Product Specification

Number: L-KLS1-GPS-F-SMD08*03*01

Name: 8.0 X 3.0 X 1.0 mm^3
SMD Antenna

Customer: _____

Date: 2025-08-18

Customer Signature:

KLS electronic
WWW.KLSELE.COM

NINGBO KLS ELECTRONIC CO; LTD

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ADD : NO. 8-1, RONGXIA RD. XIAPU SHANQIAN INDUSTRIAL ZONE BEILUN NINGBO ZHEJIANG.

Compi	Check	Review	Approva
Jenny	Jack.C		

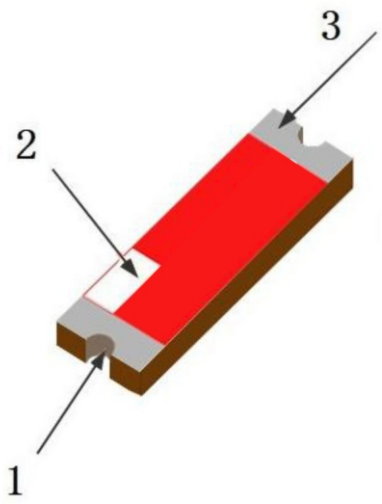
FEATURES

1. Surface Mounted Devices with a small dimension of 8.0 X 3.0 X 1.0 mm³ meet miniaturization trend.
2. Low power loss and high antenna efficiency.
3. High stability in Temperature and Humidity Change.

APPLICATIONS

1. GPS Beidou GNSS band RF applications
2. Low frequency band small antenna applications

CONSTRUCTION

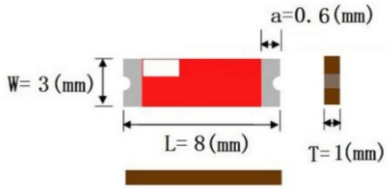


1、Antenna Feeding

2、Identification Mark

3、Soldering terminal

DIMENSIONS

Figure	Symbol	Dimension(mm)
	L	8.0± 0. 1
	w	3.0± 0. 1
	T	1.0± 0. 05
	a	0.6± 0. 1

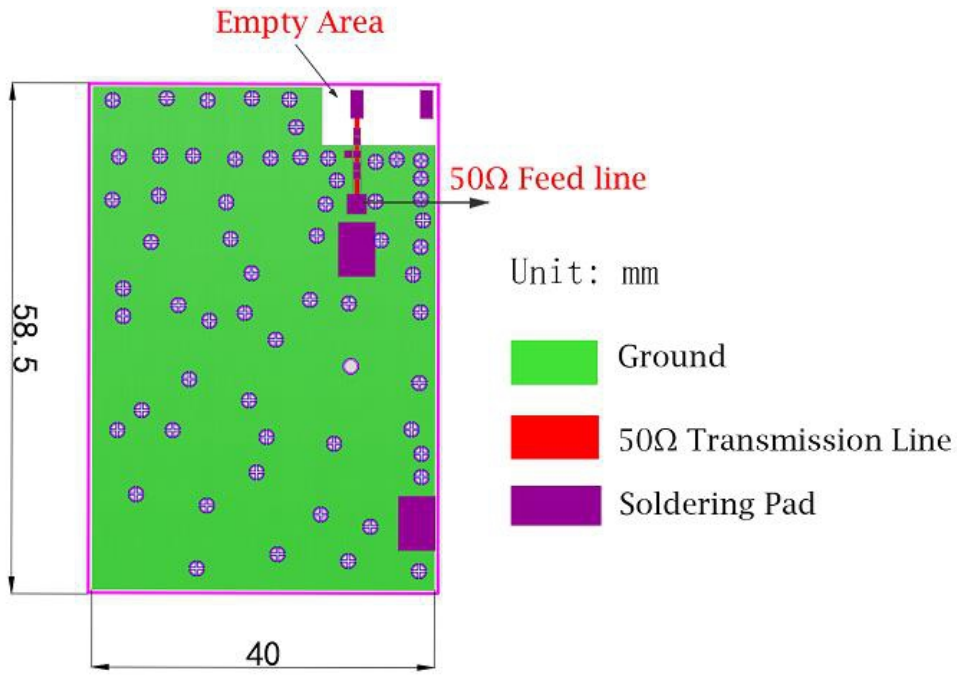
ELECTRICAL CHARACTERISTICS

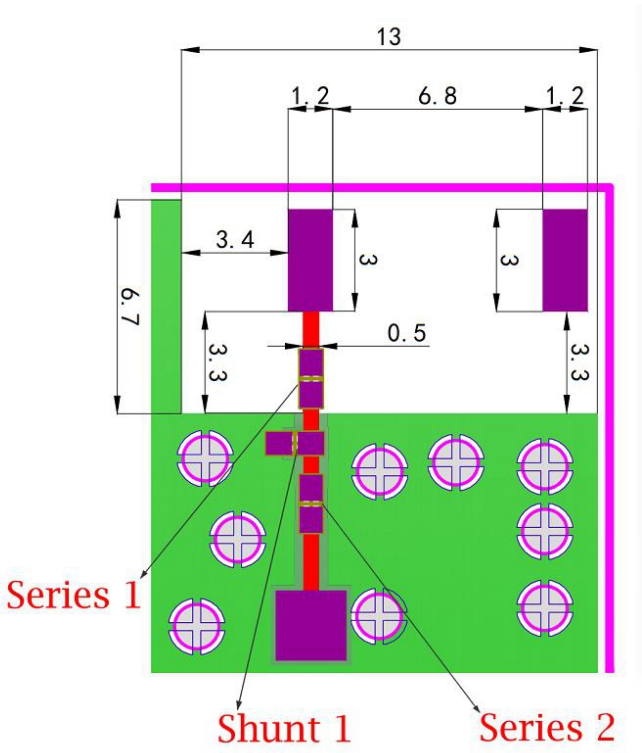
	Specification
Working Frequency Range	1.575± 40MHz
Fc(GHz)	1.8GHz
Band Width	>80MHz
Impedance	50Ω
Gain(dBi)	4.7
VSWR	<2
Operation Temperature	-40℃~+85℃
Power Capacity	3W

The working frequency need be adjusted to 1.575GHz with matching circuit.

SOLDER LAND PATTERN DESIGN

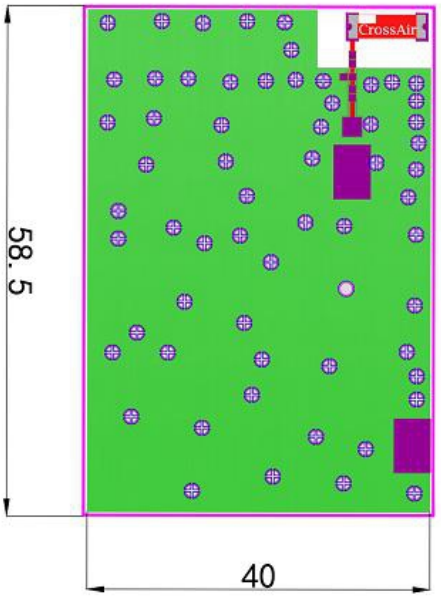
Figure



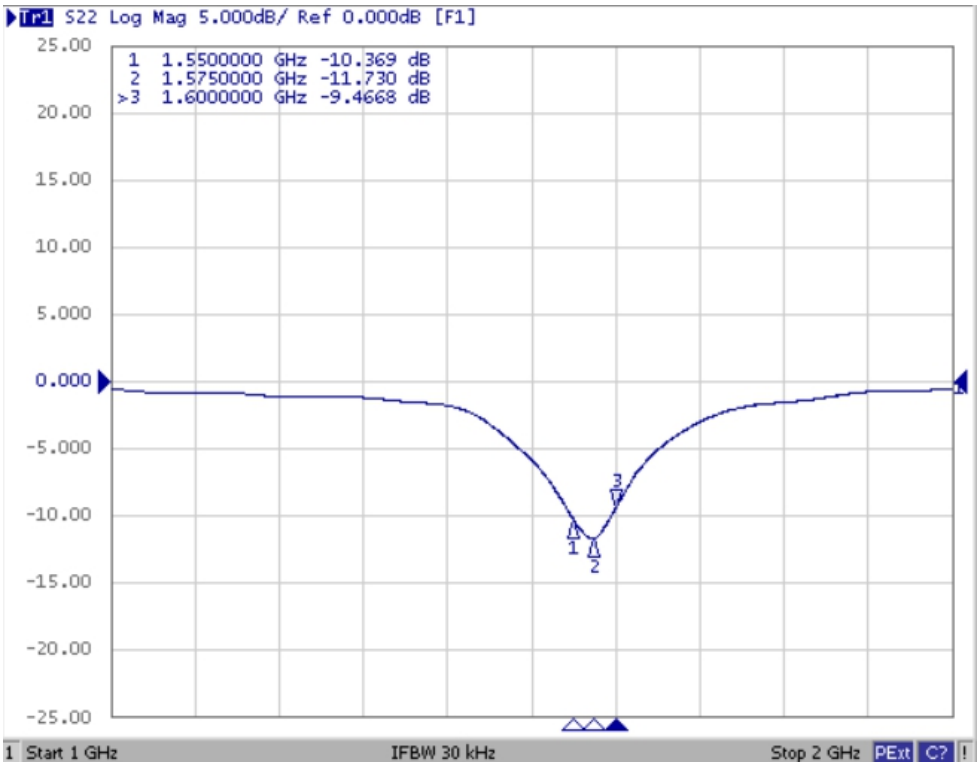


Matching component value	**Series 1**	6.2nh
	Shunt 1	6.2nh
	Series 2	100pf

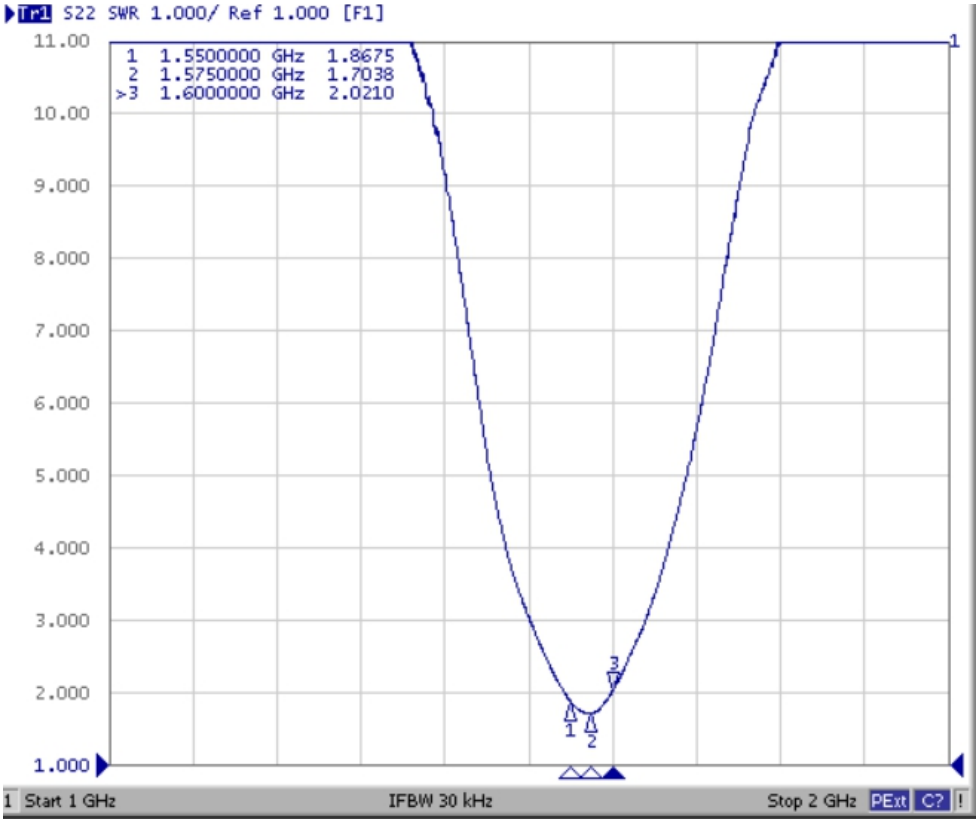
Antenna on Test Board (Thickness 1.0mm)



Antenna S11 on Test Board

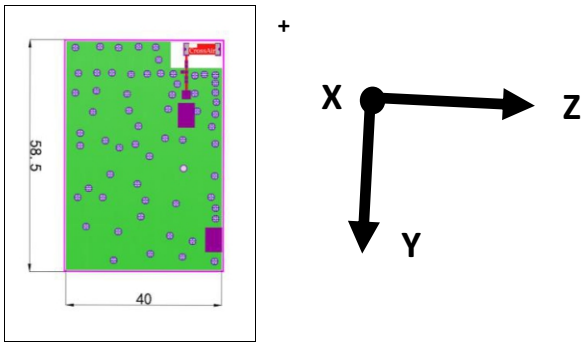


Antenna VSWR on Test Board

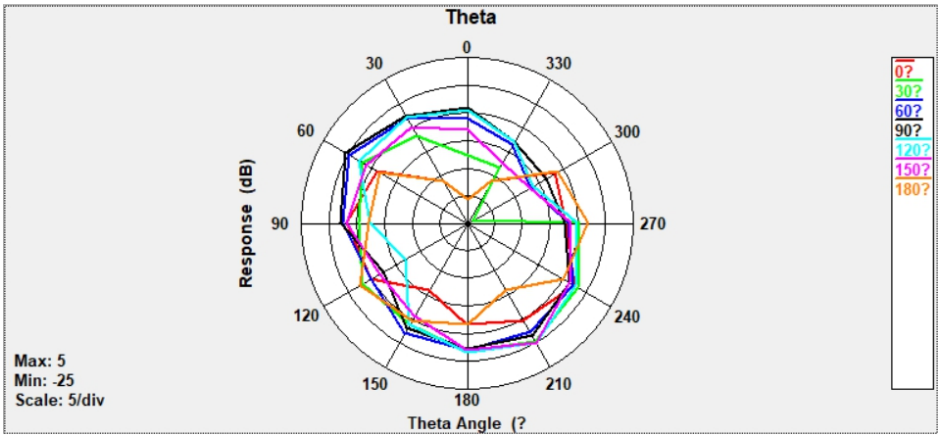
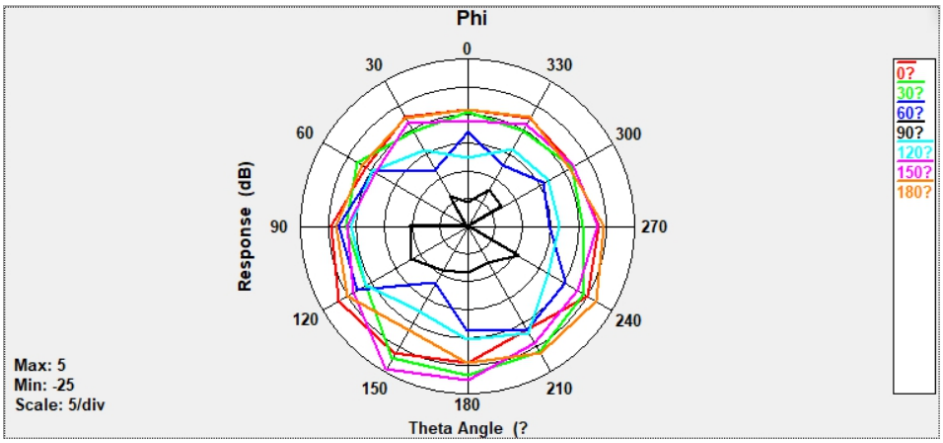


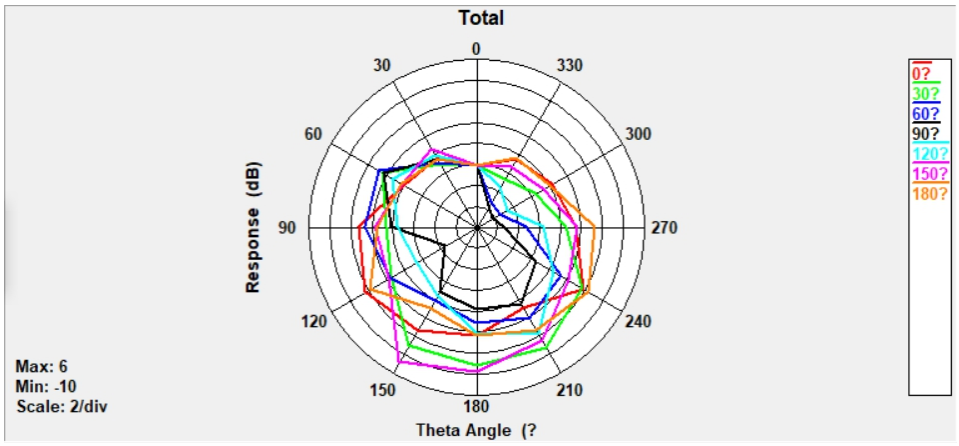
Efficiency and RADIATION PATTERN

Efficiency , Radiation Pattern and Gain were dependent on measurement board design. The specification of L-KLS1-GPS-F-SMD08*03*01 antenna was measured based on the PCB size and installation position as shown in the below figure test board. The test results were tested in ETS 3D Chamber.



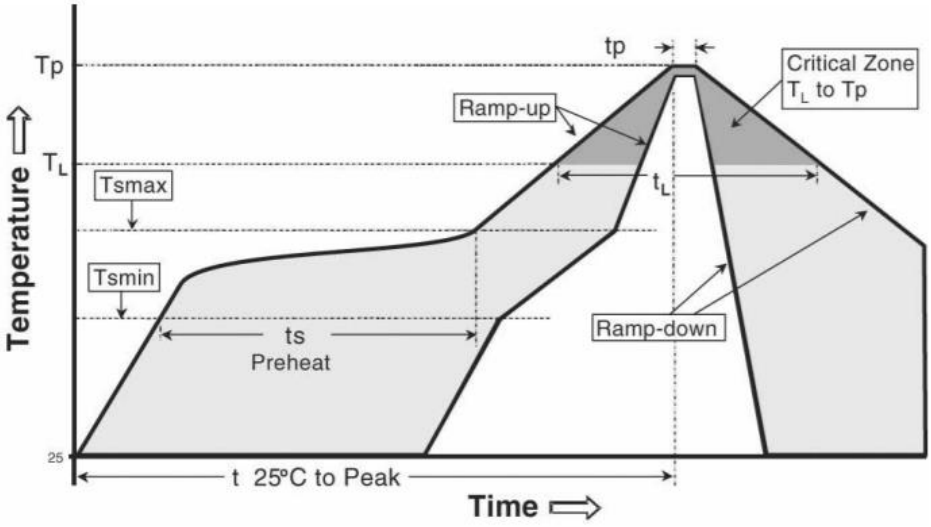
Gain and Efficiency	1.55G-1.6GHz
Peak Gain	4.8dBi
Average Gain across the band	4.7dBi
Gain Range across the band	4.6dBi~4.8dBi
Peak Efficiency	76.6%
Average Efficiency across the band	74.9%
Efficiency Range across the band	71.8%~76.6%

Theta @1.575 GHz	
Phi @1.575 GHz	

Total @1.575 GHz	

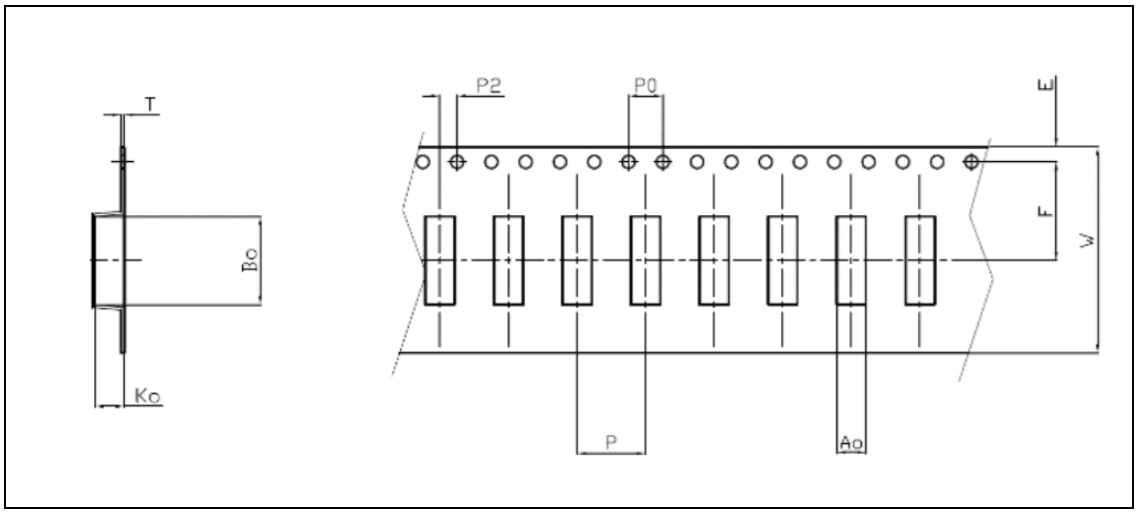
SOLDERING CONDITION

Typical examples of soldering processes that provide reliable joints without any damage is as follows:



Phase	Profile features	Pb-Free assembly (SnAgCu)
RAMP-UP	Avg. Ramp-up Rate (Tsmax to Tp)	3 °C / second (max.)
PREHEAT	- Temperature Min (Tsmin) - Temperature Max (Tsmax) - Time (tsmin to tsmax)	150 °C 200 °C 60-180 seconds
REFLOW	- Temperature (TL) - Total Time above TL (tL)	217 °C 60-150 seconds
PEAK	- Temperature (Tp) - Time (tp)	260 °C 20-40 seconds
RAMP-DOWN	Rate	6 °C/second max
Time from 25 °C to Peak Temperature		8 minutes max

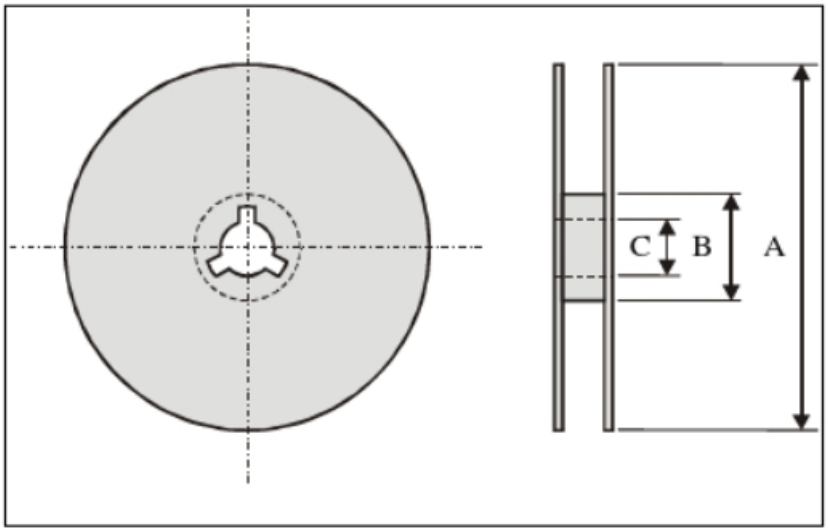
PACKAGING



Plastic Tape specification (unit:mm)

Index	Ao	Bo	Ko	T	W
Dimension (mm)	3.3± 0.1	8.4± 0.1	1.3± 0.1	0.3± 0.05	16.0± 0.3
Index	E	F	P	P0	P2
Dimension (mm)	1.75± 0.1	7.0± 0.1	8.0± 0.1	4.0± 0.1	2.0± 0.1

Reel dimensions



Index	A	B	C
Dimension(mm)	330	100	13.5

Typing Quantity: 2000 pieces per reel.

CAUTION OF HANDLING

Storage environment condition

Products shoud be storage in the warehouse on the following conditions:

Temperature : -10℃~+40℃

Humidity : 30% to 70% relative humidity

Don’t keep products in corrosive gases such as sulfur. Chlorine gas or acid or it may cause oxidization of electrode, resulting in poor solderability.

Products should be storage on the palette for the prevention of the influence from humidity, dust and so on.

Products should be storage in the warehouse without heat shock, vibration, direct sunlight and so on.

Products should be storage under the airtight packaged condition.