

Product Specification

Number: L-KLS1-WIFI-SMD3216

Name: 3.2 *1.6 *0.4 mm³
SMD Antenna

Customer: _____

Date: 2025-08-06

Customer Signature:



NINGBO KLS ELECTRONIC CO; LTD

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Fax : 0086-574-86824882

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

Compi	Check	Review	Approva
Jenny	Jack.C		

Part name	3.2 *1.6 *0.4 mm ³ SMD Antenna	Date	2025-08-06
Part number	L-KLS1-WIFI-SMD3216	Edition	V1
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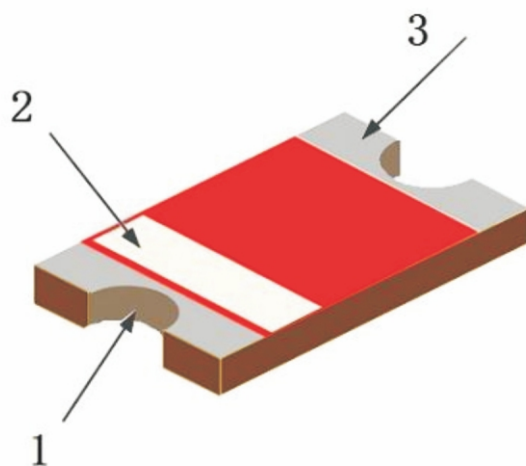
FEATURES

1. Surface Mounted Devices with a small dimension of 3.2 X 1.6 X 0.4 mm³ meet miniaturization trend.
2. Low power loss and high antenna efficiency.
3. High stability in Temperature and Humidity Change.

APPLICATIONS

1. 2.4GHz ISM band RF applications
2. Bluetooth, Wireless, HomeRF

CONSTRUCTION



- 1、Antenna Feeding
- 2、Identification Mark
- 3、Soldering terminal

DIMENSIONS

Figure	Symbol	Dimension(mm)
	L	3.2 ± 0.1
	w	1.6 ± 0.1
	T	0.4 ± 0.05
	a	0.6 ± 0.1

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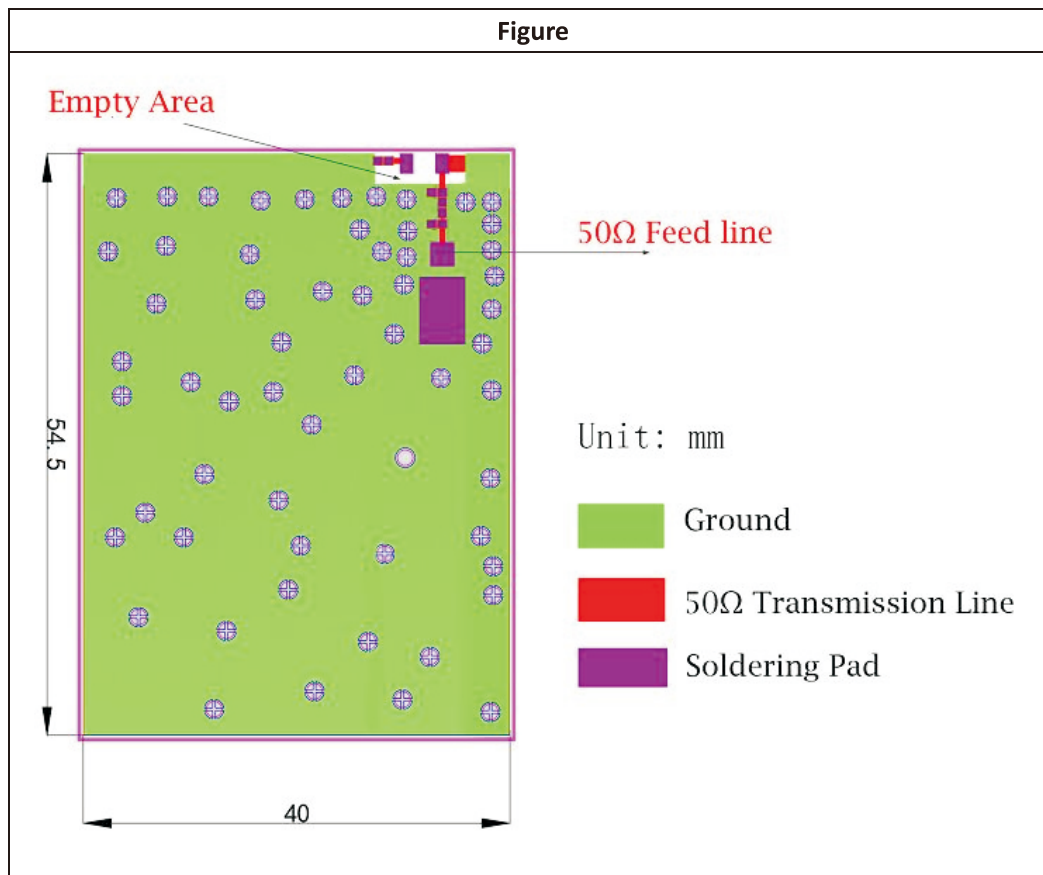
ELECTRICAL CHARACTERISTICS

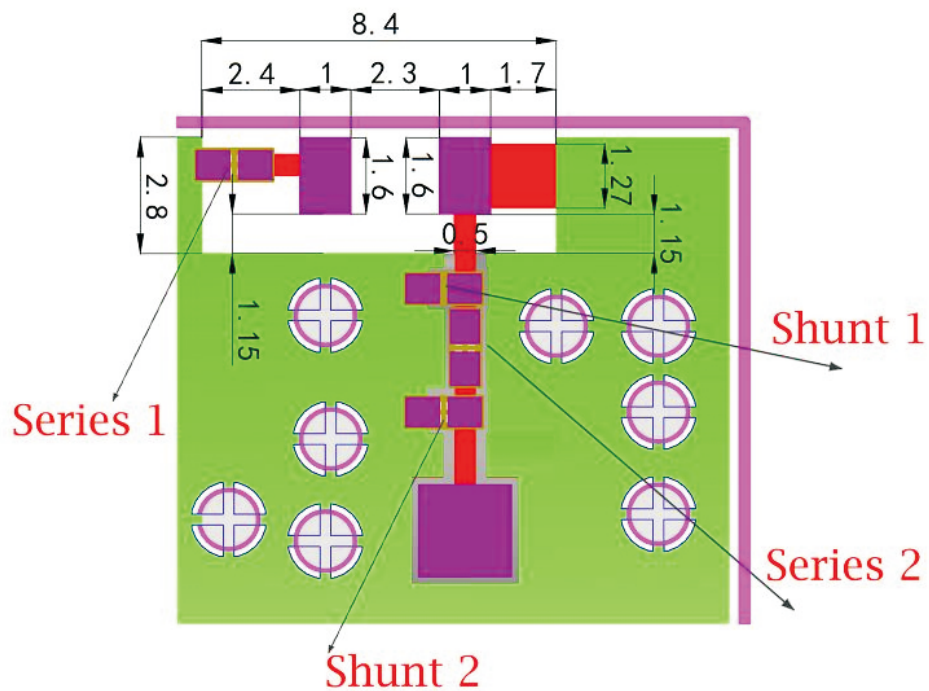
WIFI-SMD3216	Specification
Working Frequency Range	$2450 \pm 50\text{MHz}$
Band Width	$>100\text{MHz}$
Impedance	$50\ \Omega$
Gain(dBi)	0.2
VSWR	<2
Operation Temperature	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
Power Capacity	3W

The working frequency need be adjusted to 2.45GHz with matching circuit.

SOLDER LAND PATTERN DESIGN

Figure





Matching component value

Series 1

0 Ω

Shunt 1

NC

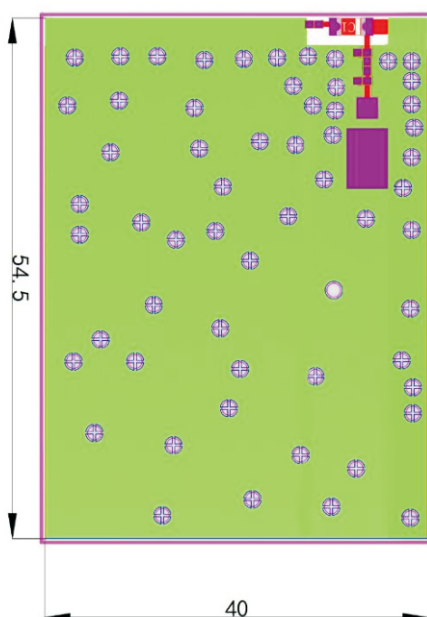
Series 2

3nh

Shunt 2

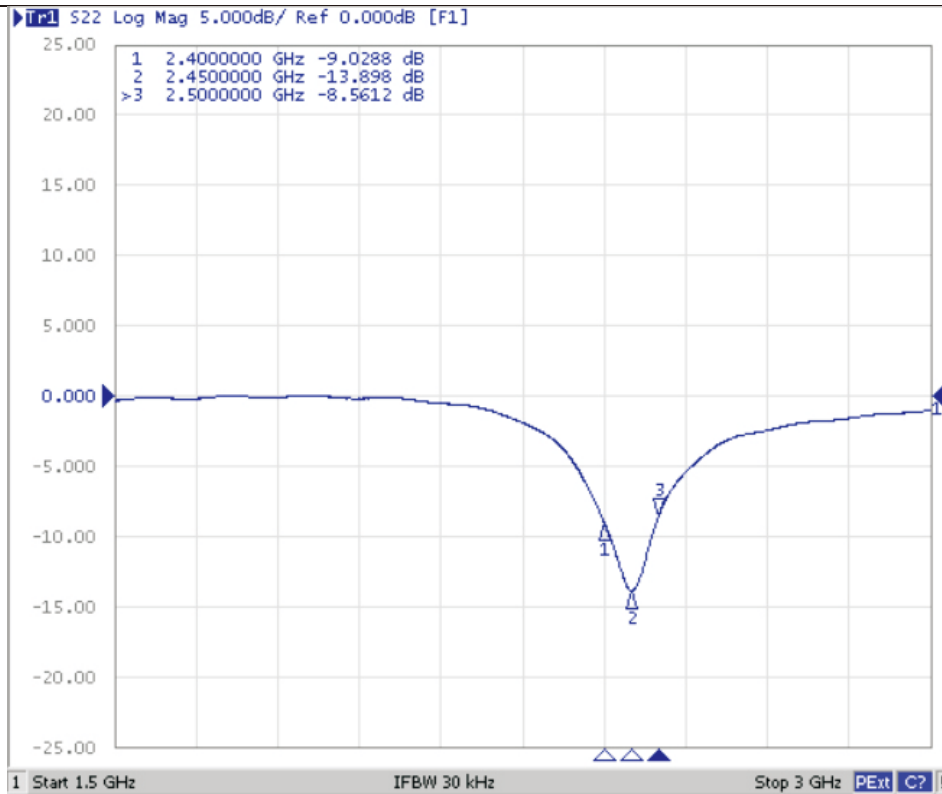
NC

Antenna on Test Board (Thickness 1.0mm)

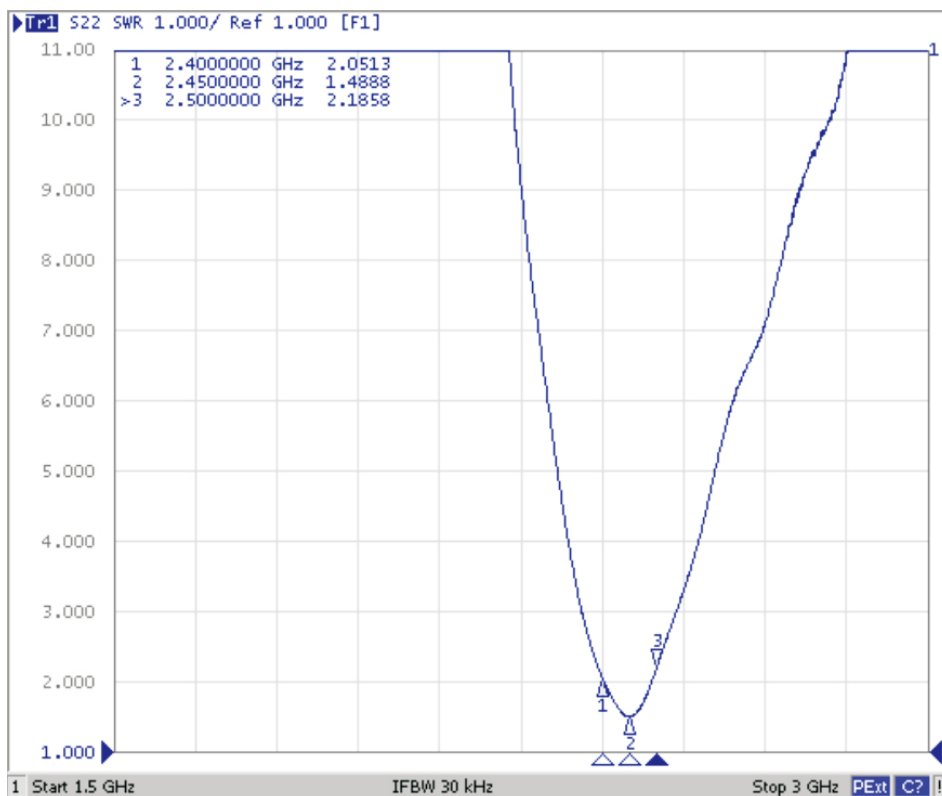


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Antenna S11 on Test Board

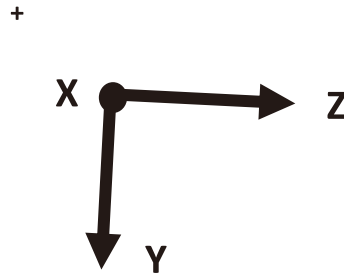
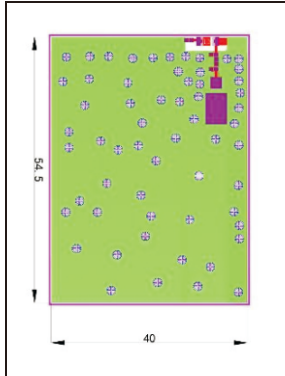


Antenna VSWR on Test Board



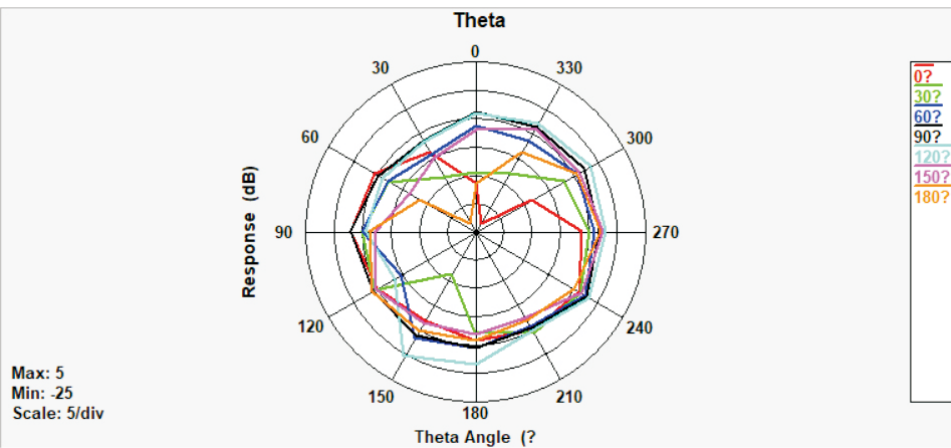
Efficiency and RADIATION PATTERN

Efficiency, Radiation Pattern and Gain were dependent on measurement board design. The specification of CA-C01 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.

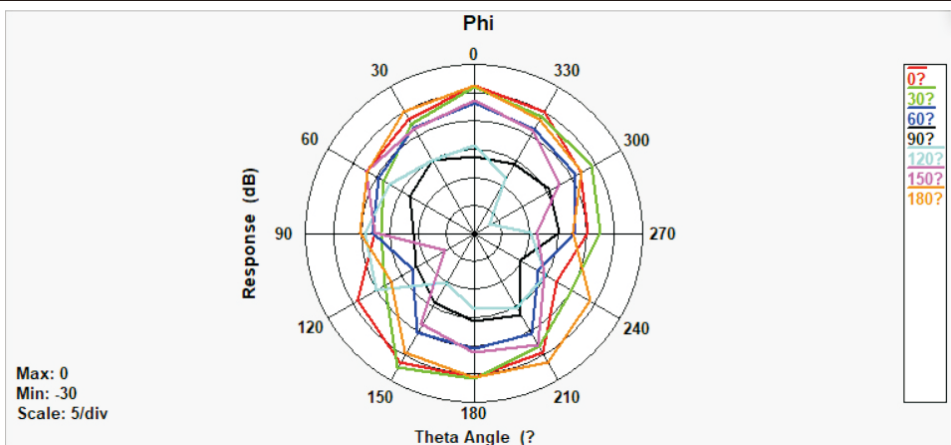


Gain and Efficiency	2.4G-2.5GHz
Peak Gain	0.2dBi
Average Gain across the band	0.06dBi
Gain Range across the band	-0.17dBi~0.2dBi
Peak Efficiency	41.3%
Average Efficiency across the band	40.1%
Efficiency Range across the band	37.8%~41.3%

Theta
@2.45
GHz

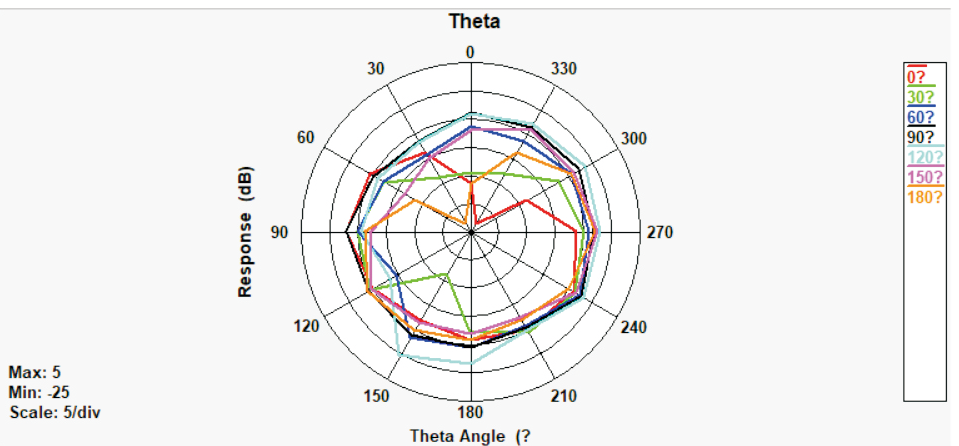


Phi
@2.45
GHz



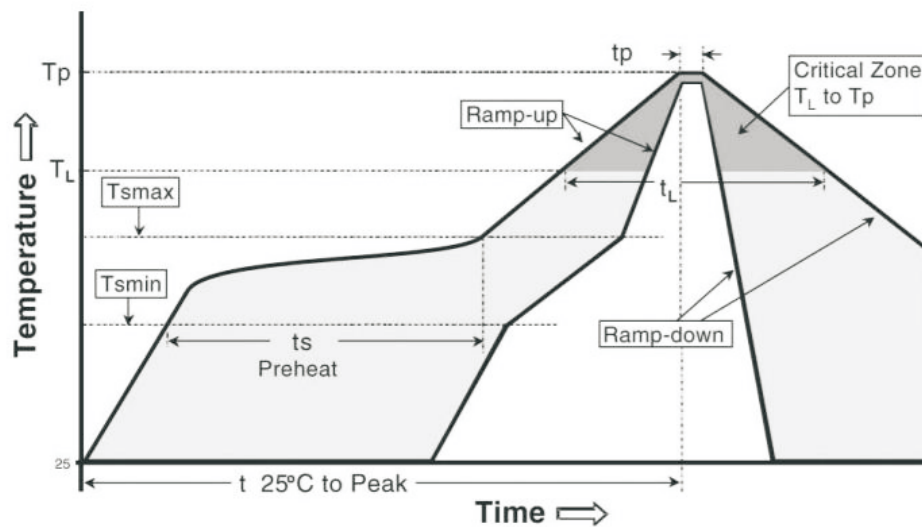
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**Total
@2.45
GHz**



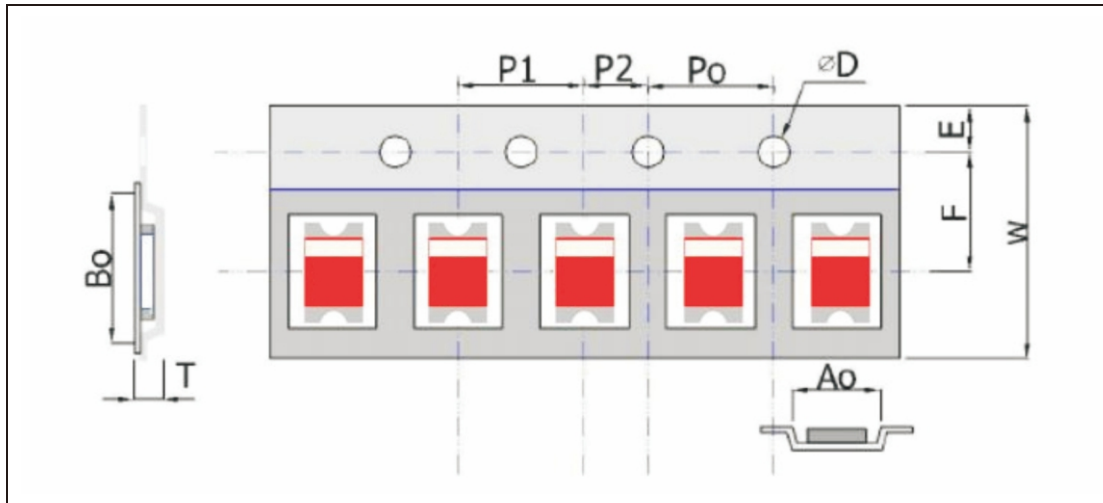
SOLDERING CONDITION

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 (Tsmmax to Tp)	3 °C / second (max.)
PREHEAT	- Temperature Min (Tsmmin) - Temperature Max (Tsmmax) - 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

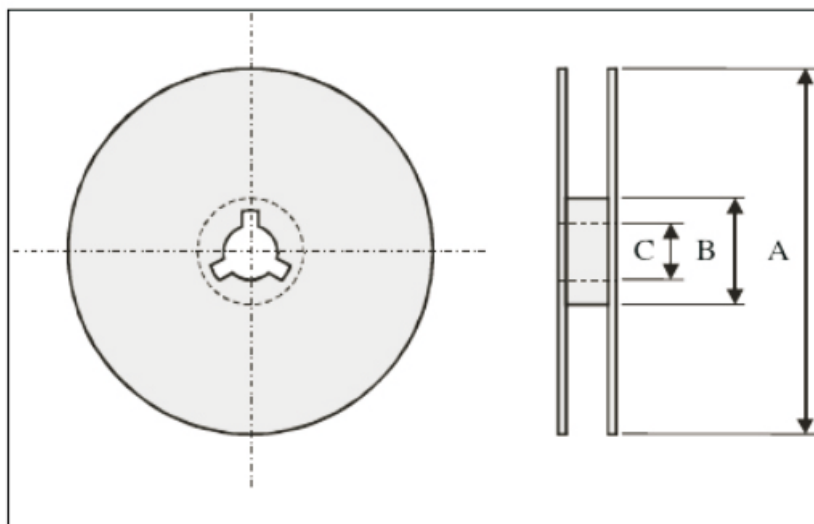
PACKAGING



Plastic Tape specification (unit:mm)

Index	Ao	Bo	ΦD	T	W
Dimension (mm)	2.0±0.1	3.6±0.1	1.55±0.05	0.9±0.1	8.2±0.1
Index	E	F	Po	P1	P2
Dimension (mm)	1.75±0.1	3.2±0.1	4.0±0.1	4.0±0.1	2.0±0.1

Reel dimensions



Index	A	B	C
Dimension(mm)	178	60	13.5

Typing Quantity: 3000 pieces per reel.

CAUTION OF HANDLING

Storage environment condition

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

Temperature : -10℃~+40℃

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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.