

Product Specification

Number: L-KLS1-WIFI-F-SMD3.3*1.7*1.2

Name: 3.3 X 1.7 X 1.2 mm³
SMD Antenna

Customer: _____

Date: 2025-08-18

Customer Signature:



NINGBO KLS ELECTRONIC CO; LTD

Tel : 0086-574-86828566

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	3.3 X 1.7 X 1.2 mm ³ SMD Antenna	Date	2025-08-18
Part number	L-KLS1-WIFI-F-SMD3.3*1.7*1.2	Edition	V1
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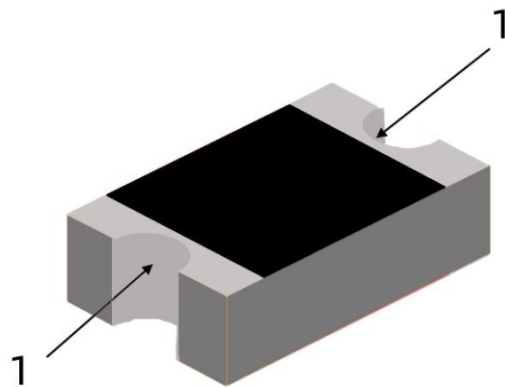
FEATURES

1. Surface Mounted Devices (SMD) with a small dimension of 3.3 X 1.7 X 1.2 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, ZigBee, Wireless, HomeRF
3. WIFI (2.4G only)

CONSTRUCTION



1、 Antenna Feeding

DIMENSIONS

Figure	Symbol	Dimension(mm)
	L	3.3 ± 0.1
	w	1.7 ± 0.1
	T	1.2 ± 0.1
	a	0.5 ± 0.1

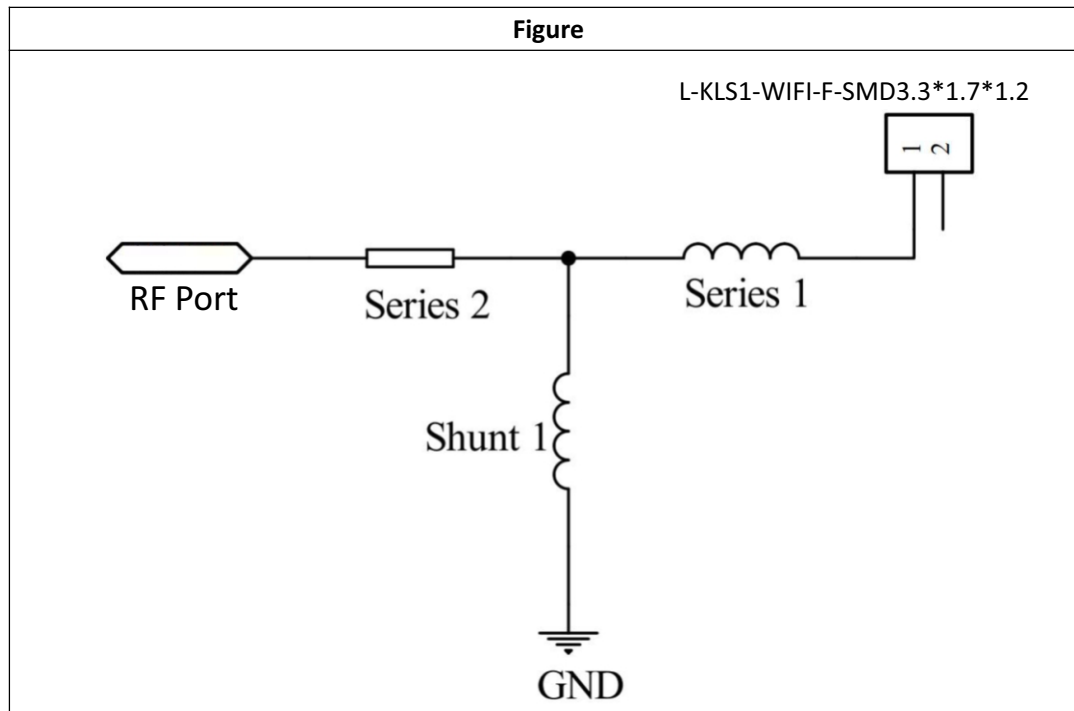
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ELECTRICAL CHARACTERISTICS

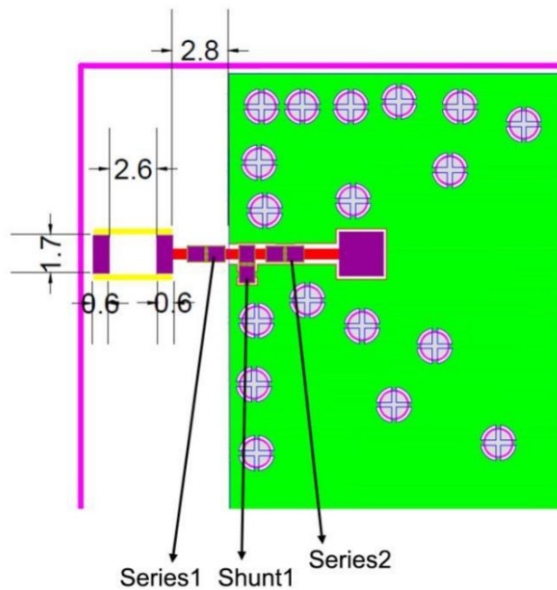
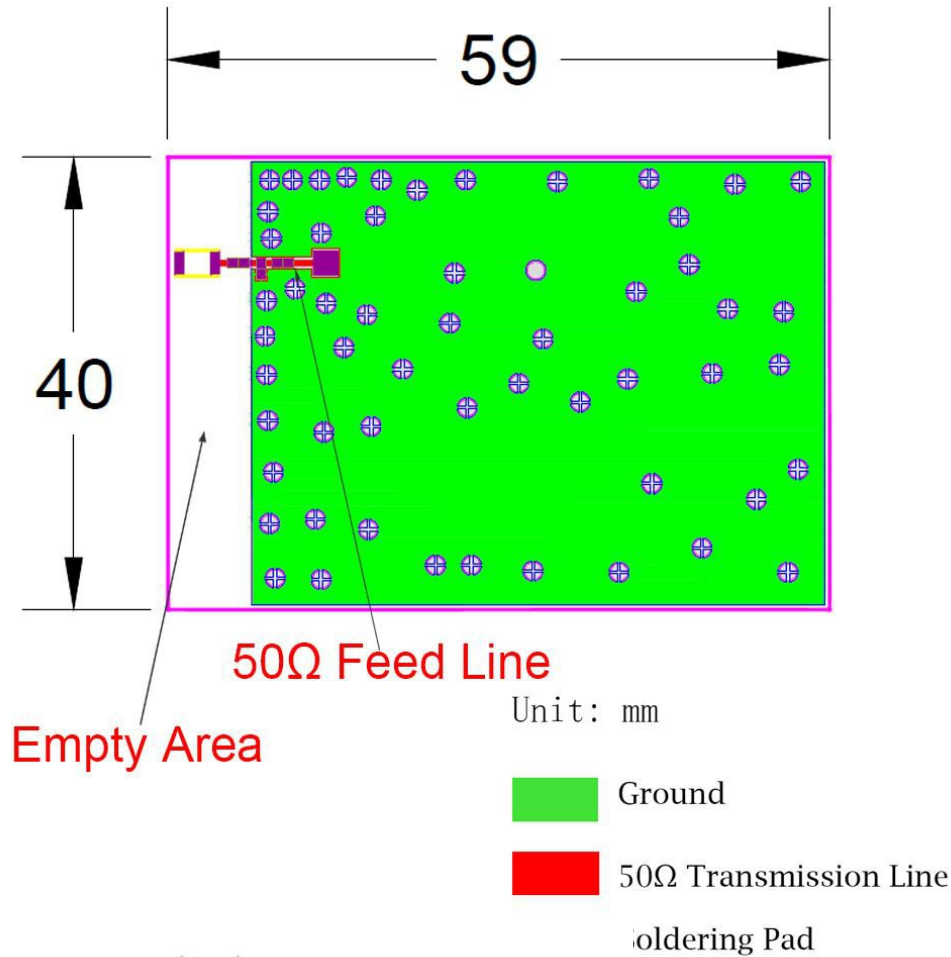
	Specification
Working Frequency Range	2450± 50MHz
Band Width	>100MHz
Impedance	50Ω
Gain(dBi)	3.85 (peak)
VSWR	<2
Operation Temperature	-40°C~+95°C
Power Capacity	3W

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

SOLDER LAND PATTERN DESIGN



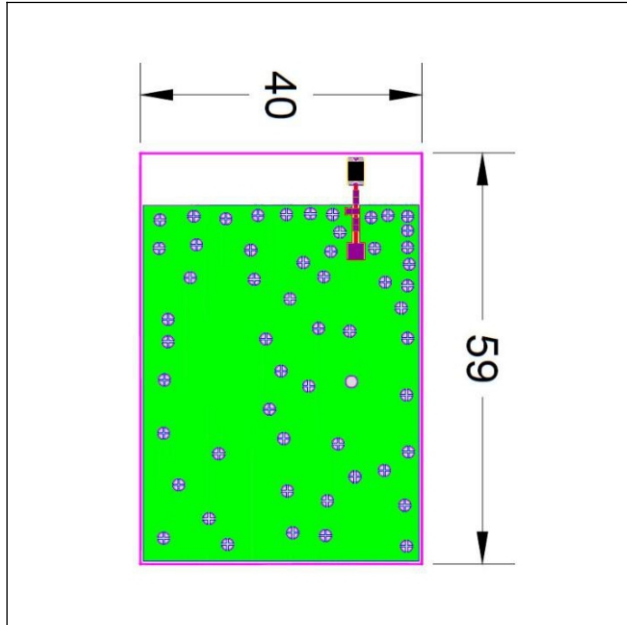
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Matching component value	Series 1	2.2nh
	Shunt 1	3nh
	Series 2	0Ω

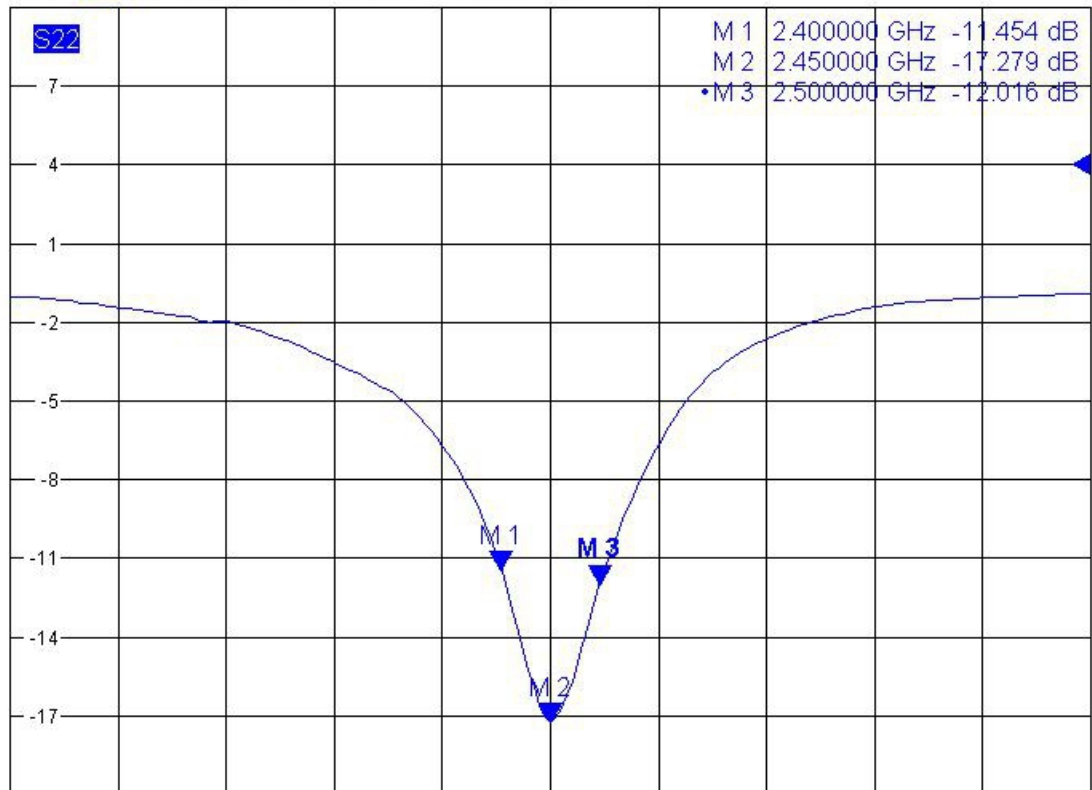
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Antenna on Test Board (Thickness 1.0mm)



Antenna S11 on Test Board

Trc1 S22 dB Mag 3 dB / Ref 4 dB Cal int Offs 1

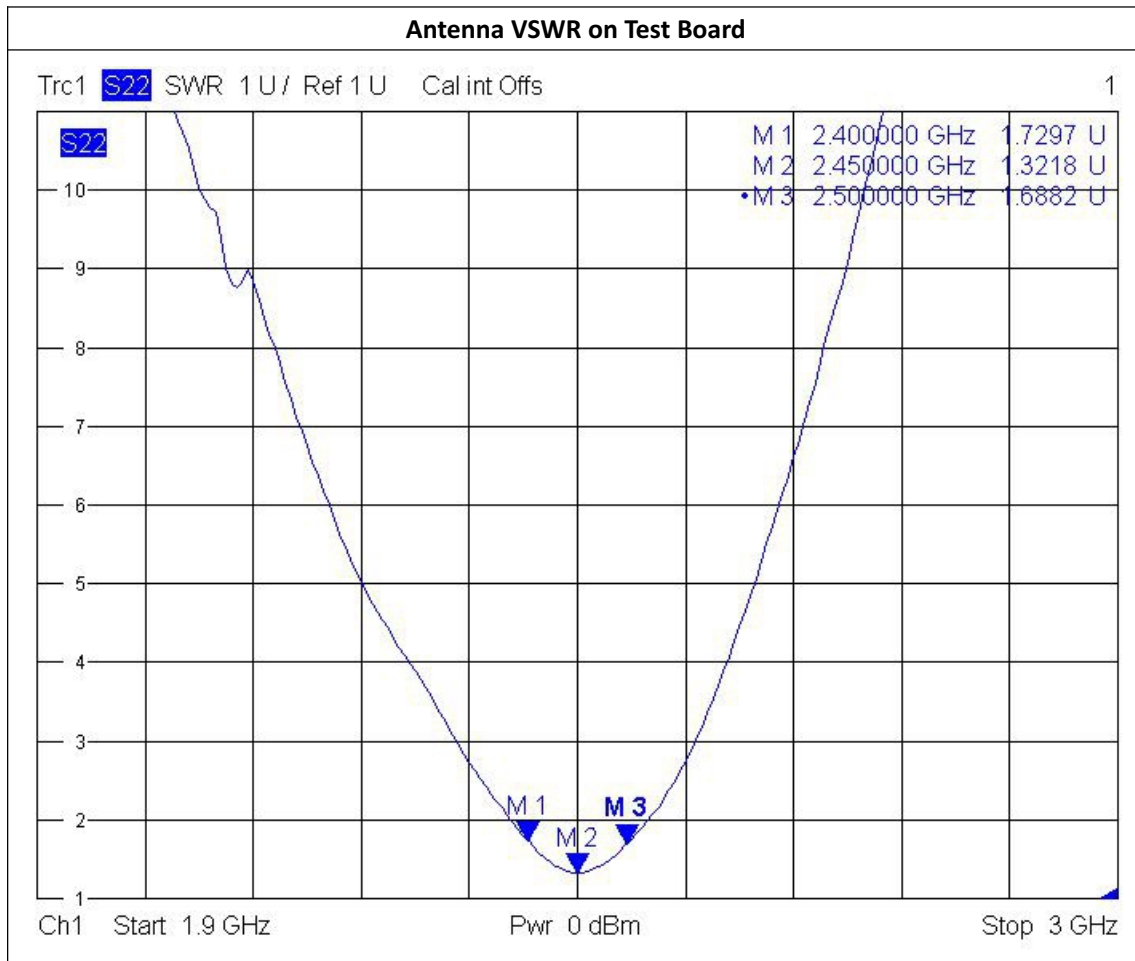


Ch1 Start 1.9 GHz

Pwr 0 dBm

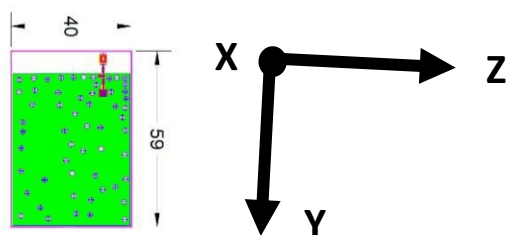
Stop 3 GHz

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Efficiency and RADIATION PATTERN

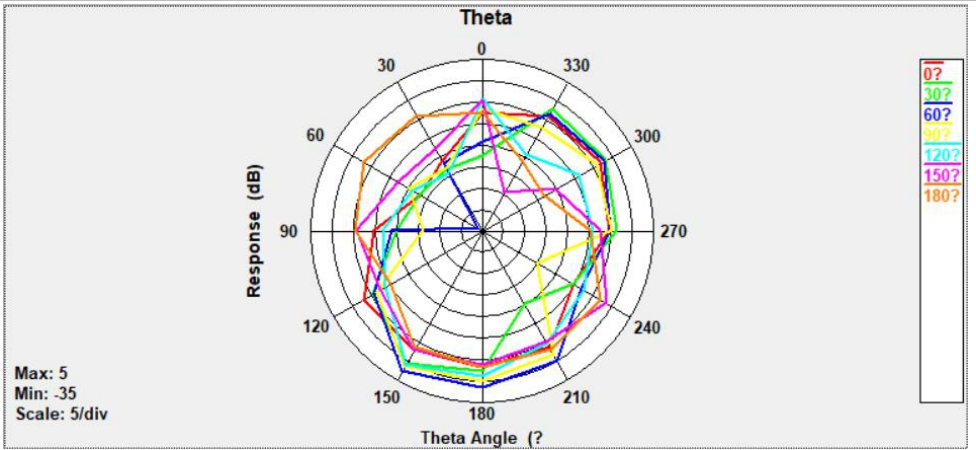
Efficiency, Radiation Pattern and Gain were dependent on measurement board design. The specification of L-KLS1-WIFI-F-SMD3.3*1.7*1.2 antenna was measured based on the PCB size and installation position as shown in the below figure test board. The test results were tested in ETS 3D Chamber.



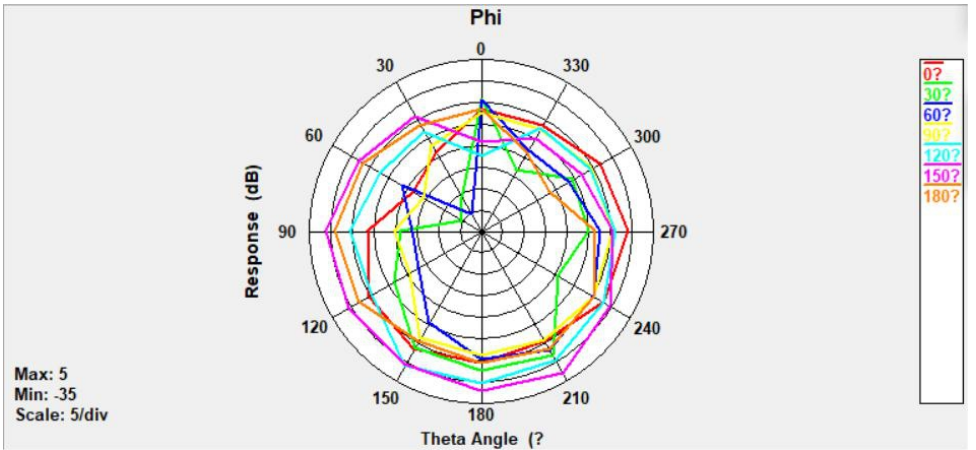
Gain and Efficiency	2.4G-2.5GHz
Peak Gain	3.85dBi
Average Gain across the band	3.76dBi
Gain Range across the band	3.53dBi~3.85dBi
Peak Efficiency	63.2%
Average Efficiency across the band	58.8%
Efficiency Range across the band	54.1%~63.2%

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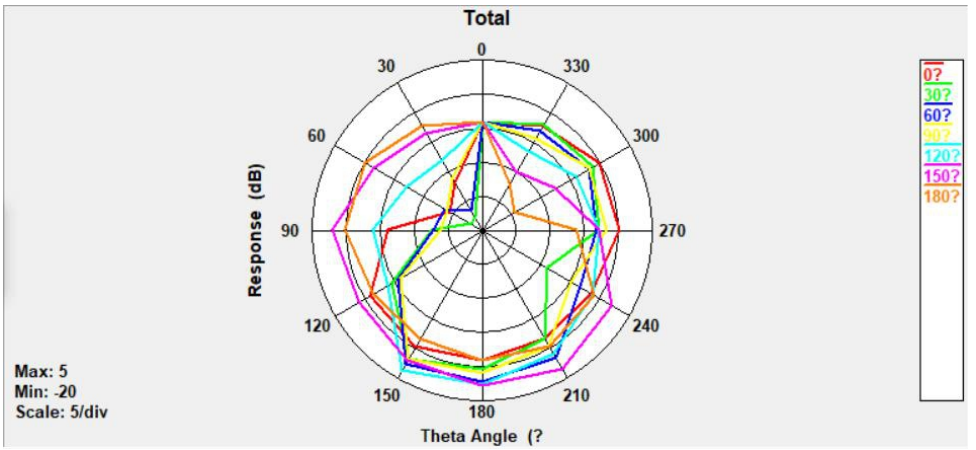
**Theta
@2.45
GHz**



**Phi
@2.45
GHz**



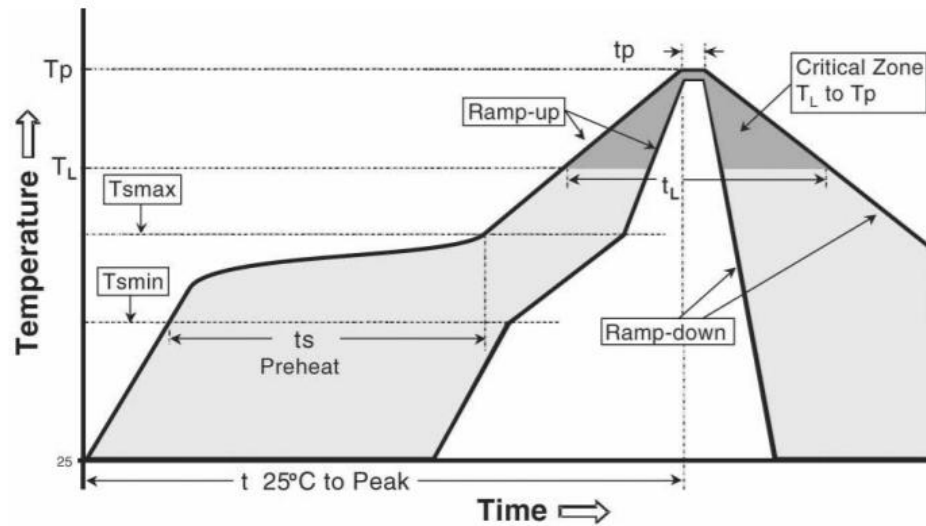
**Total
@2.45
GHz**



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SOLDERING CONDITION

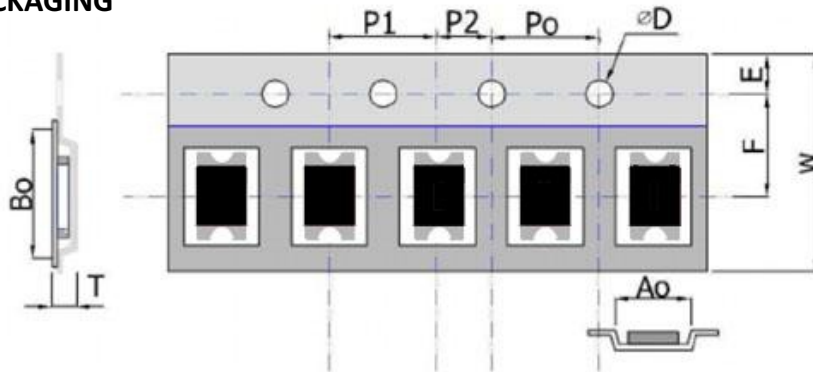
Typical examples of soldering processes that provide reliable joints without any damage is as follows:



Phase	Profile features	Pb-Free assembly (SnAgCu)
RAMP-UP	Avg. Ramp-up Rate (Tsmáx to Tp)	3 °C / second (max.)
PREHEAT	- Temperature Min (Tsmín) - Temperature Max (Tsmáx) - Time (tsmín 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

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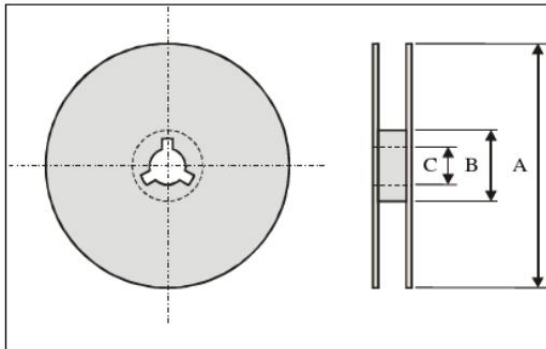
PACKAGING



Plastic Tape specification (unit:mm)

Index	Ao	Bo	ΦD	T	W
Dimension (mm)	2.0± 0.1	4.0± 0.1	1.55± 0.05	1.8± 0.1	12± 0.1
Index	E	F	Po	P1	P2
Dimension (mm)	1.5± 0.1	5.4± 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: 2500 pieces per reel.

CAUTION OF HANDLING

Storage environment condition

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

Temperature : -10°C~+40°C

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.