

BAW Components

BAW Filter

Cellular / 3.5G / n77-200MHz

Series type: QGBA3G50AASP1

Ordering code: QGBA3G50AASP1

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Version: 1.0



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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

- QGBA3G50AASP1 is an exceptionally high-performance BAW Filter, which is designed with base station applications
- Low insertion attenuation
- Low amplitude ripple

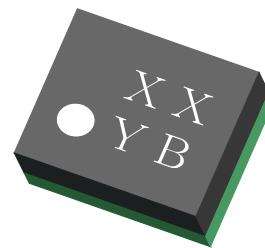
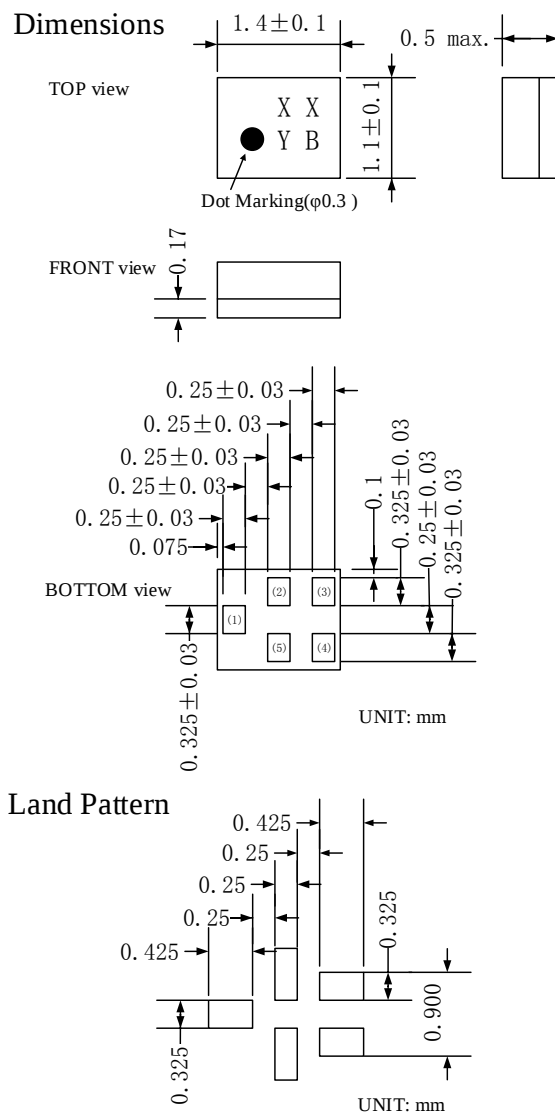


Figure 1: Picture of component with example of product marking.

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

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

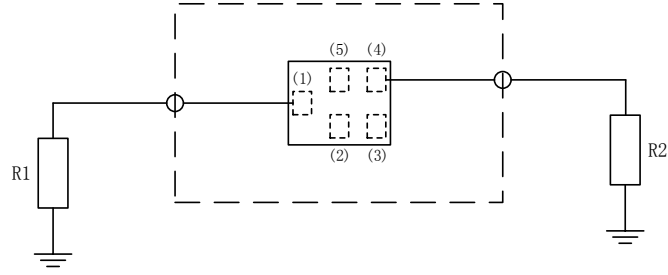


Figure 3: Schematic of matching circuit.

6 Absolute Maximum Ratings

Table 1: Absolute Maximum Ratings of Example Data Sheet

Parameter	Rating
Storage temperature	$T_{STG} = -40^{\circ}C$ to $+125^{\circ}C$
Operating temperature	$T_{opt} = -40^{\circ}C$ to $+95^{\circ}C$
DC voltage	$V_{DC} = 3.0V(max)$
Input power ¹	$P_{IN} = +30dBm$ 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		3500			MHz	
Insertion Loss	3400 to 3600 MHz		2.4	3.3		
Ripple Deviation	3400 to 3600 MHz		1	2.2	dB	
VSWR	3300 to 3600 MHz		1.4	1.8		
	3300 to 3600 MHz		1.5	1.8		
Absolute Attenuation	450 to 960 MHz	46	50		dB	
	960 to 1440 MHz	43	45		dB	
	1440 to 1490 MHz	43	43.2		dB	
	1490 to 1880 MHz	41	42		dB	
	1880 to 2170 MHz	40	41		dB	
	2170 to 2473 MHz	39	40.2		dB	
	2473 to 2483 MHz	39	39		dB	
	3200 to 3305 MHz	48	60		dB	
	3680 to 4180 MHz	32	50		dB	
	4180 to 4480 MHz	46	47		dB	
	4480 to 5365 MHz	17	45		dB	
	5365 to 5925 MHz	48	49		dB	
	6800 to 7200 MHz	55	60		dB	

8 Transmission coefficients

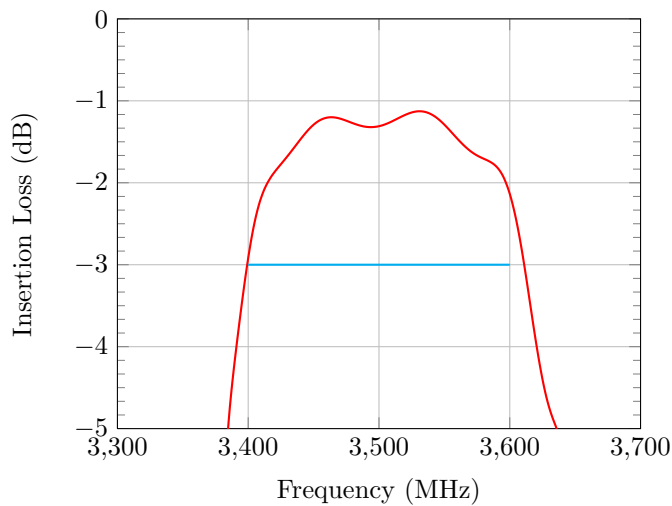


Figure 4: Passband

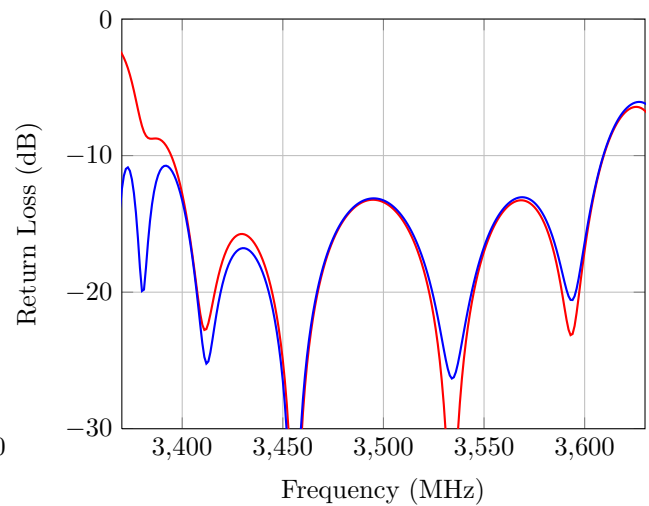


Figure 5: Input/Output Return Loss

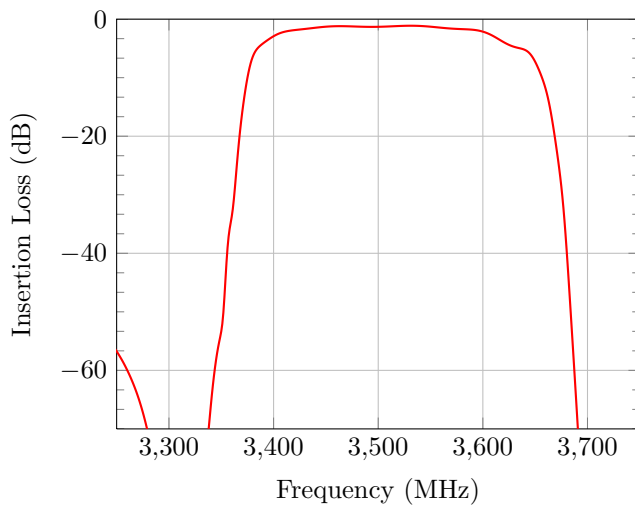


Figure 6: Narrowband

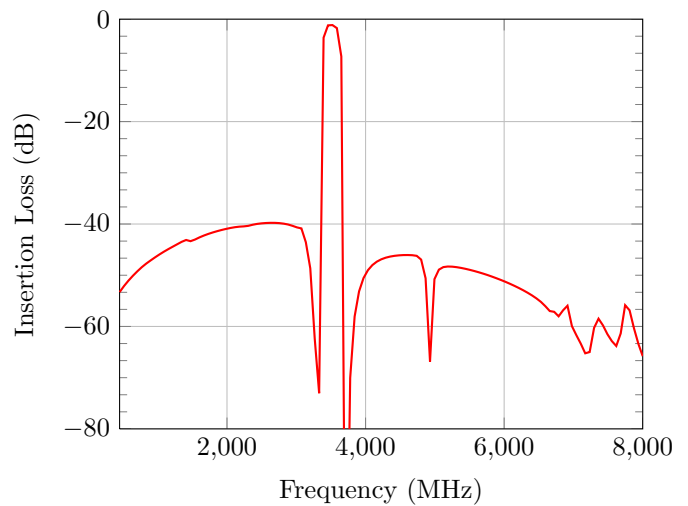
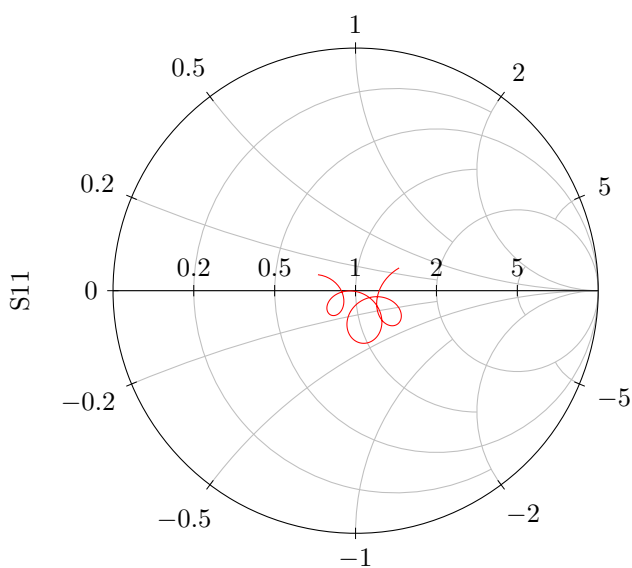
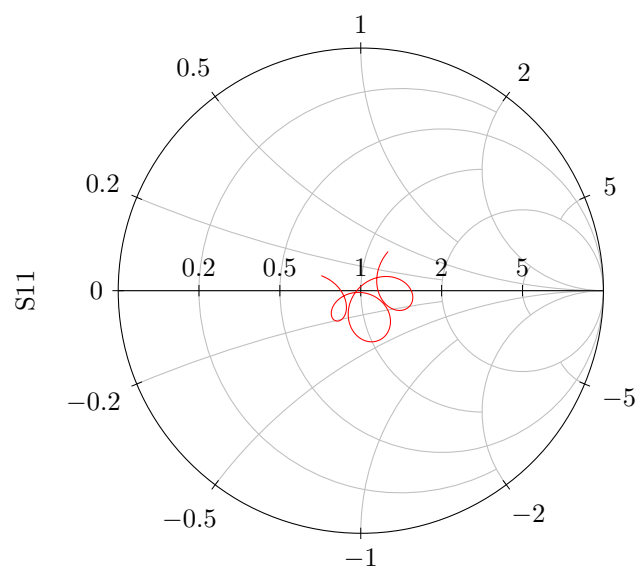


Figure 7: Wideband

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

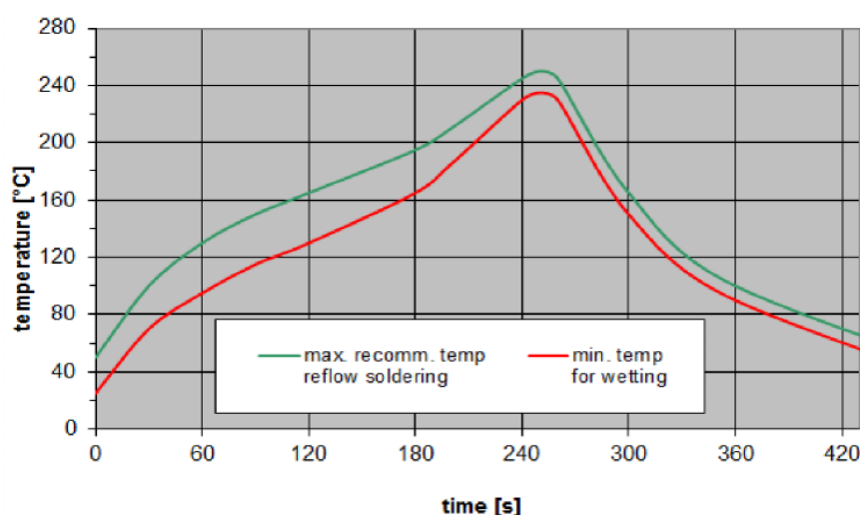


Figure 10: Drawing of reel (Recommended reflow profile for convection and infrared soldering – lead-free solder)

10 Tape and Reel

10.1 Tape

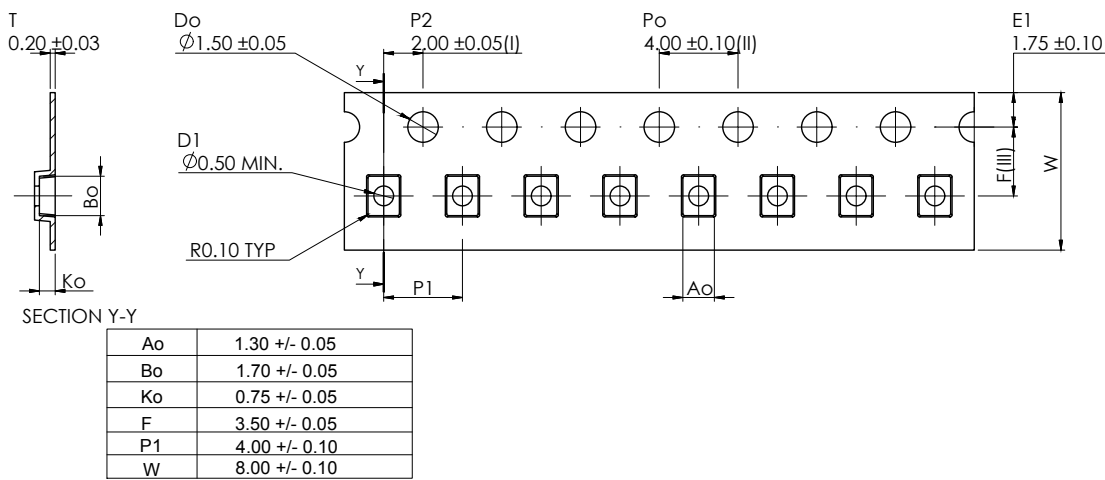


Figure 11: Drawing of tape (first-angle projection) with tape dimensions

10.2 Reel with diameter of 178 mm

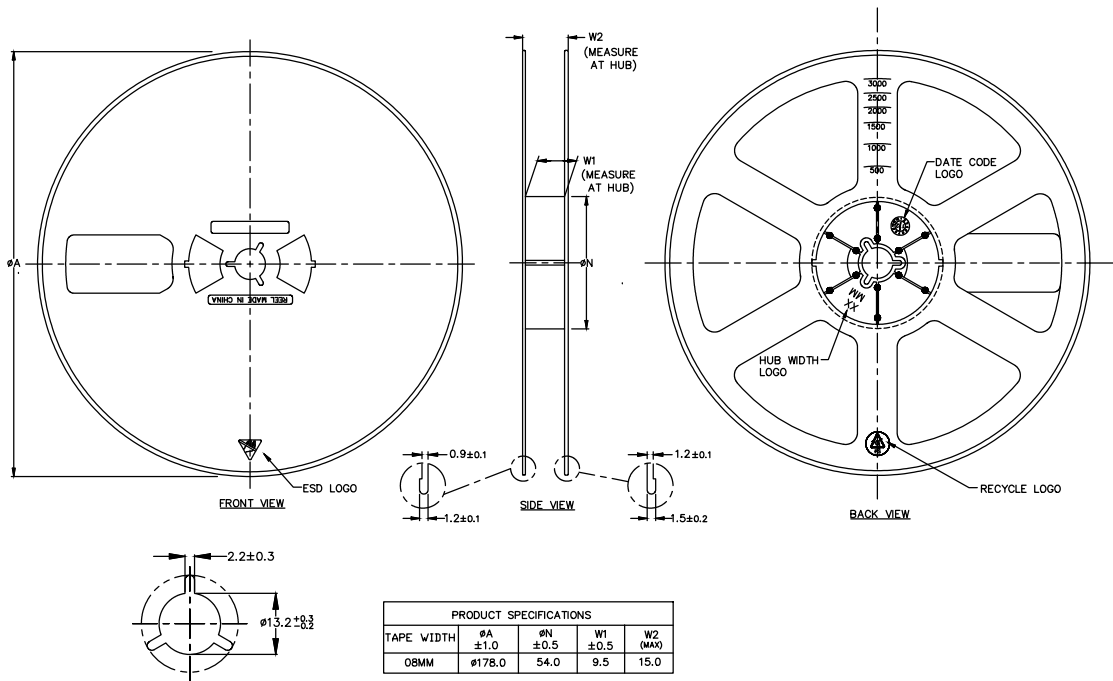


Figure 12: Drawing of reel (first-angle projection) with diameter of 180 mm