QuantGrav Technology Co., Ltd.

SAW Components

SAW Filter

For ISM 2.4G / Unbalanced / 5pin / 1411

Series type: QGSA2G45FASP1

Ordering code: QGSA2G45FASP1

Date: May 2021

Version: 1.0

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1 Applications

- Saw filter for Celluar/Cordless phone(Terminal) relevant market

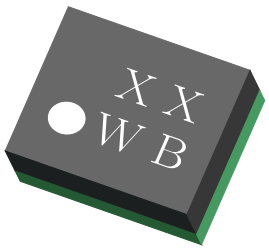


Figure 1: Picture of component with example of product marking.

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

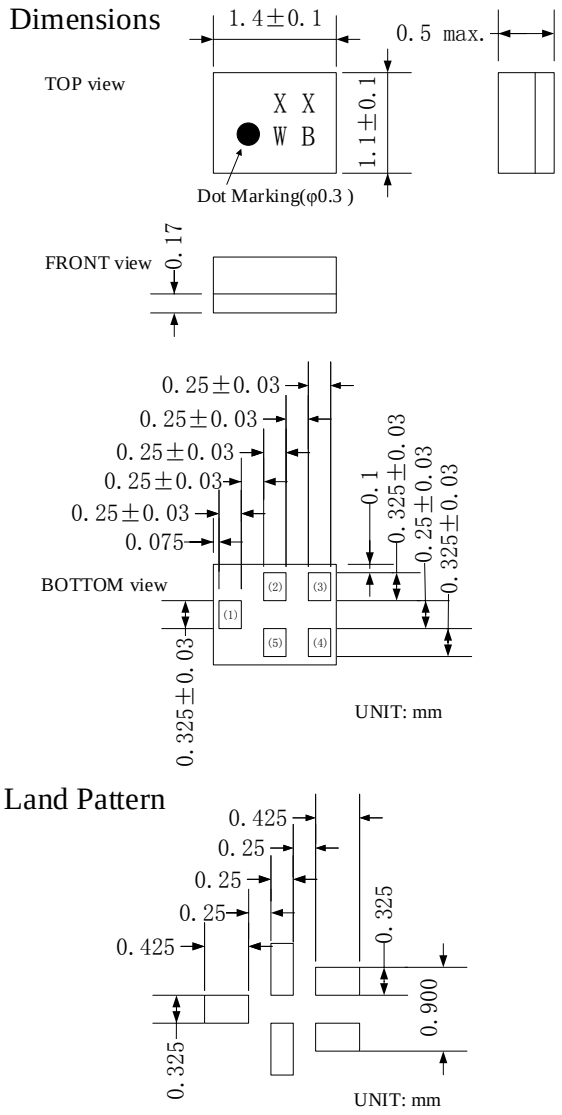


Figure 2: Drawing of package with package height A = 0.5 mm (max.)

4 Pin configuration

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

5 Matching circuit

- R_1 : 50Ω R_2 : 50Ω

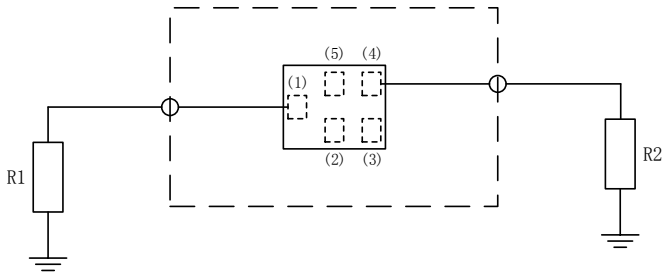


Figure 3: Schematic of matching circuit.

6 Absolute Maximum Ratings

Table 1: Absolute Maximum Ratings of Example Data Sheet

Parameter	**Rating**
Storage temperature	$T_{STG} = -40°C$ to $+85°C$
Operating temperature	$T_{opt} = -30°C$ to $+85°C$
DC voltage	$V_{DC} = 3.0V(max)$
Input power[1]	$P_{IN} = +28dBm$ 5000h $+55°C$

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

7 Characteristics

Temperature range for specification $T_{SPEC} = -20°C \ldots +85°C$

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

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

Item		min.	typ.	max.	Unit	Note
Center Frequency			2442		MHz	
Insertion Loss	2401 to 2483 MHz		2.0	2.5	dB	WLAN ch1-13 18MHz BW
Ripple Deviation	2401 to 2483 MHz		1.4	3.5	dB	
VSWR	2401 to 2483 MHz		1.7	2.2		
Absolute Attenuation	450 to 1559 MHz	26	30		dB	
	1559 to 1606 MHz	26	30		dB	
	1710 to 1785 MHz	26	30		dB	
	1805 to 1880 MHz	25	30		dB	
	1850 to 1990 MHz	25	29		dB	
	2110 to 2170 MHz	27	30		dB	
	2302.5 to 2367.5 MHz	27	34		dB	
	2370.5 to 2377.5 MHz	6	31		dB	
	2496 to 2501 MHz	16	27		dB	
	2500 to 2505 MHz	32	44		dB	
	2507.5 to 2687.5 MHz	28	32		dB	
	2555 to 2655 MHz	28	33		dB	
	2620 to 2690 MHz	27	32		dB	
	2690 to 6000 MHz	26	31		dB	

8 Transmission coefficients

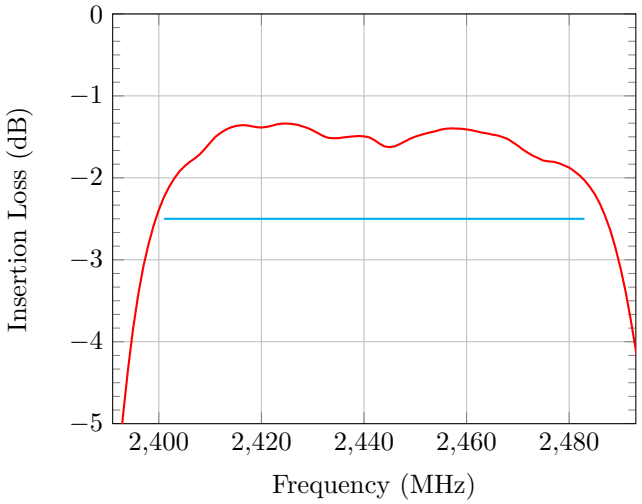


Figure 4: Passband

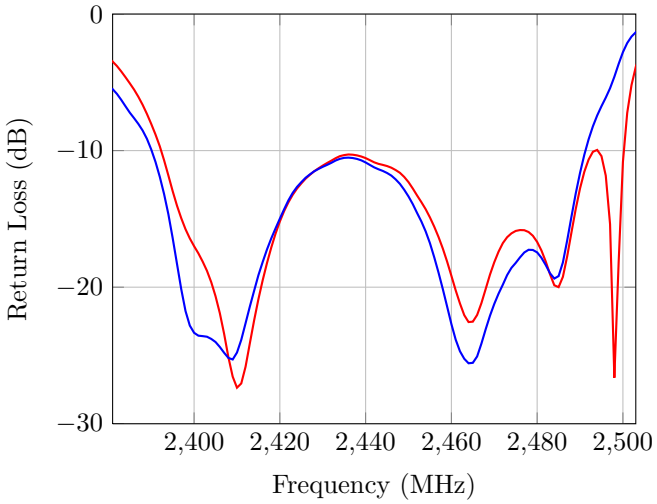


Figure 5: Input/Output Return Loss

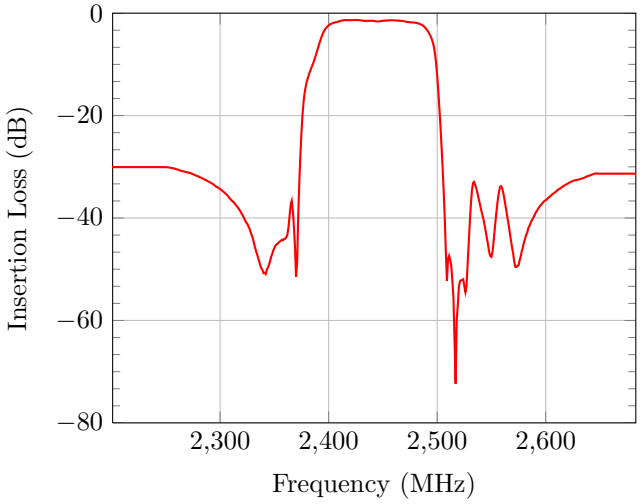


Figure 6: Narrowband

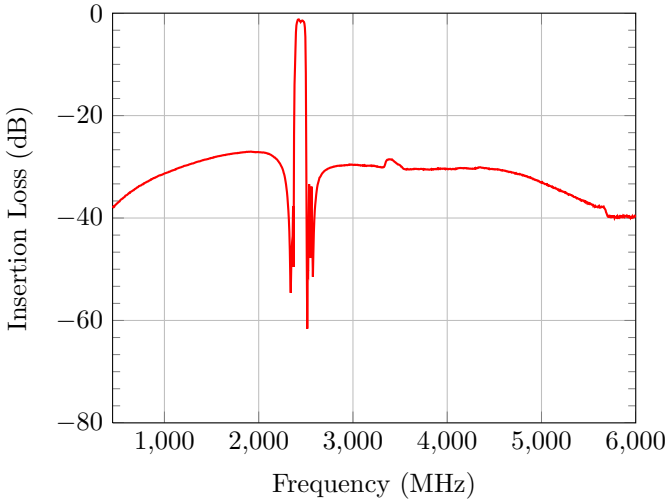


Figure 7: Wideband

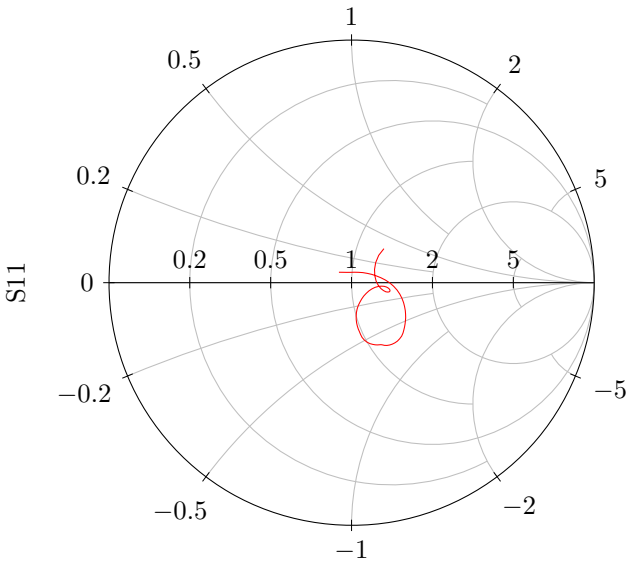


Figure 8: Input Smith Chart ($Z0 = 50\Omega$)

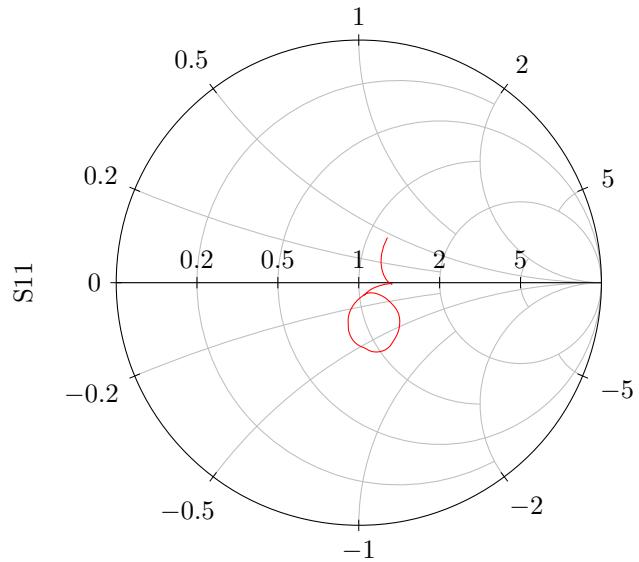


Figure 9: Output Smith Chart ($Z0 = 50\Omega$)

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

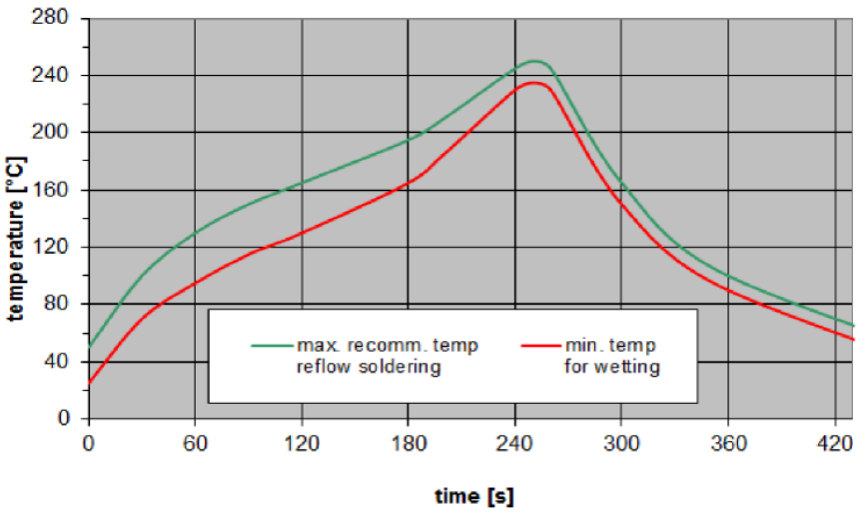
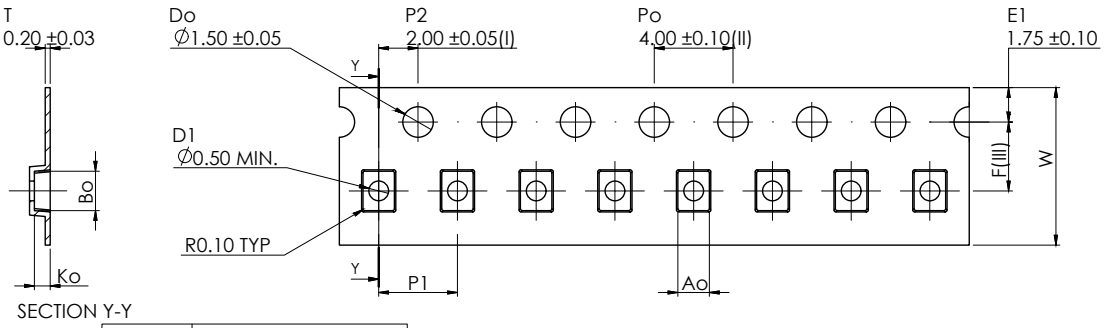


Figure 10: Drawing of reel (Recommended reflow profile for convection and infrared soldering – lead-free solder

10 Tape and Reel

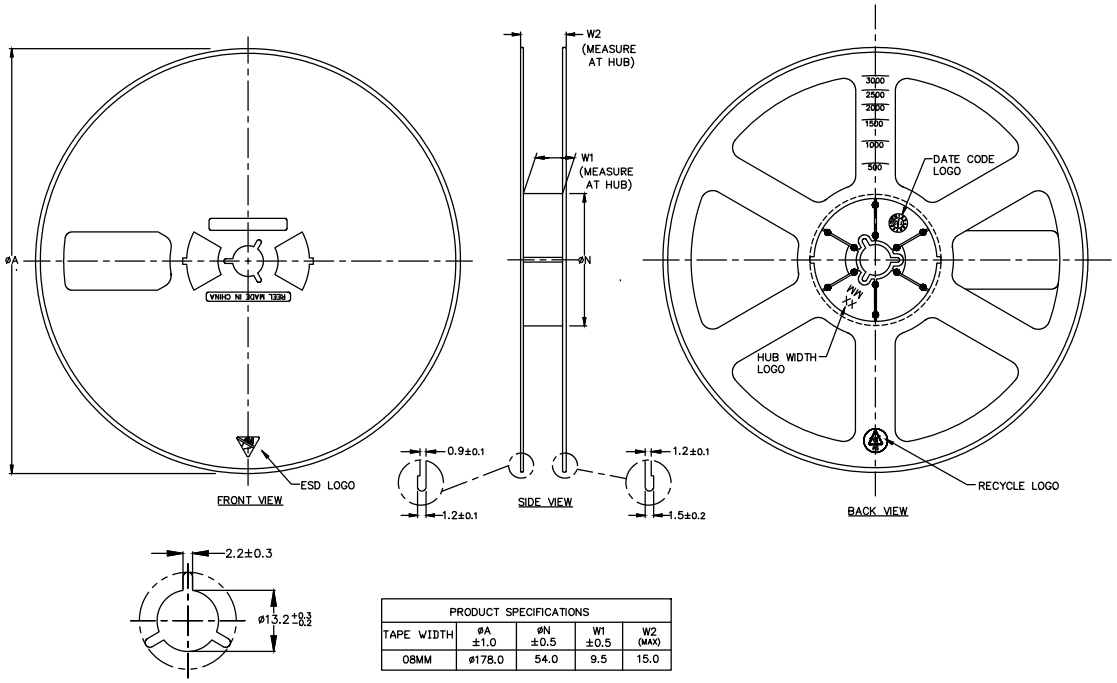
10.1 Tape



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