QuantGrav Technology Co., Ltd.

BAW Components

BAW Filter

Cellular / LTE / Band 1 TX

Series type: QGBA1G95AASP2

Ordering code: QGBA1G95AASP2

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Version: 1.0

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1 Applications

- LTE B1 MHz Tx bandpass filter for In-building Distribution System

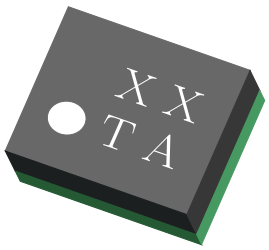


Figure 1: Picture of component with example of product marking.

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

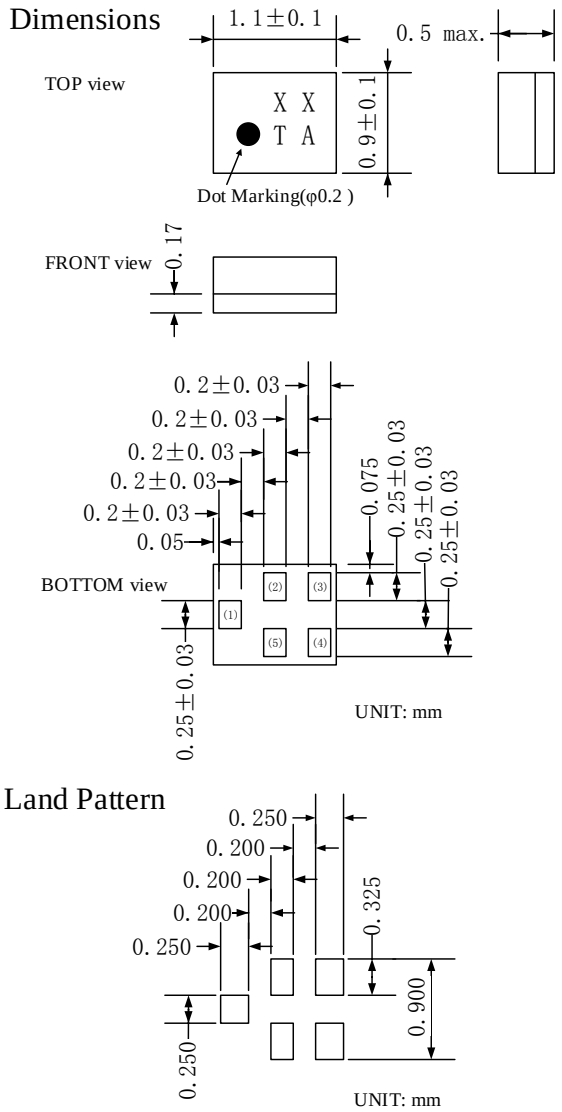


Figure 2: Drawing of package with package height A = 0.5 mm (max.)

4 Pin configuration

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

5 Matching circuit

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

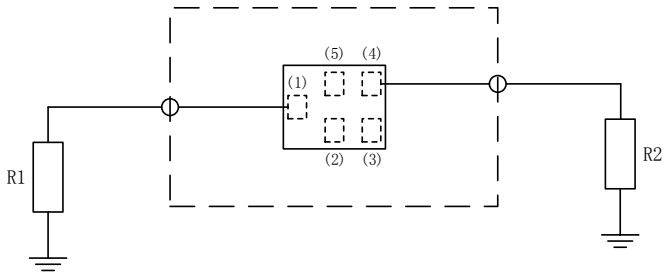


Figure 3: Schematic of matching circuit.

6 Absolute Maximum Ratings

Table 1: Absolute Maximum Ratings of Example Data Sheet

Parameter	**Rating**
Storage temperature	$T_{STG} = -40°C$ to $+95°C$
Operating temperature	$T_{opt} = -40°C$ to $+95°C$
DC voltage	$V_{DC} = 3.0V(max)$
Input power[1]	$P_{IN} = +31dBm$ 5000h $+55°C$

[1]Input signal shall be applied to TX port.

7 Characteristics

Temperature range for specification $T_{SPEC} = -40°C \ldots +85°C$

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

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

Item		min.	typ.	max.	Unit	Note
Center Frequency			1950		MHz	
Insertion Loss	1920 to 1980 MHz		1.6	2.5		
Ripple Deviation	1920 to 1980 MHz		0.5	1.2	dB	Any 5MHz
VSWR	1920 to 1980 MHz		1.5	2.2		Ant
	1920 to 1980 MHz		1.5	2.2		Tx
Absolute Attenuation	450 to 1574 MHz	28	35		dB	
	815 to 960 MHz	30	32		dB	
	1226 to 1250 MHz	29	30		dB	
	1447.9 to 1462.9 MHz	29	30		dB	
	1475 to 1511 MHz	29	30		dB	
	1559 to 1606 MHz	30	31		dB	
	1606 to 1805 MHz	30	35		dB	
	1805 to 1865 MHz	35	45		dB	
	1865 to 1880 MHz	47	48		dB	
	2010 to 2025 MHz	7	17		dB	
	2110 to 2170 MHz	34	38		dB	
	2400 to 2500 MHz	30	31		dB	
	2620 to 2690 MHz	30	31		dB	
	3840 to 3960 MHz	38	40		dB	
	4900 to 5950 MHz	25	50		dB	

8 Transmission coefficients

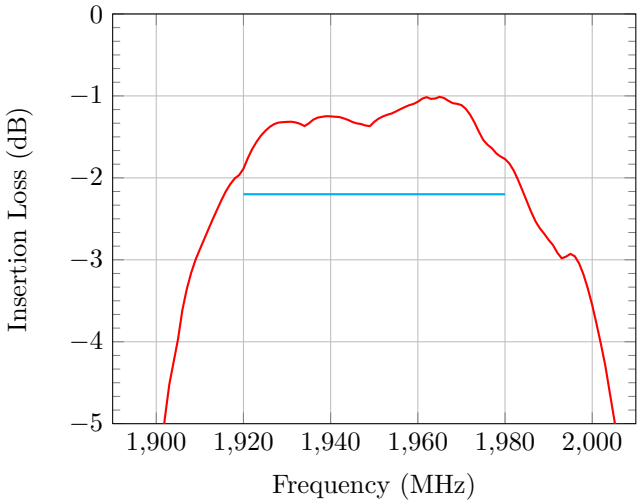


Figure 4: Passband

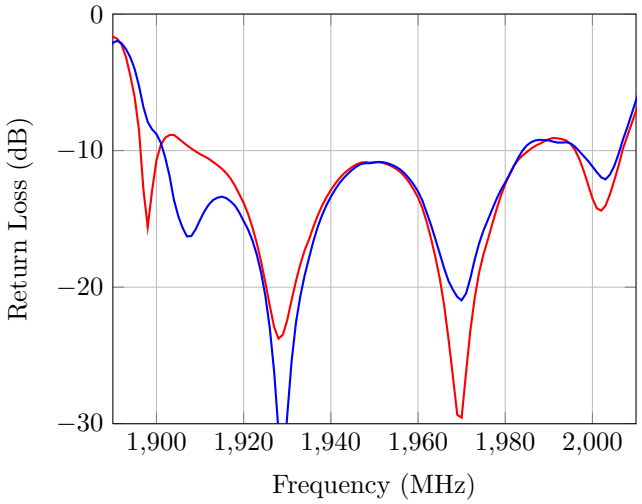


Figure 5: Input/Output Return Loss

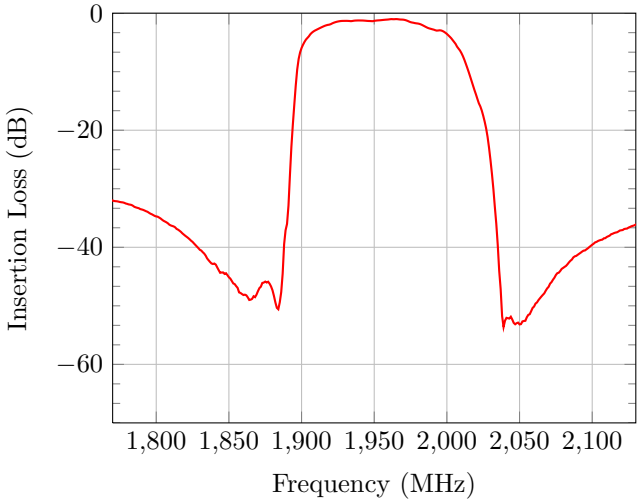


Figure 6: Narrowband

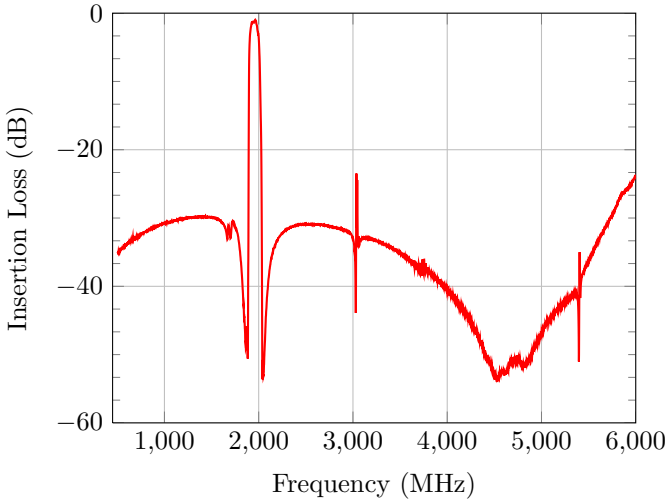


Figure 7: Wideband

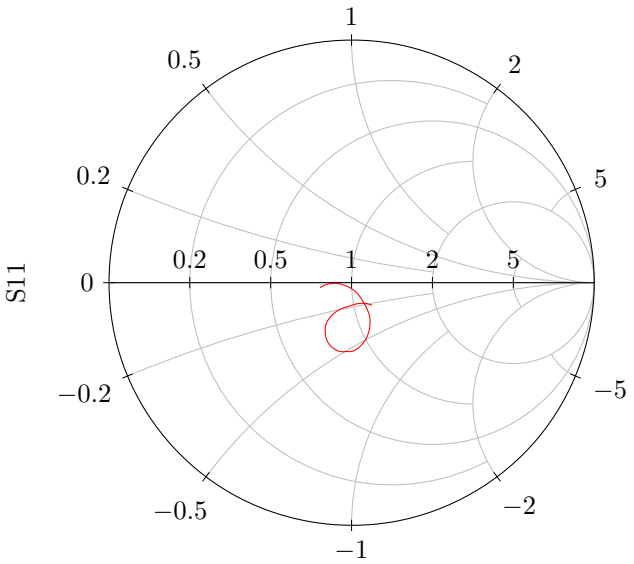


Figure 8: Input Smith Chart ($Z0 = 50\Omega$)

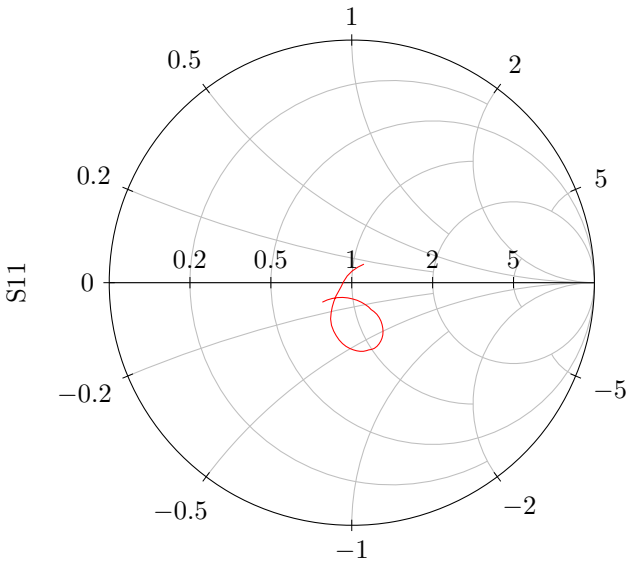


Figure 9: Output Smith Chart ($Z0 = 50\Omega$)

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

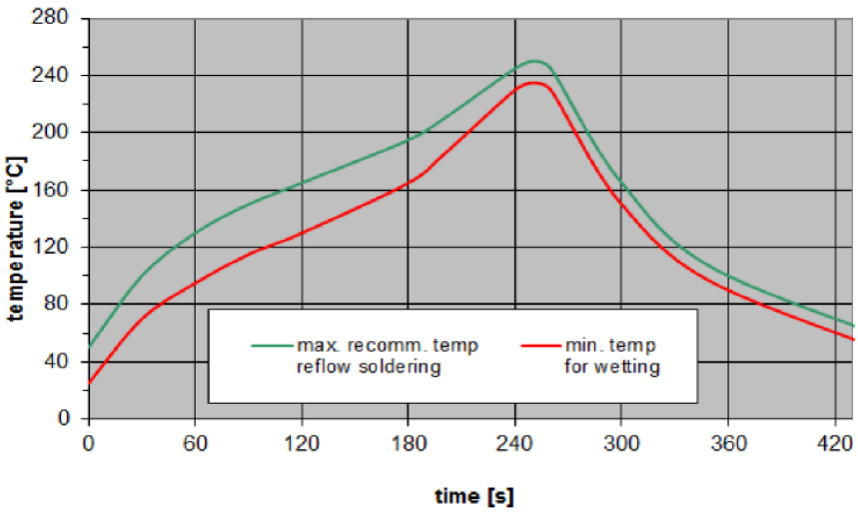
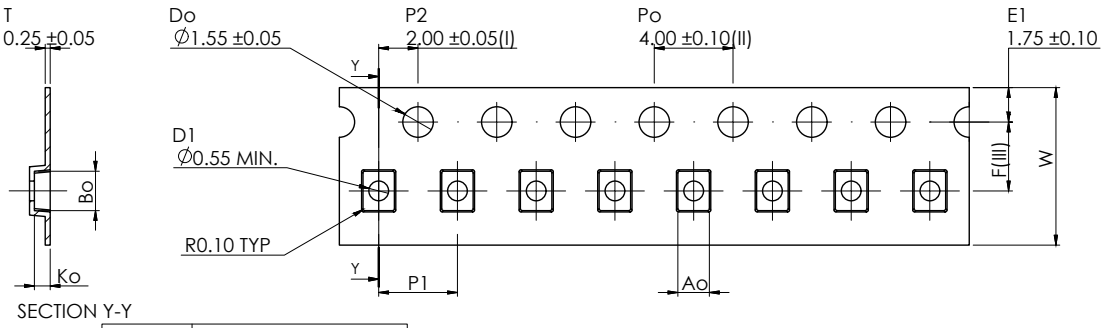


Figure 10: Drawing of reel (Recommended reflow profile for convection and infrared soldering – lead-free solder

10 Tape and Reel

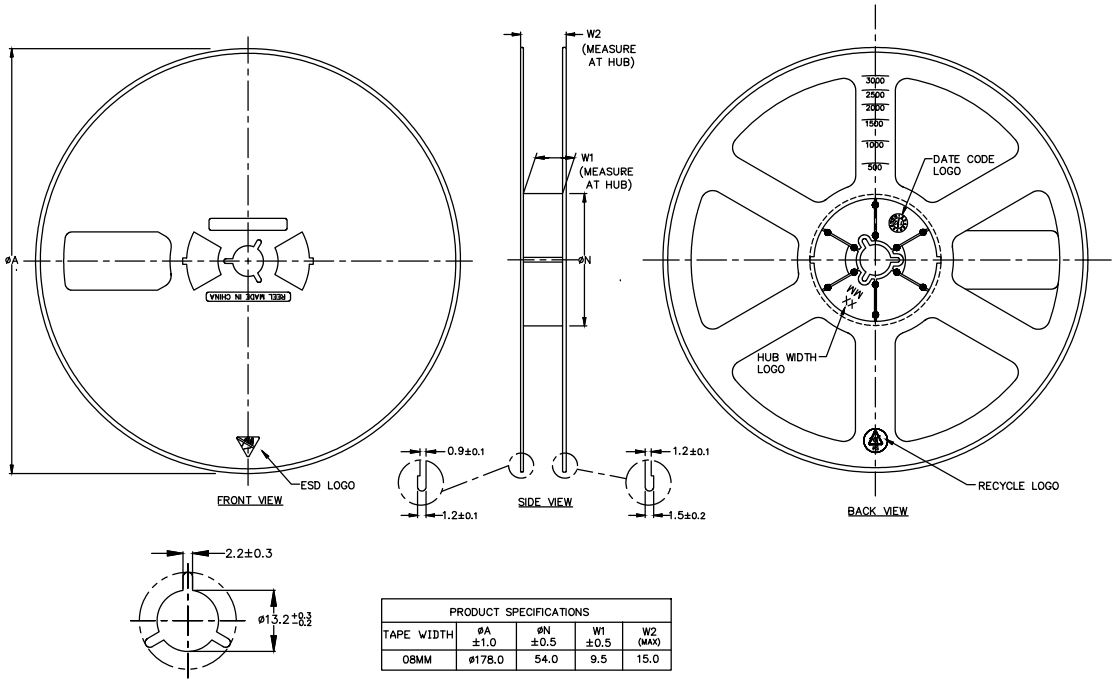
10.1 Tape



Ao	1.02 +/- 0.05
Bo	1.22 +/- 0.05
Ko	0.60 +/- 0.05
F	3.50 +/- 0.05
P1	4.00 +/- 0.10
W	8.00 +/- 0.10

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

10.2 Reel with diameter of 178 mm



PRODUCT SPECIFICATIONS				
TAPE WIDTH	øA ±1.0	øN ±0.5	W1 ±0.5	W2 (MAX)
08MM	ø178.0	54.0	9.5	15.0

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