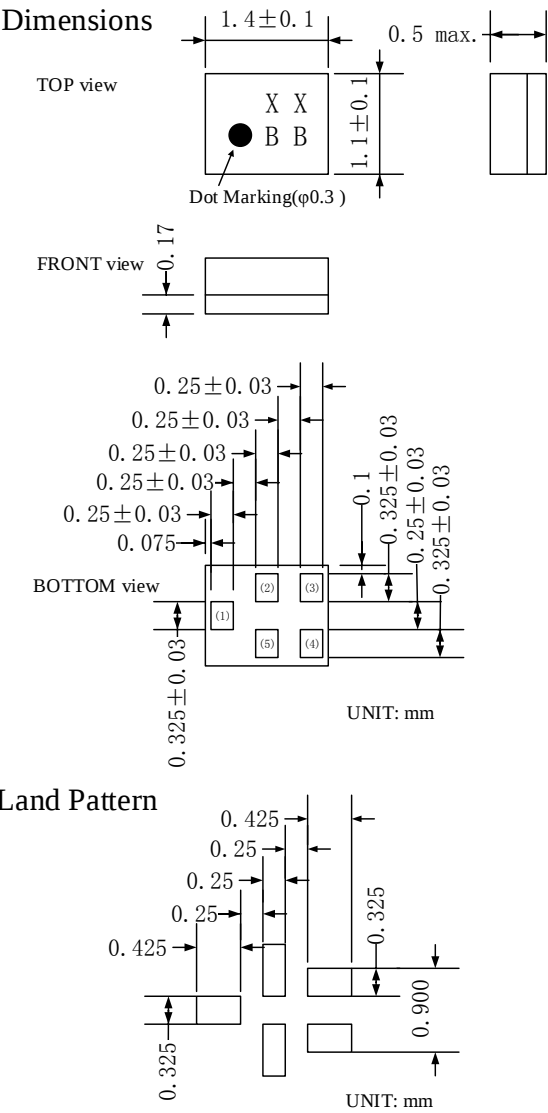


Figure 2: Drawing of package with package height A = 0.5 mm (max.)

4 Pin configuration

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

5 Matching circuit

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

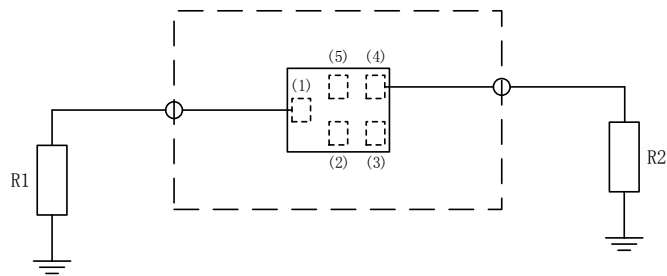


Figure 3: Schematic of matching circuit.

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		1900			MHz	
Insertion Loss	1885 to 1915 MHz		1.2	3.3		
Ripple Deviation	1885 to 1915 MHz		0.6	1.2	dB	
VSWR	1885 to 1915 MHz		1.5	2.2		Ant
	1885 to 1915 MHz		1.5	2.2		Tx
Absolute Attenuation	450 to 1605.89 MHz	32	39		dB	
	880 to 960 MHz	45	55		dB	
	1805 to 1830 MHz	48	52		dB	
	1830 to 1850 MHz	40	55		dB	
	2010 to 2025 MHz	23	51		dB	
	2300 to 2400 MHz	48	54		dB	
	2400 to 2500 MHz	40	58		dB	
	2500 to 2690 MHz	45	47		dB	
	2690 to 2790 MHz	40	60		dB	
	2790 to 6000 MHz	38	44		dB	

8 Transmission coefficients

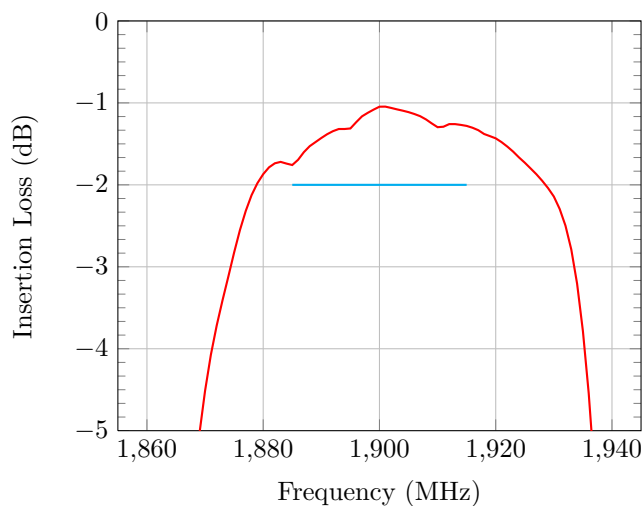


Figure 4: Passband

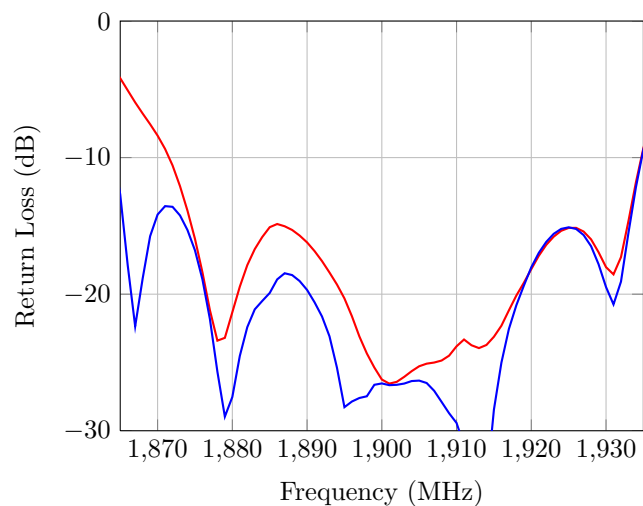


Figure 5: Input/Output Return Loss

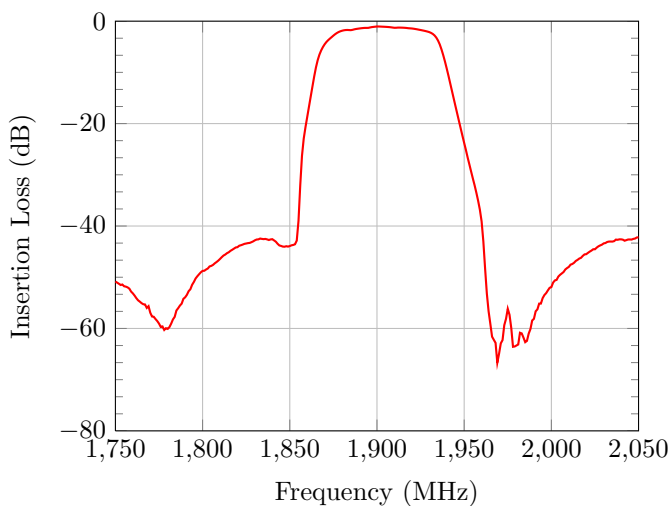


Figure 6: Narrowband

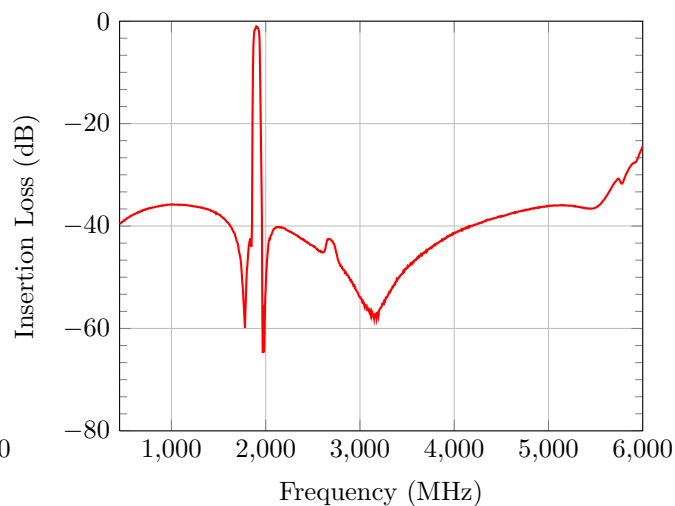
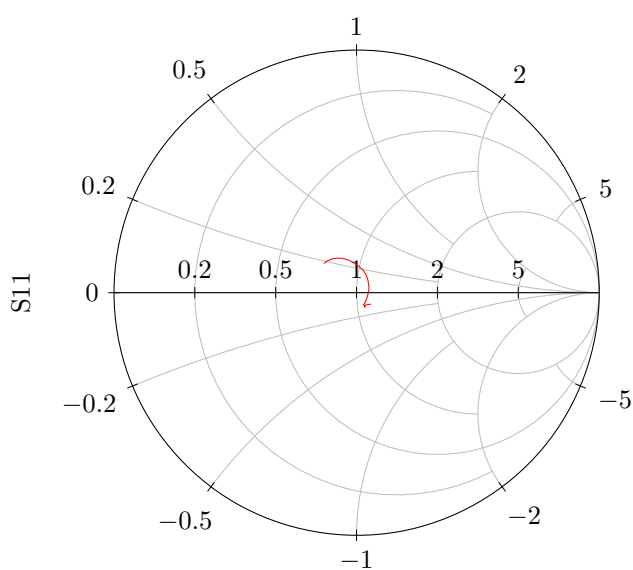
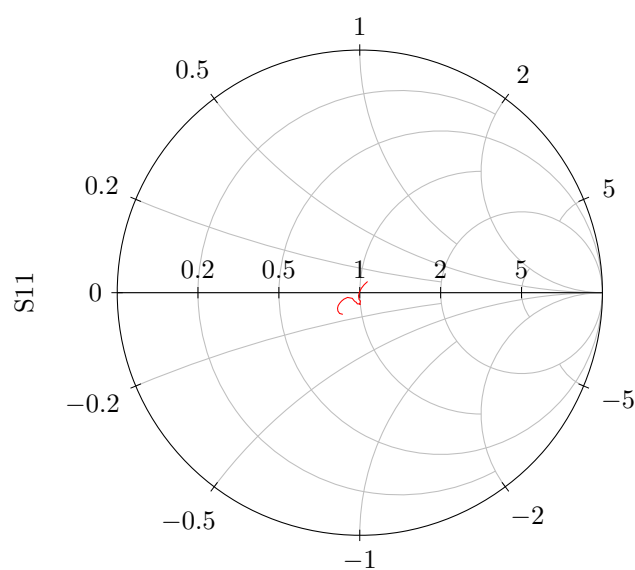


Figure 7: Wideband

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

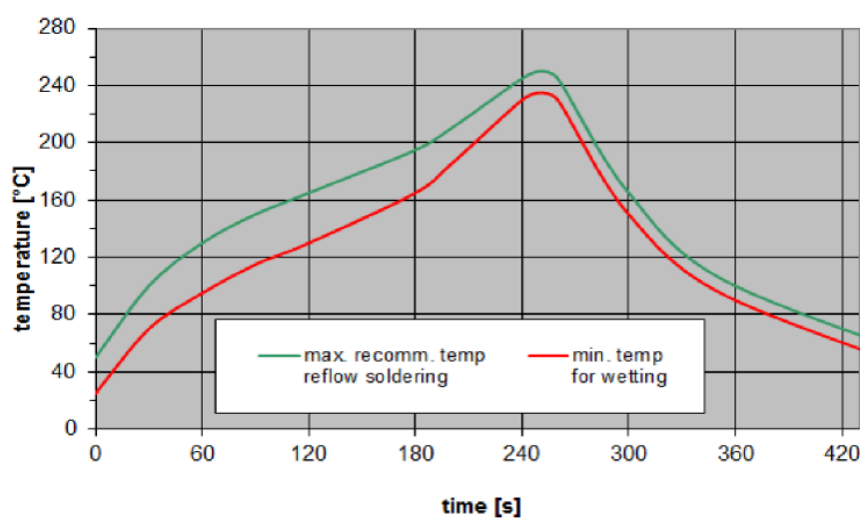


Figure 10: Drawing of reel (Recommended reflow profile for convection and infrared soldering – lead-free solder)

10 Tape and Reel

10.1 Tape

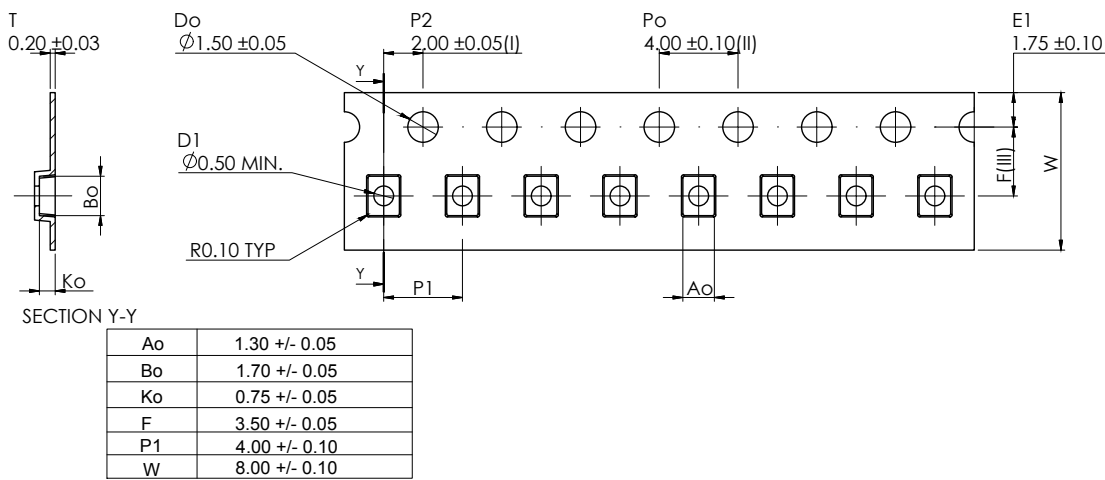


Figure 11: Drawing of tape (first-angle projection) with tape dimensions

10.2 Reel with diameter of 178 mm

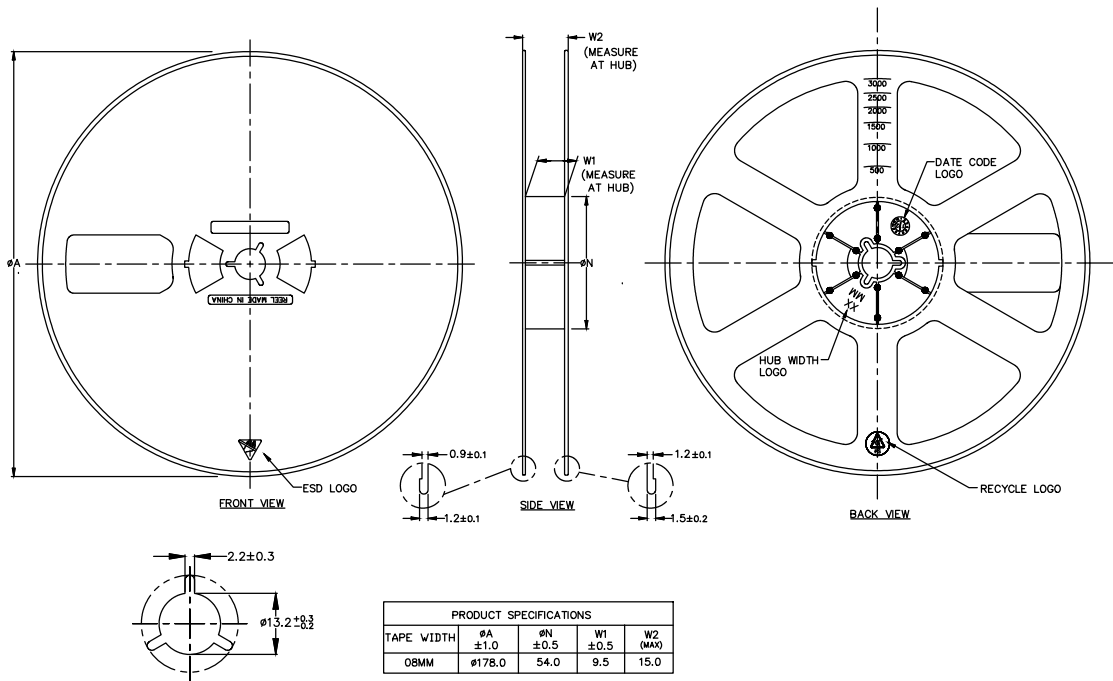


Figure 12: Drawing of reel (first-angle projection) with diameter of 180 mm