QuantGrav Technology Co., Ltd.

SAW Components

SAW Filter

Cellular / LTE / Band 8 TX-15MHz

Series type: QGSA941MAASP1

Ordering code: QGSA941MAASP1

Date: JANUARY 2024

Version: 1.1

Contents

1 Applications

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

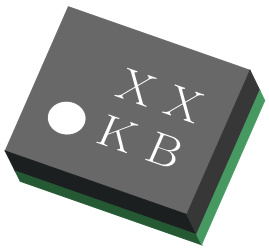


Figure 1: Picture of component with example of product marking.

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

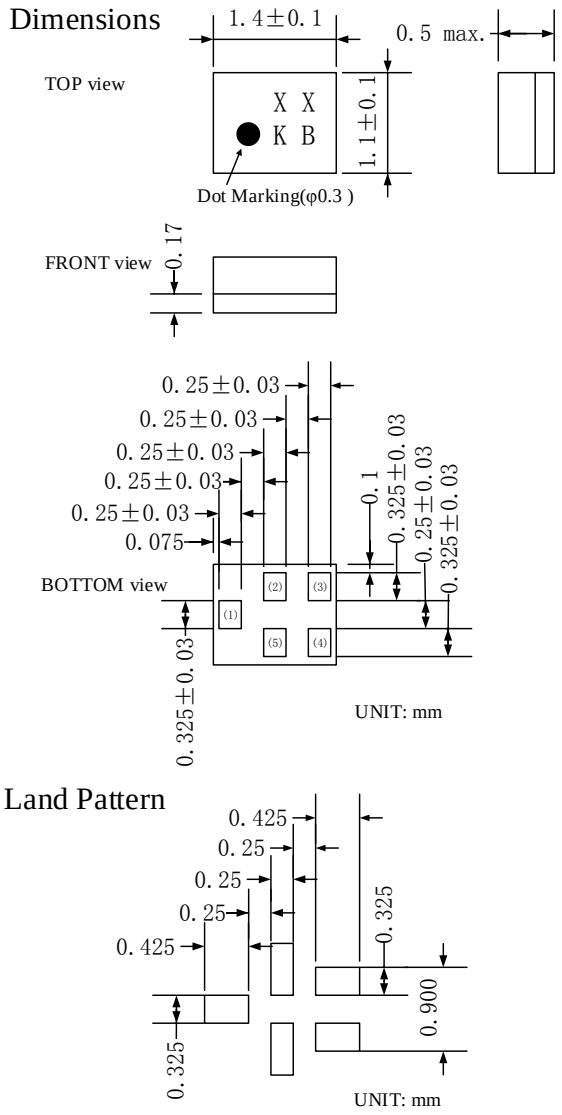


Figure 2: Drawing of package with package height A = 0.6 mm (max.)

4 Pin configuration

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

5 Matching circuit

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

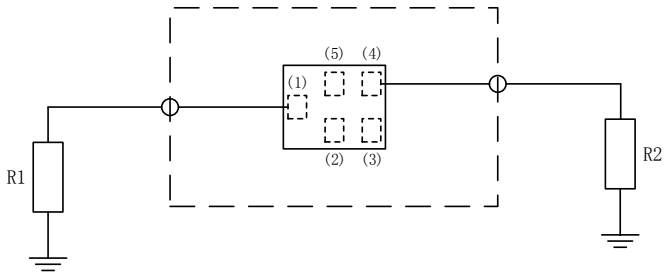


Figure 3: Schematic of matching circuit.

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]	$P_{IN} = +32dBm$ 5000h $+55°C$

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

7 Characteristics

Temperature range for specification $T_{SPEC} = -40°C \ldots +95°C$

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

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

Item		min.	typ.	max.	Unit	Note
Center Frequency			941.5		MHz	
Insertion Loss	934 to 949 MHz		1.0	1.6		
Ripple Deviation	934 to 949 MHz		0.5	1.0	dB	
VSWR	934 to 949 MHz		1.5	2.2		Ant
	934 to 949 MHz		1.5	2.2		Tx
Absolute Attenuation	450 to 880 MHz	30	35		dB	
	835 to 870 MHz	30	35		dB	
	882.5 to 912.5 MHz	30	35		dBINT	
	902.5 to 910 MHz	35	42		dB	
	980 to 1045 MHz	30	35		dB	
	1045 to 6000 MHz	20	25		dB	
	1427 to 1448 MHz	28	33		dB	
	1710 to 1785 MHz	28	33		dB	
	1805 to 1980 MHz	28	33		dB	
	2400 to 3840 MHz	34	40		dB	
	4625 to 4800 MHz	27	32		dB	
	4900 to 5950 MHz	20	25		dB	

8 Transmission coefficients

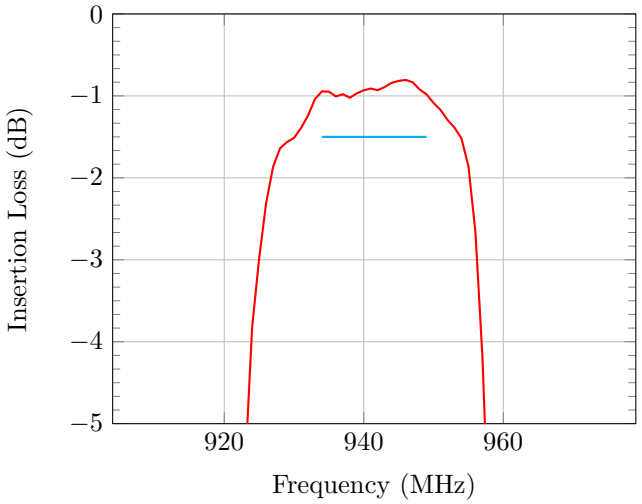


Figure 4: Passband

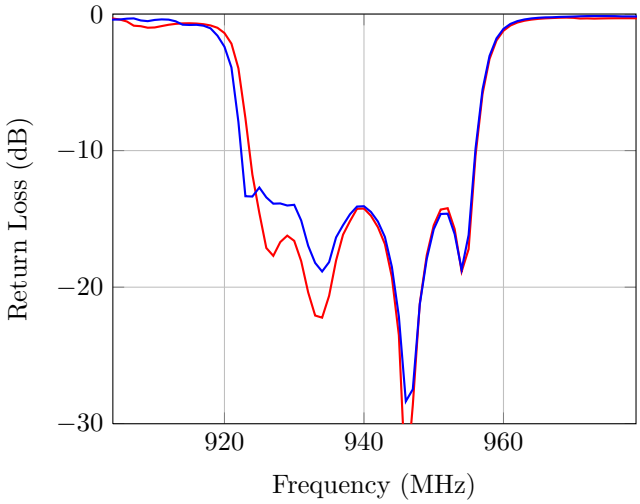


Figure 5: Input/Output Return Loss

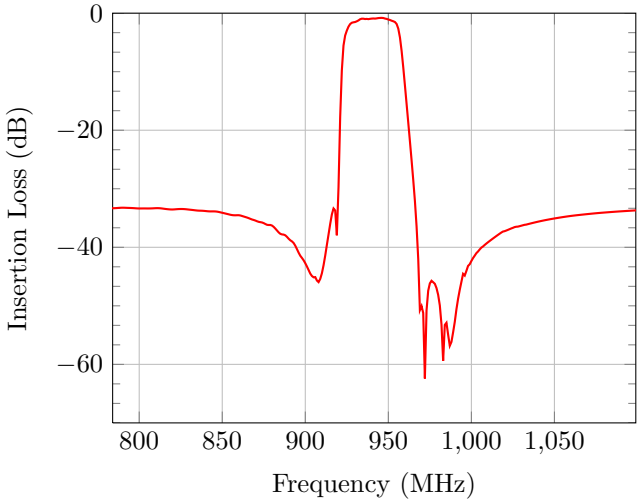


Figure 6: Narrowband

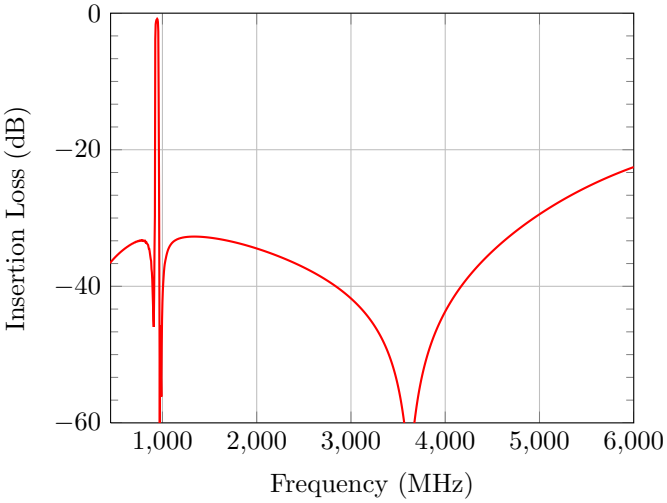


Figure 7: Wideband

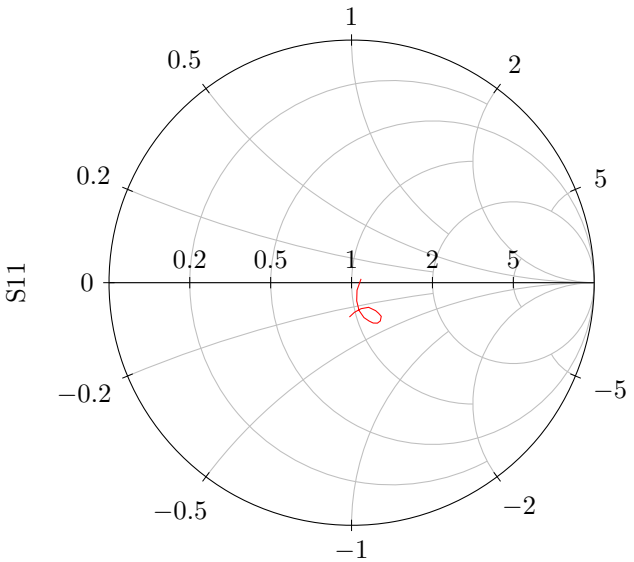


Figure 8: Input Smith Chart ($Z0 = 50\Omega$)

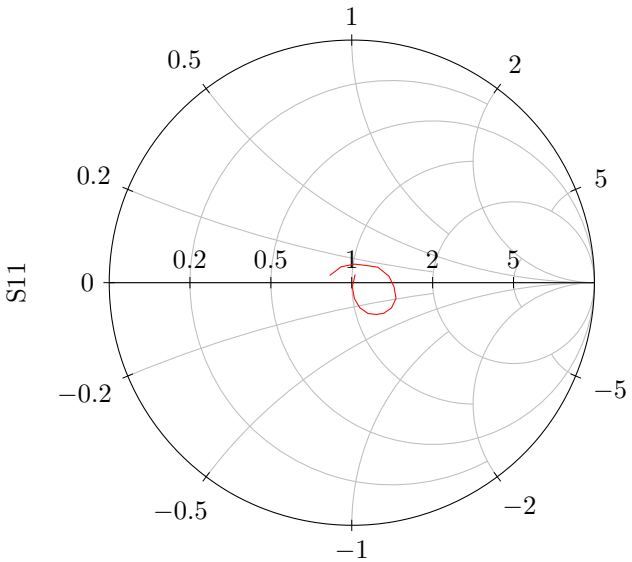


Figure 9: Output Smith Chart ($Z0 = 50\Omega$)

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

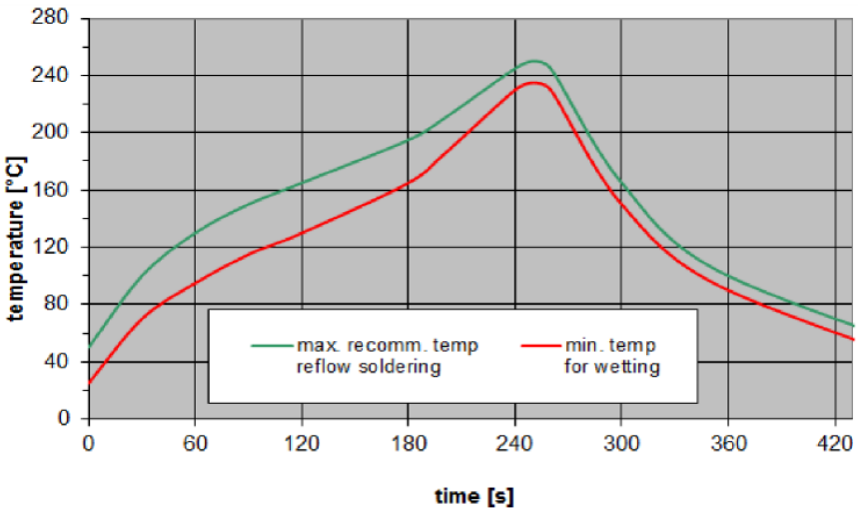
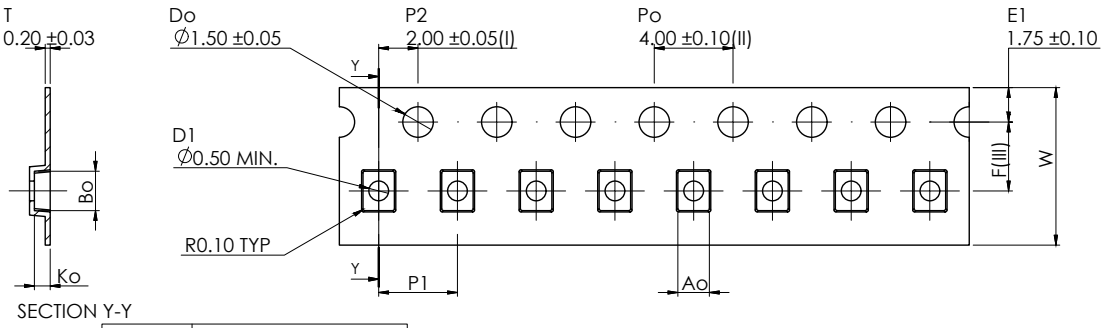


Figure 10: Drawing of reel (Recommended reflow profile for convection and infrared soldering – lead-free solder

10 Tape and Reel

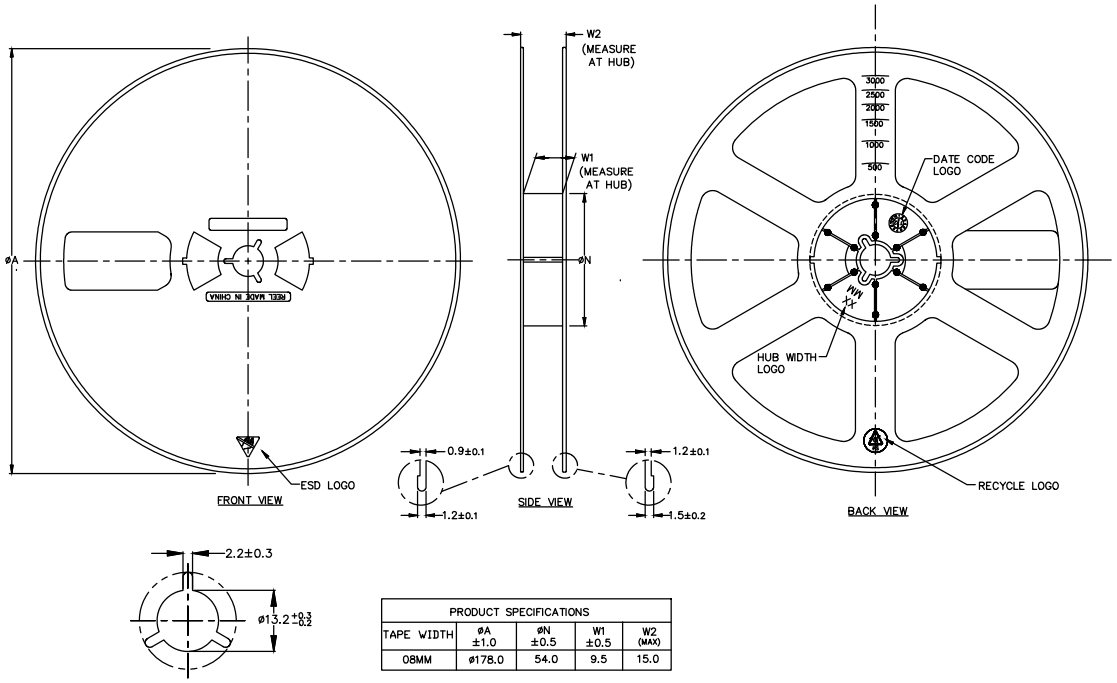
10.1 Tape



Ao	1.30 +/- 0.05
Bo	1.70 +/- 0.05
Ko	0.75 +/- 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