

BAW Components

BAW Filter

Cellular / LTE / Band 3 TX-50MHz

Series type: QGBA1G76AASP1

Ordering code: QGBA1G76AASP1

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1 Applications

- LTE B3-50MHz Tx bandpass filter for In-building Distribution System
- Low insertion attenuation
- Low amplitude ripple

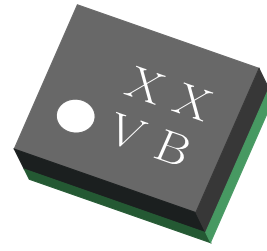
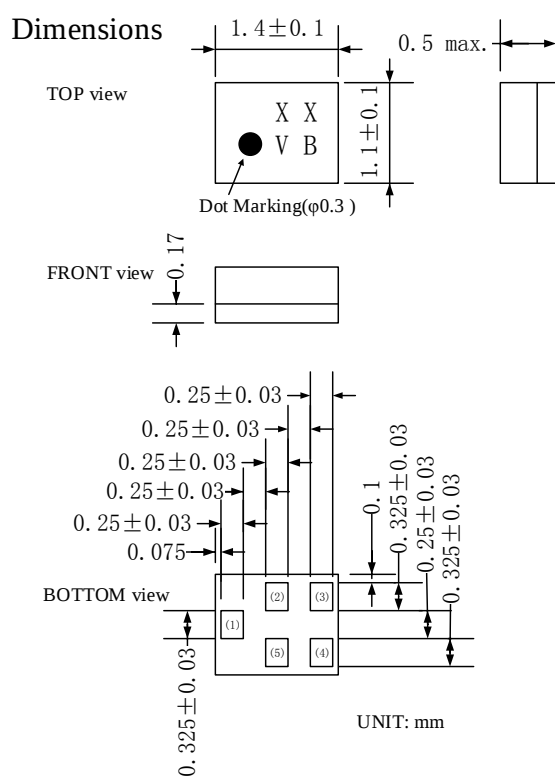


Figure 1: Picture of component with example of product marking.

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

Land Pattern

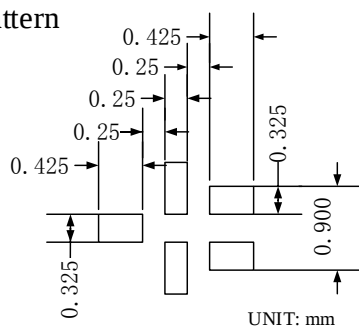


Figure 2: Drawing of package with package height $A = 0.5$ mm (max.)

5 Matching circuit

- $R_1 : 50\Omega$ $R_2 : 50\Omega$
- $L_{p1} : 45nH$ $L_{p2} : 45nH$

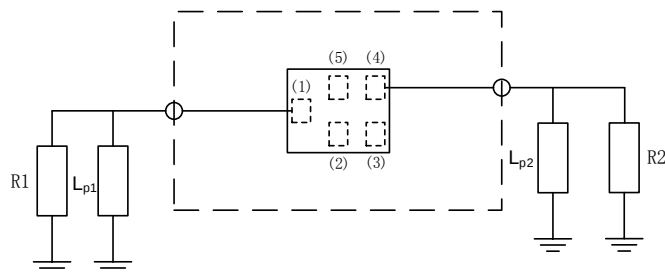


Figure 3: Schematic of matching circuit.

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 $T_{SPEC} = -40^{\circ}C \dots +85^{\circ}C$

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

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

Item		min.	typ.	max.	Unit	Note
Center Frequency		1760			MHz	
Insertion Loss	1735 to 1785 MHz		1.4	3.0		
Ripple Deviation	1735 to 1785 MHz		1.5	2.2	dB	
VSWR	1805 to 1830 MHz		1.5	2.2		Ant
	1805 to 1830 MHz		1.5	2.2		Tx
Absolute Attenuation	450 - 1725 MHz	20	25		dB	
	1795 to 1805 MHz	20	30		dB	
	1805 to 1880 MHz	24	30		dB	
	1880 to 2400 MHz	20	23		dB	
	2400 to 2500 MHz	20	22		dB	
	2500 to 2570 MHz	20	22		dB	
	2570 to 6000 MHz	20	23		dB	

8 Transmission coefficients

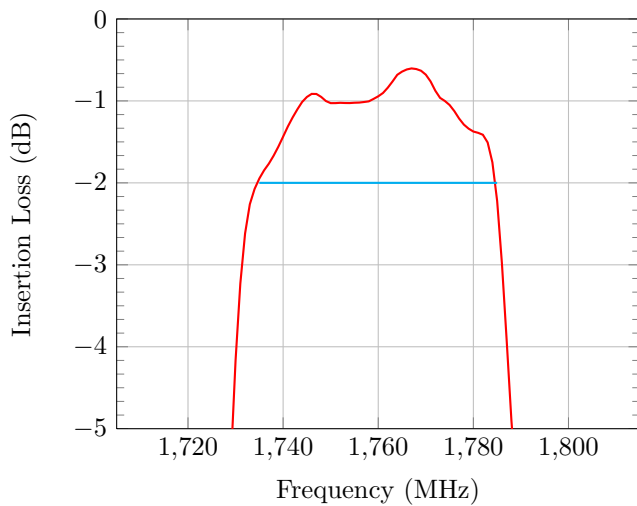


Figure 4: Passband

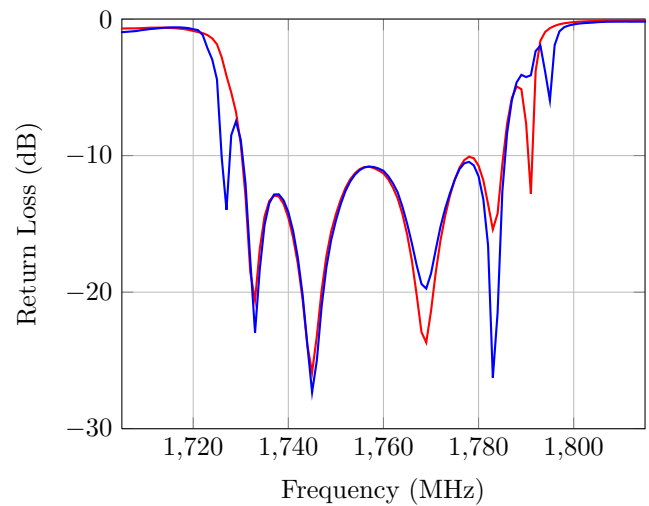


Figure 5: Input/Output Return Loss

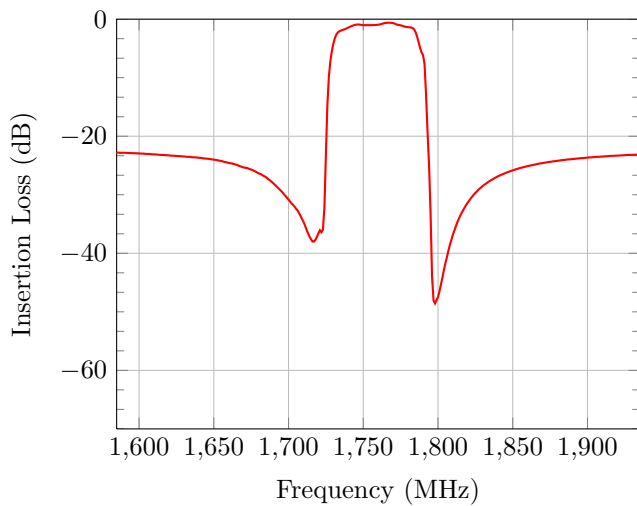


Figure 6: Narrowband

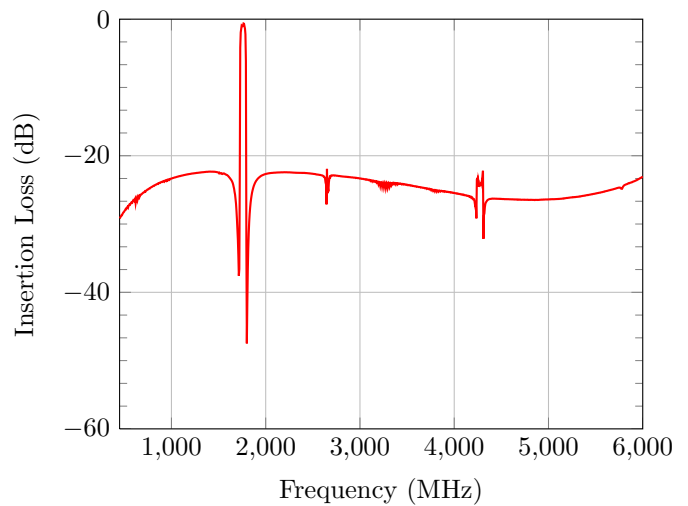
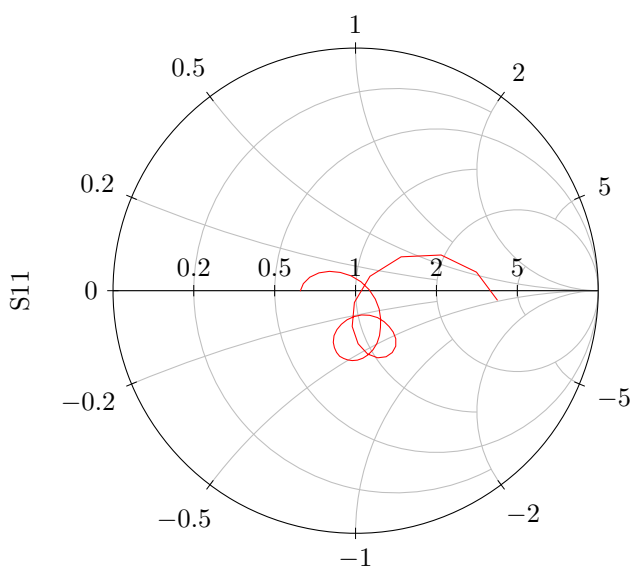
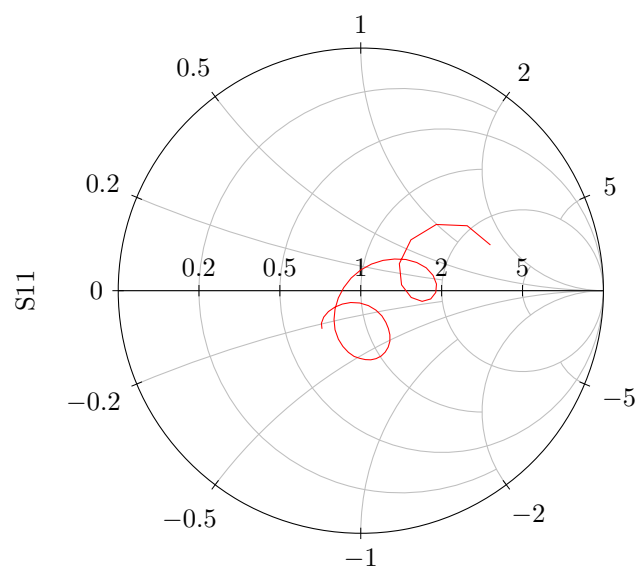


Figure 7: Wideband

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

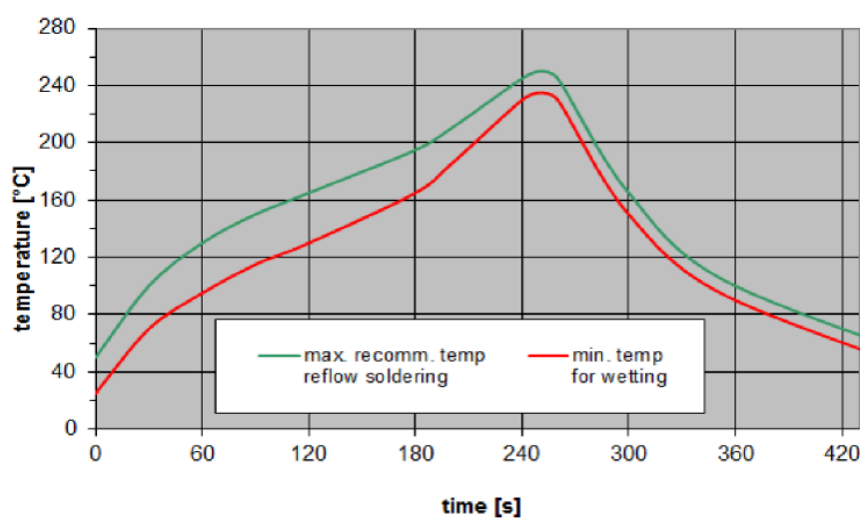


Figure 10: Drawing of reel (Recommended reflow profile for convection and infrared soldering – lead-free solder

10 Tape and Reel

10.1 Tape

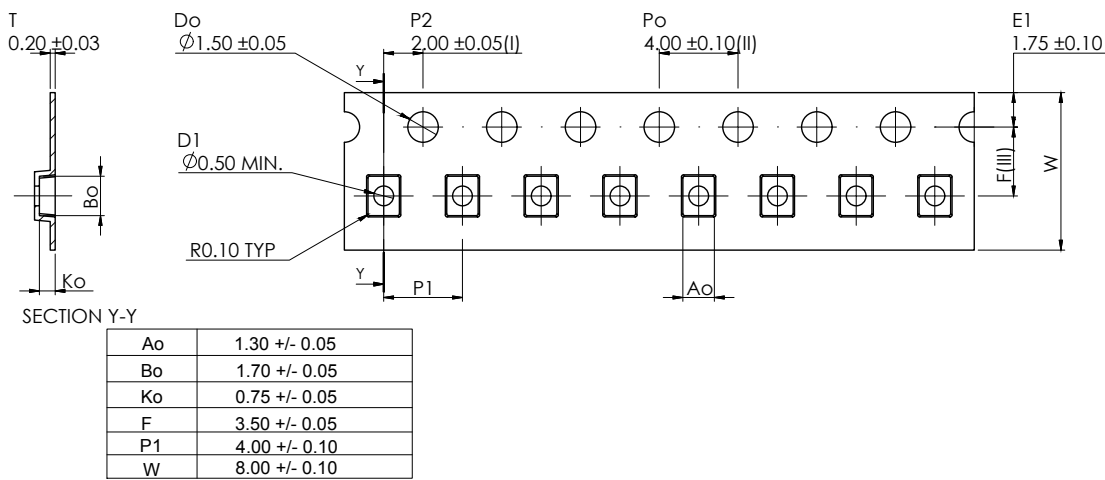


Figure 11: Drawing of tape (first-angle projection) with tape dimensions

10.2 Reel with diameter of 178 mm

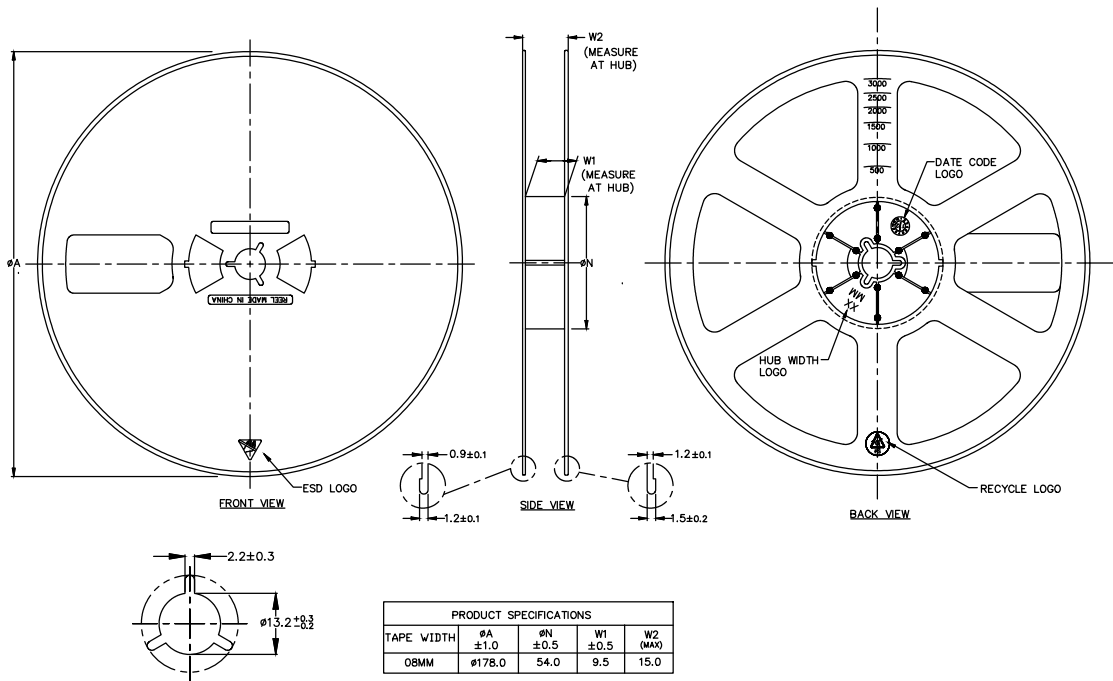


Figure 12: Drawing of reel (first-angle projection) with diameter of 180 mm