

APPROVAL SHEET

OverAir™ SMD Antenna series
RoHS Compliance

PN: OA-C15

2.4 GHz ISM band antenna

FEATURES

1. Surface Mounted Devices (SMD) with a small dimension of 1.6 X 0.8 X 0.8 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

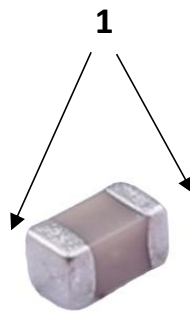
CONSTRUCTION**1、Antenna Feeding****DIMENSIONS**

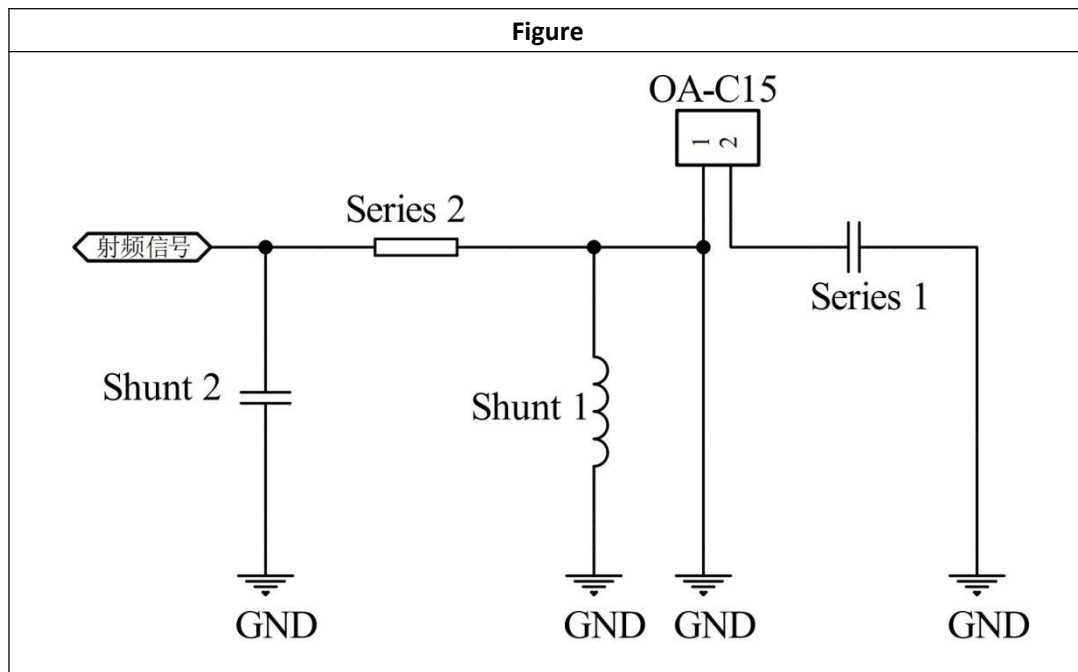
Figure	Symbol	Dimension(mm)
	L	1.6±0.1
	W	0.8±0.1
	T	0.8±0.1
	WB	0.3±0.1

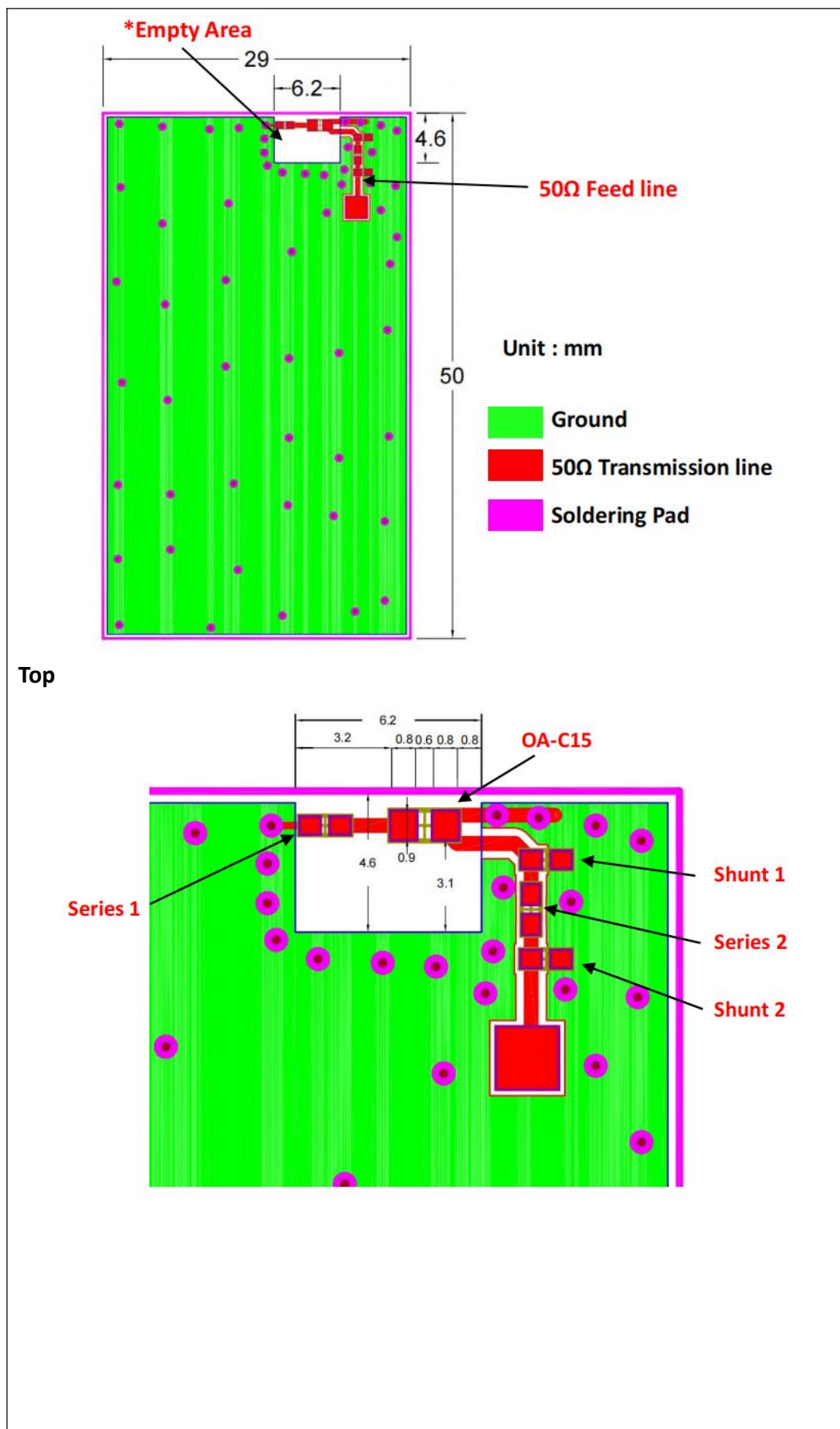
ELECTRICAL CHARACTERISTICS

OA-C15	Specification
Working Frequency Range	$2450 \pm 50\text{MHz}$
Band Width	$>100\text{MHz}$
Impedance	$50\ \Omega$
Gain(dBi)	1.54 (peak)
VSWR	<2.5
Operation Temperature	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
Power Capacity	3W

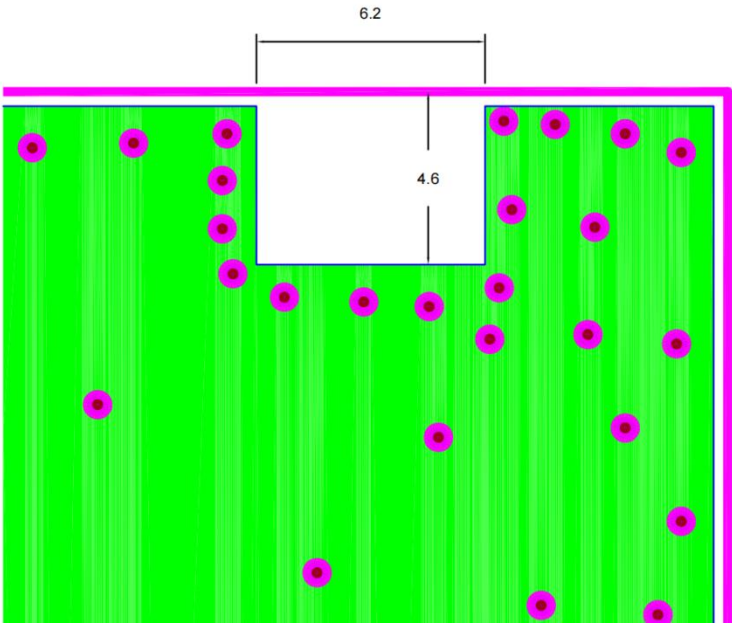
The working frequency need be adjusted to 2.45GHz with matching circuit.

SOLDER LAND PATTERN DESIGN





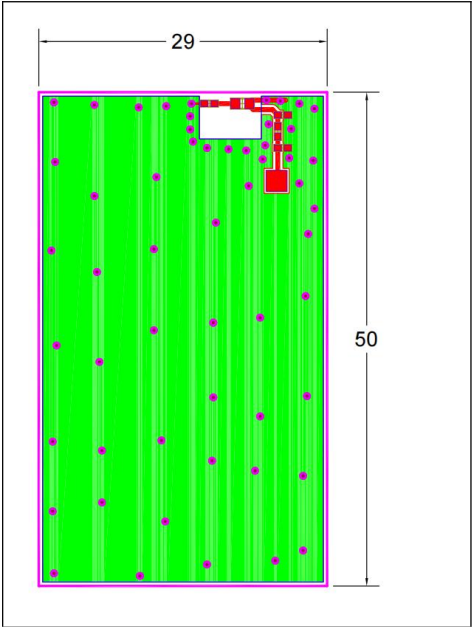
Bot



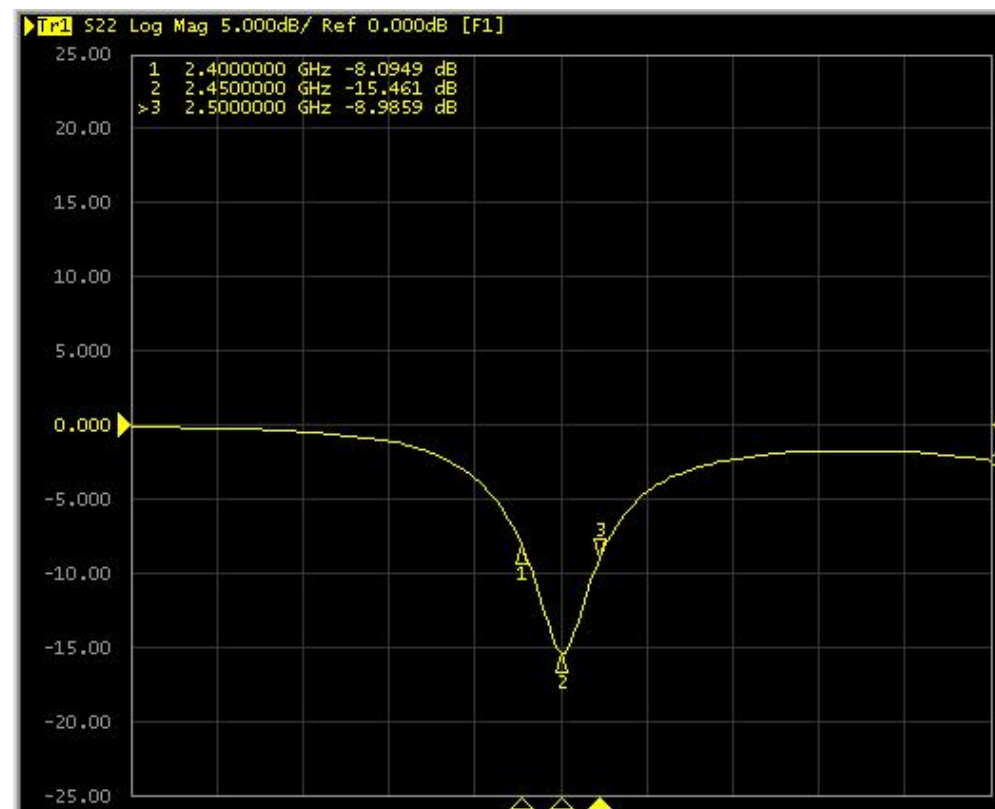
Matching component value

Series 1	2pF
Shunt 1	6.2nH
Series 2	0Ω
Shunt 2	NC

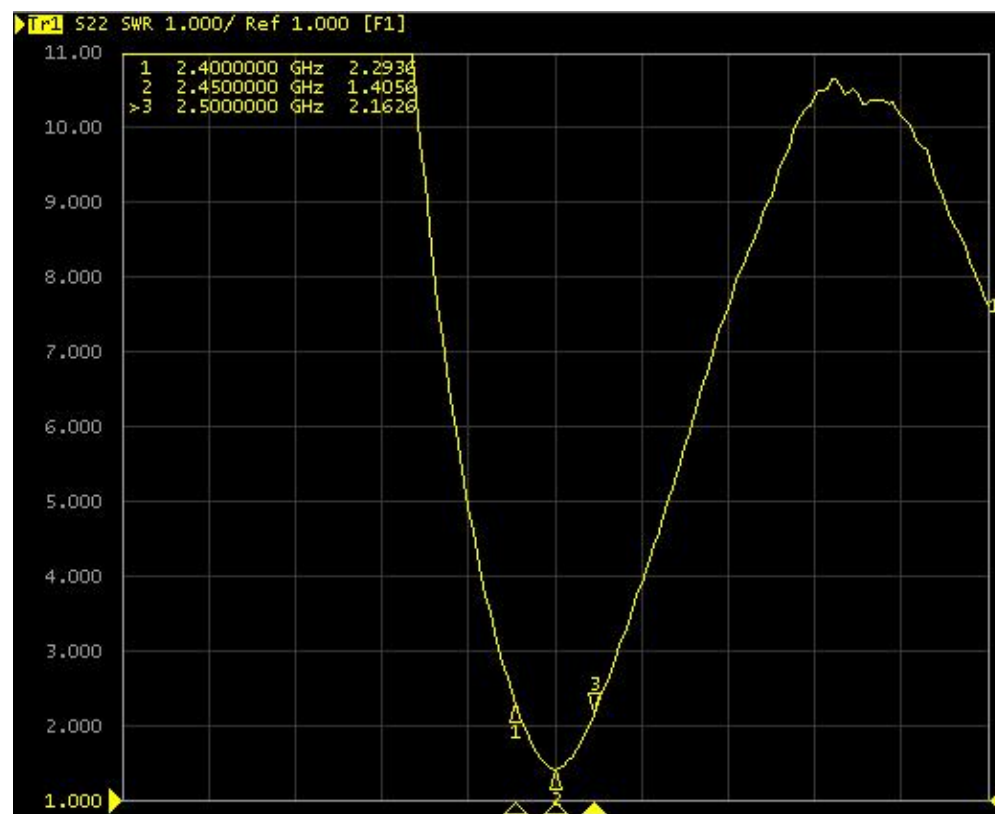
Antenna on Test Board (Thickness 1.0mm)



Antenna S11 on Test Board

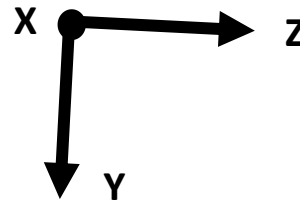
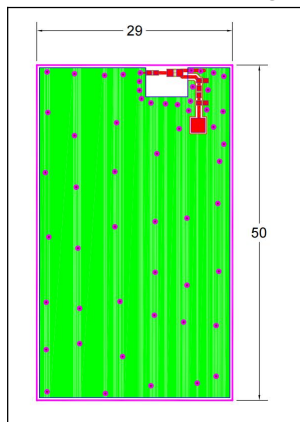


Antenna VSWR on Test Board



Efficiency and RADIATION PATTERN

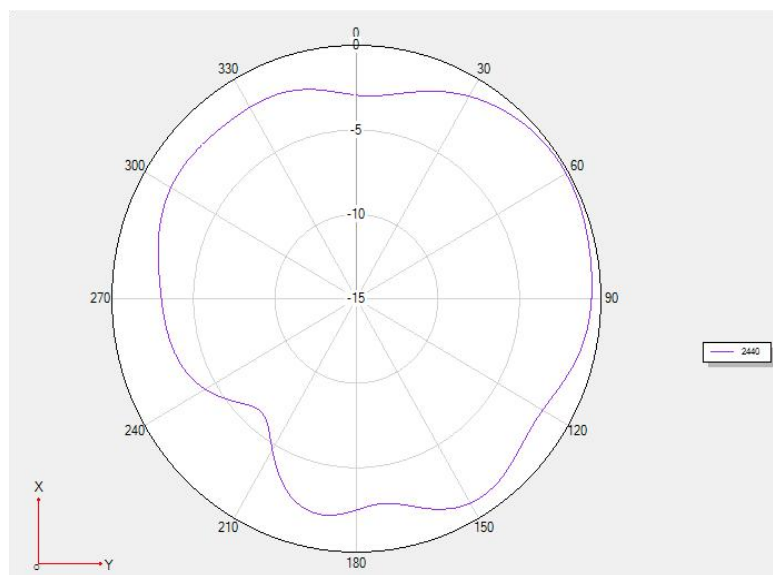
Efficiency, Radiation Pattern and Gain were dependent on measurement board design. The specification of OA-C15 antenna was measured based on the PCB size and installation position as shown in the below figure test board. The test results were tested in ETS 3D Chamber.

**Gain and Efficiency**

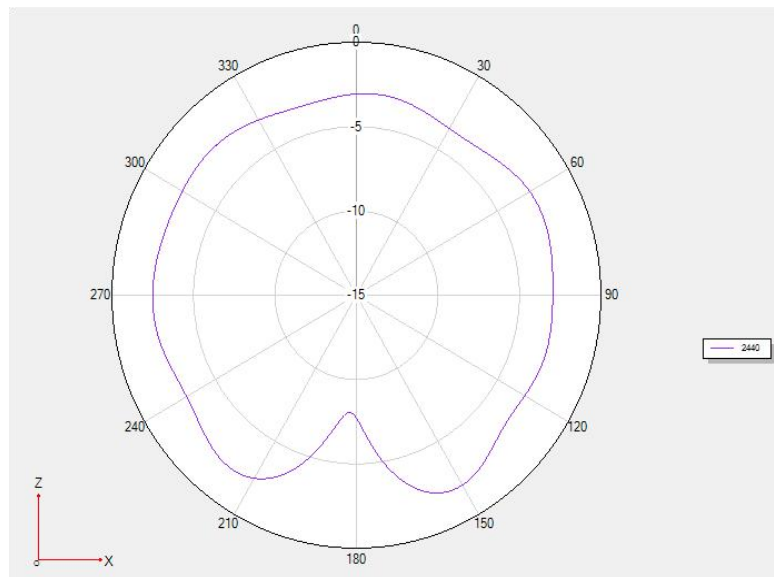
Frequency/Mhz	MaxGain/dBi	Efficiency / %
2400	-0.01	47.42
2410	0.39	52.6
2420	1.07	62.23
2430	1.28	66.37
2440	1.54	70.79
2450	1.31	71.29
2460	0.9	67.45
2470	0.51	62.09
2480	0	54.08
2490	-0.83	49.89
2500	-2.21	37.58

2D direction diagram

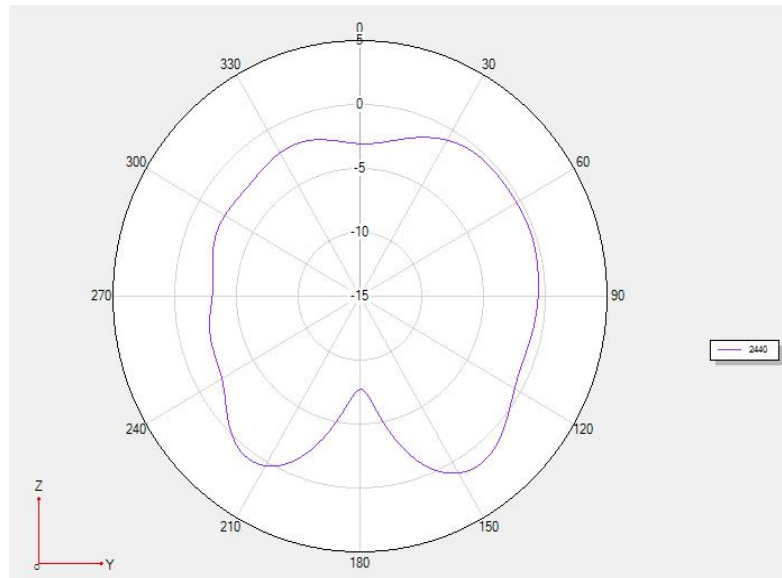
Theta 90° @2440Mhz



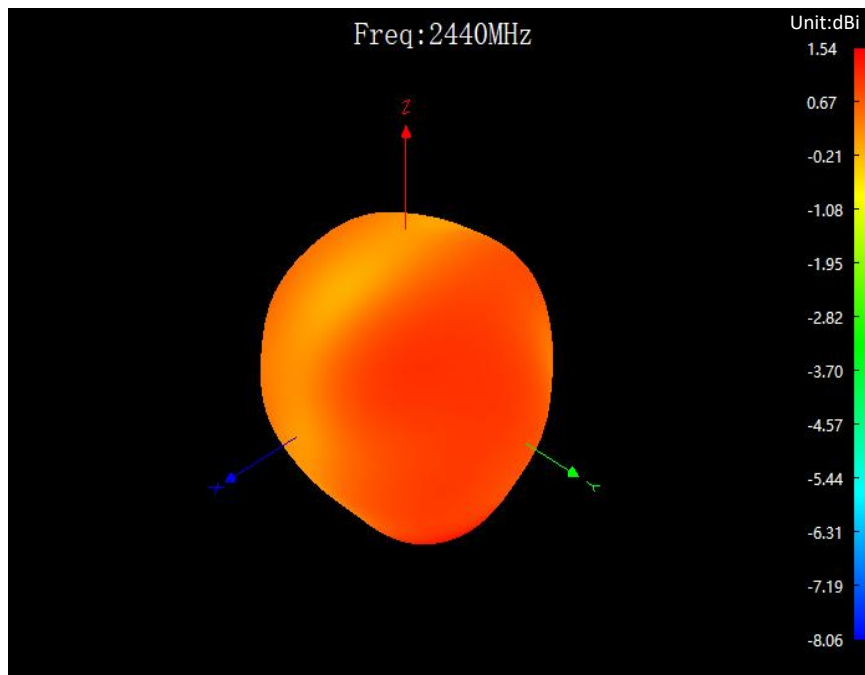
Phi 0° @2440Mhz



Phi 90° @2440Mhz

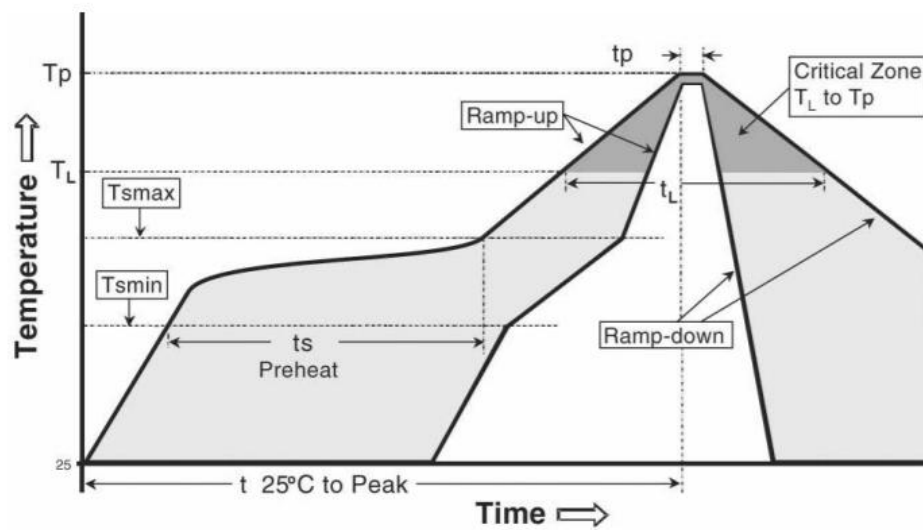


3D direction diagram



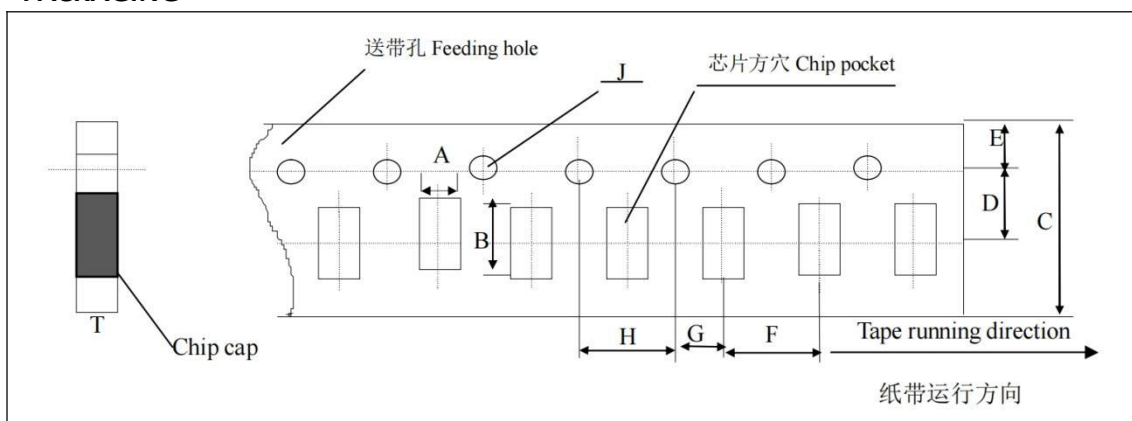
SOLDERING CONDITION

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 (T _{smax} to T _p)	3 °C / second (max.)
PREHEAT	- Temperature Min (T _{smin}) - Temperature Max (T _{smax}) - Time (t _{smin} to t _{smax})	150 °C 200 °C 60-180 seconds
REFLOW	- Temperature (T _L) - Total Time above T _L (t _L)	217 °C 60-150 seconds
PEAK	- Temperature (T _p) - Time (t _p)	260 °C 20-40 seconds
RAMP-DOWN	Rate	6 °C/second max
Time from 25 °C to Peak Temperature		8 minutes max

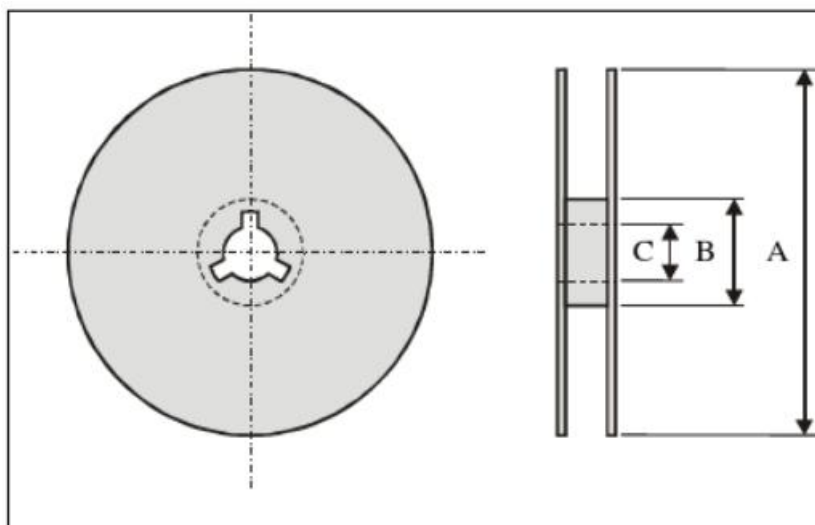
PACKAGING



Plastic Tape specification (unit:mm)

Index	A	B	C	D	J
Dimension (mm)	1.10±0.10	1.90±0.10	8.00±0.10	3.50±0.05	1.500/±0.10
Index	E	F	G	H	T
Dimension (mm)	1.75±0.10	4.00±0.10	2.00±0.10	4.00±0.10	1.10Max

Reel dimensions



Index	A	B	C
Dimension(mm)	178	50	13.5±0.5

Typing Quantity: 4000 pieces per reel.

CAUTION OF HANDLING

Storage environment condition

Products should 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.