

SAW Components

SAW Filter

Cellular / LTE / Band 41-160M

Series type: QGSA2G59EBSP1

Ordering code: QGSA2G59EBSP1

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1 Applications

- LTE B41-160M Tx/Rx bandpass filter for HPUE
- Low insertion attenuation
- Low amplitude ripple

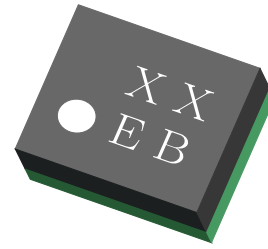
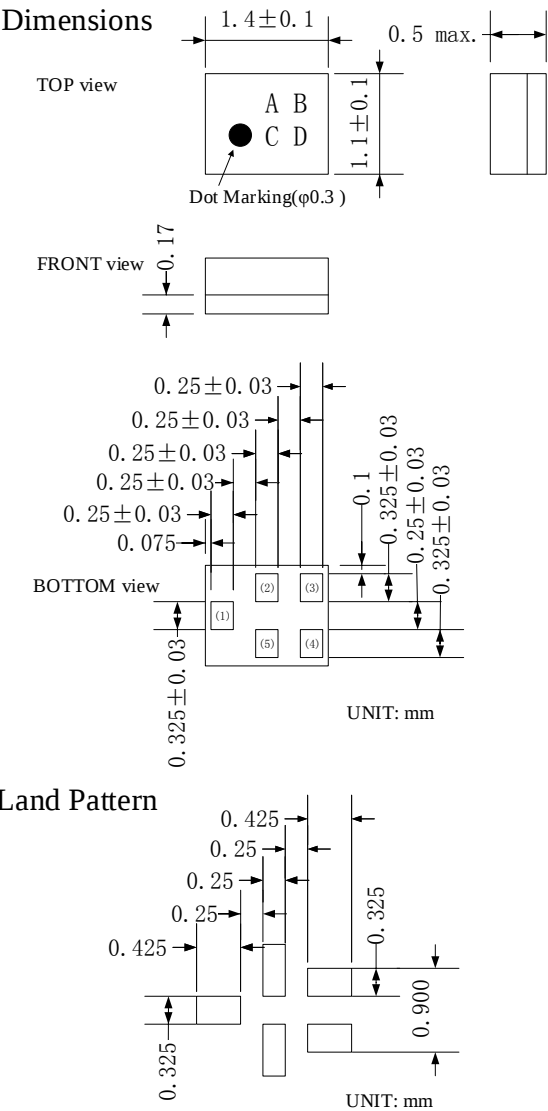


Figure 1: Picture of component with example of product marking.

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

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

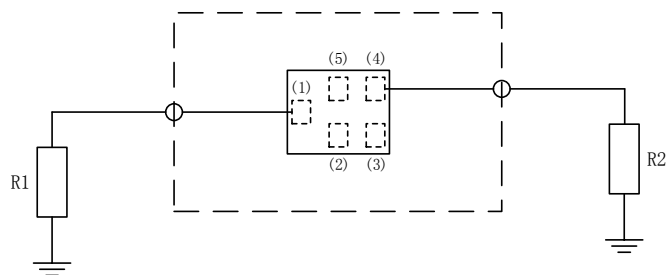


Figure 3: Schematic of matching circuit.

6 Absolute Maximum Ratings

Table 1: Absolute Maximum Ratings of Example Data Sheet

Parameter	Rating
Storage temperature	$T_{STG} = -40^{\circ}C$ to $+95^{\circ}C$
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 $T_{SPEC} = -40^{\circ}C \dots +95^{\circ}C$

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

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

Item		min.	typ.	max.	Unit	Note
Center Frequency		2595			MHz	
Insertion Loss	2515 to 2675 MHz		2.4	3.5		
Ripple Deviation	2515 to 2675 MHz		0.6	1.2	dB	
VSWR	2515 to 2675 MHz		1.7	2.0		Ant
	2515 to 2675 MHz		1.7	2.0		Tx
Absolute Attenuation	10 to 1606 MHz	28	34		dB	
	1710 to 1785 MHz	28	30		dB	B3 Tx
	1805 to 1880 MHz	28	32		dB	B3 Rx
	1880 to 1920 MHz	30	33		dB	B39
	1930 to 1995 MHz	30	35		dB	B25 Rx
	2110 to 2170 MHz	15	20		dB	B1 Rx
	2110 to 2200 MHz	12	20		dB	B66 Rx
	2300 to 2400 MHz	15	20		dB	B40
	2401 to 2473 MHz	30	40		dB	
	2473 to 2483.5 MHz	10	15		dB	
	3300 to 3800 MHz	15	20		dB	N78
	3800 to 4200 MHz	18	23		dB	N77
	4400 to 4800 MHz	28	33		dB	CMCC N79
	5000 to 5850 MHz	28	33		dB	

8 Transmission coefficients

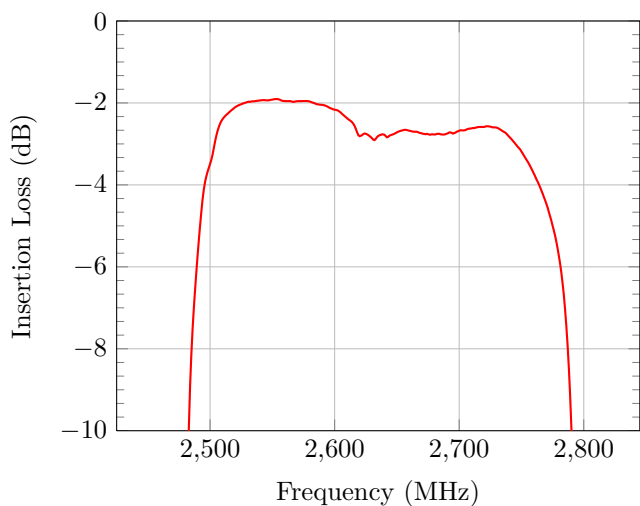


Figure 4: Passband

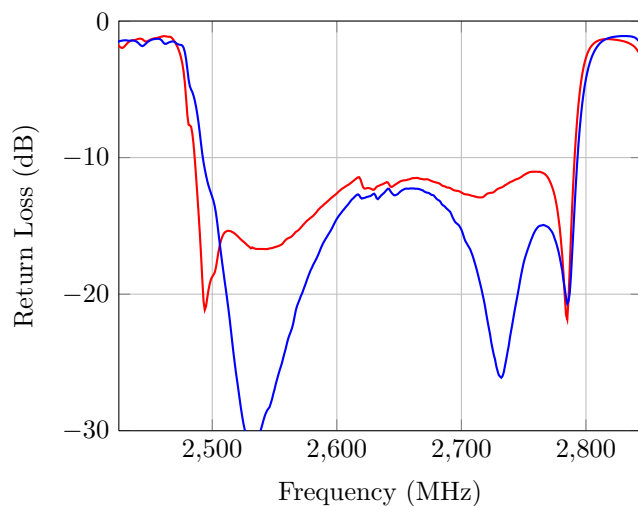


Figure 5: Input/Output Return Loss

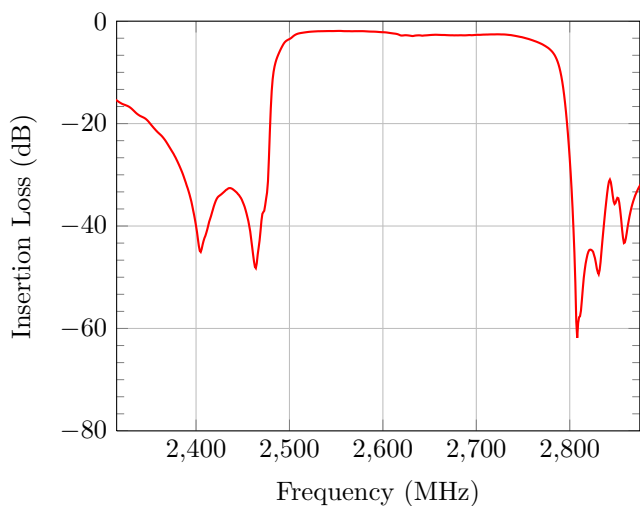


Figure 6: Narrowband

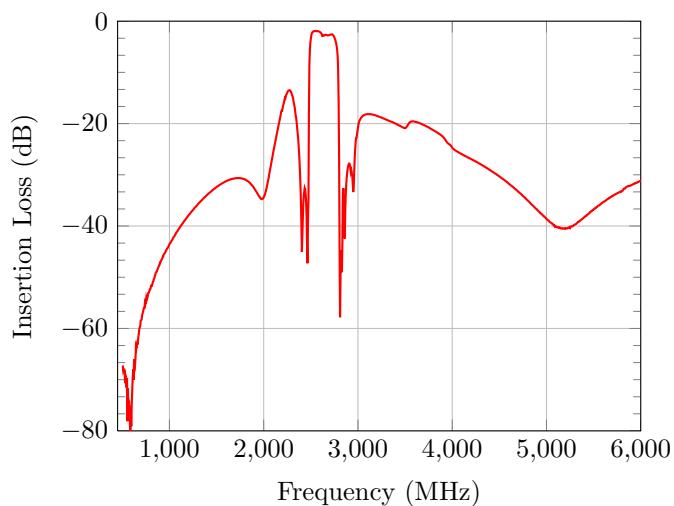
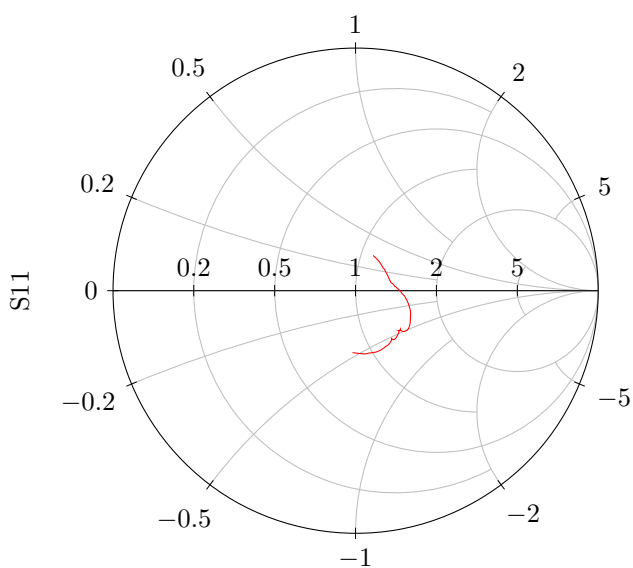
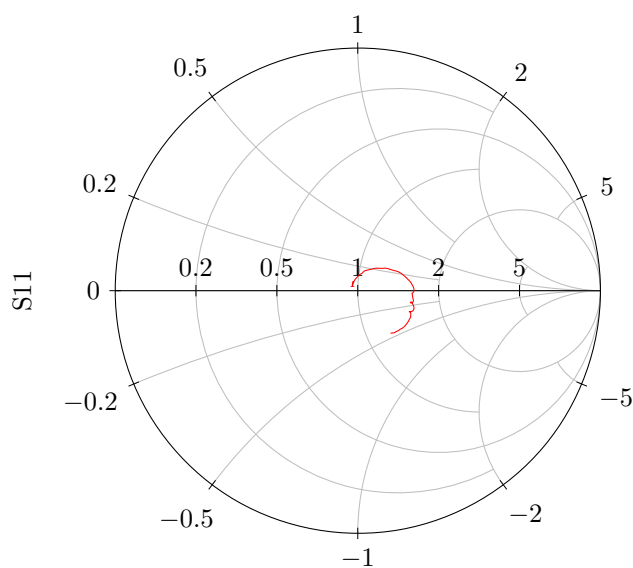


Figure 7: Wideband

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 $\pm 5^{\circ}C$
Wetting temperature T_{min}	230 °C $\pm 5^{\circ}C$ for 10s $\pm 1s$
Cooling rate	≥ 3 K/s
Soldering temperature T	Measured at solder pads

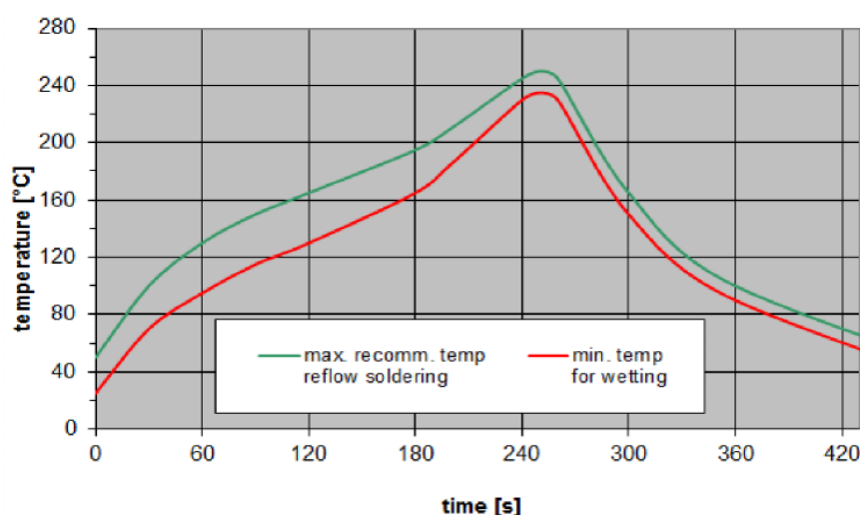


Figure 10: Drawing of reel (Recommended reflow profile for convection and infrared soldering – lead-free solder)

10 Tape and Reel

10.1 Tape

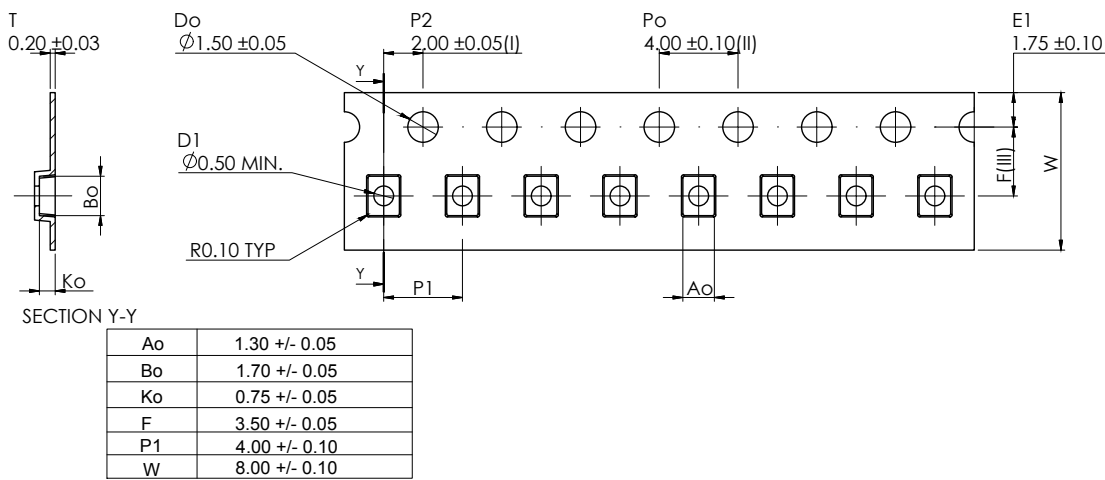


Figure 11: Drawing of tape (first-angle projection) with tape dimensions

10.2 Reel with diameter of 178 mm

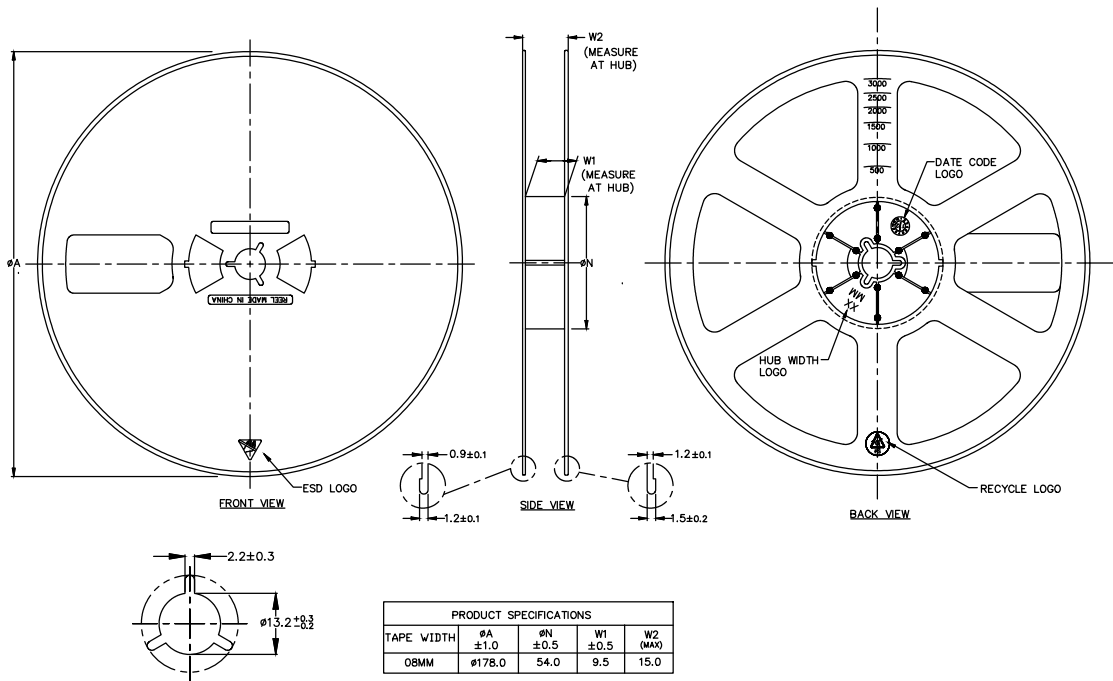


Figure 12: Drawing of reel (first-angle projection) with diameter of 180 mm