

SMD Anna Specification

OverAir[®] SMD Anna Series

PN: OA-C09

2.4 GHz ISM Band Antenna

Revision: OA-C09_V02

Features

1. Ultra-compact SMD chip antenna with dimension: $(5.5 \times 1.2 \times 1.2 \sim \text{mm}^3)$
2. Low power loss, high antenna efficiency
3. Excellent stability under fluctuating temperature and humidity conditions

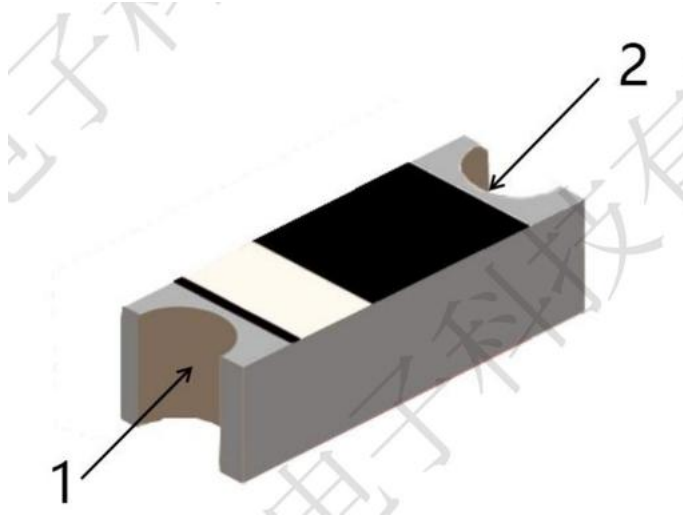
Applications

1. Devices operating on 2.4GHz ISM band
2. Bluetooth, ZigBee, general wireless products, smart home equipment
3. 2.4GHz-only Wi-Fi

Structure Definition

Pin 1: Antenna feed pad, connected to RF signal line

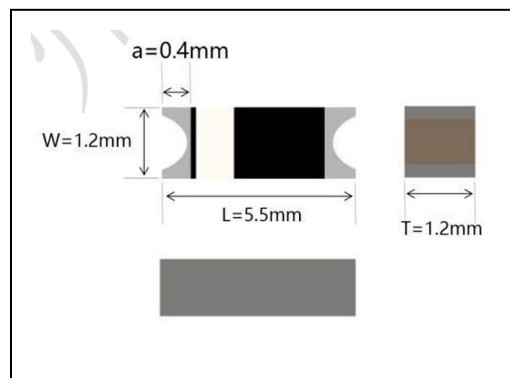
Pin 2: Antenna fixing pad, no signal connection



Dimension

All dimensions unit: mm

- Length L: (5.5 ± 0.2)
- Width W: (1.2 ± 0.1)
- Thickness T: (1.2 ± 0.1)
- Clearance a: (0.4 ± 0.1)

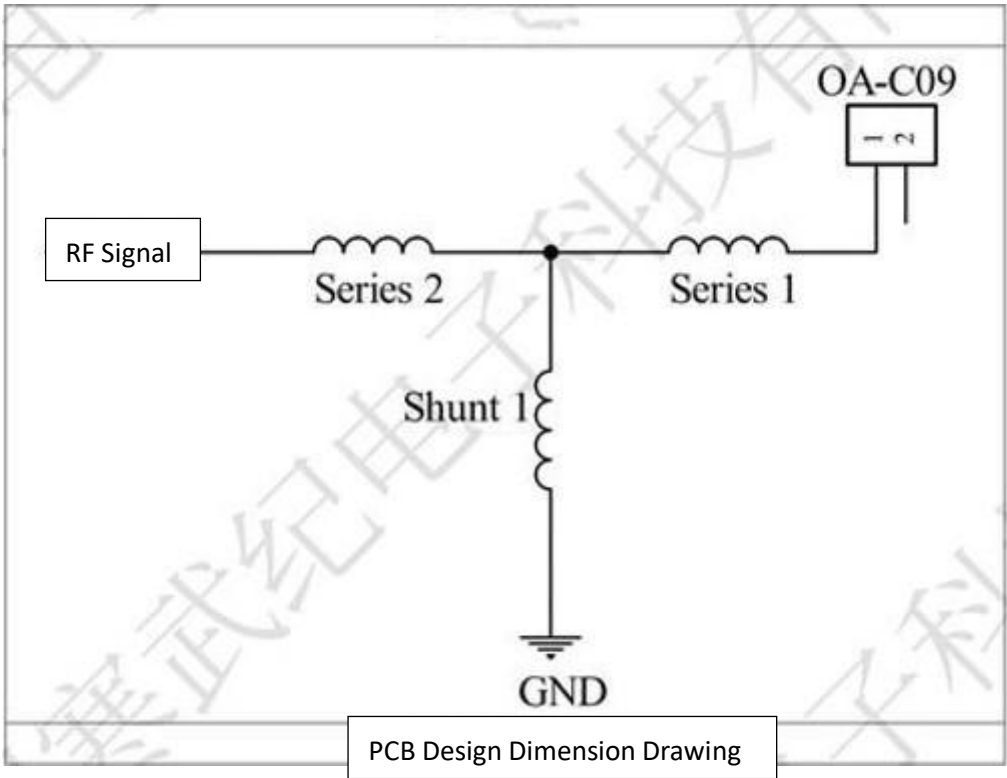


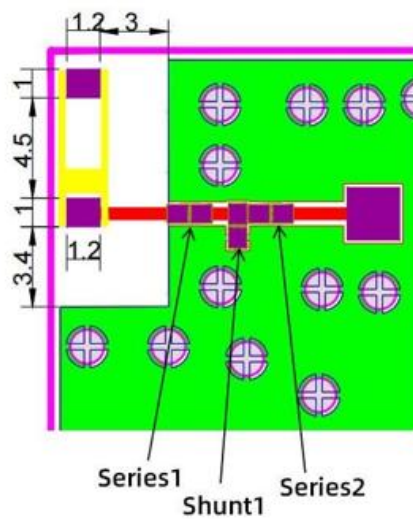
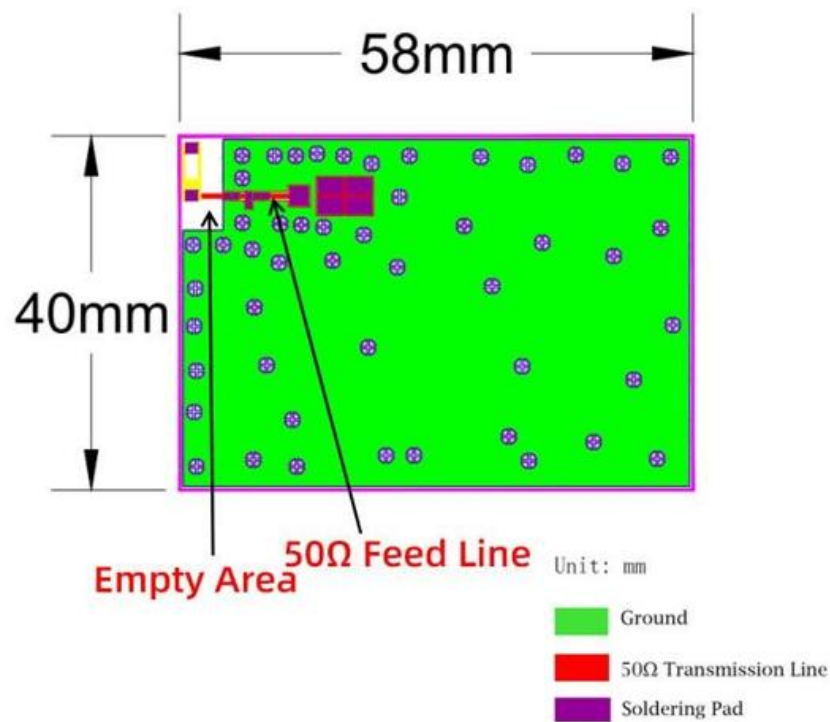
Electrical Specifications

Parameter	Specification
Working Frequency Range	$(2450 \pm 50 \mathrm{MHz})$
Bandwidth	$>100\mathrm{MHz}$
Characteristic Impedance	$50\ \Omega$
Peak Gain	$4.0\ \mathrm{dBi}$
VSWR	<2
Operating Temperature Range	$(-40\ ^\circ\mathrm{C} \sim +95\ ^\circ\mathrm{C})$
Maximum Power Handling	$3\mathrm{W}$

Note: The 2.4GHz operating frequency of this antenna requires tuning via impedance matching components to achieve target performance.

Antenna Pad & PCB Trace Design



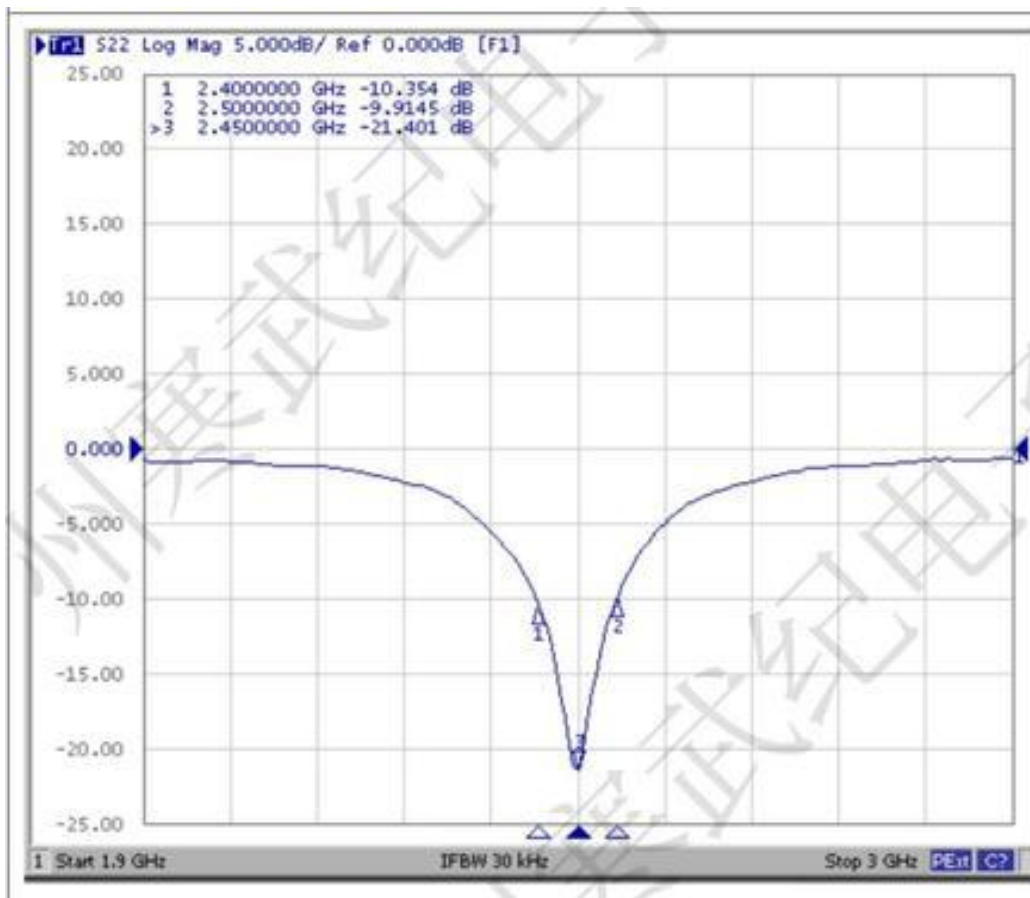
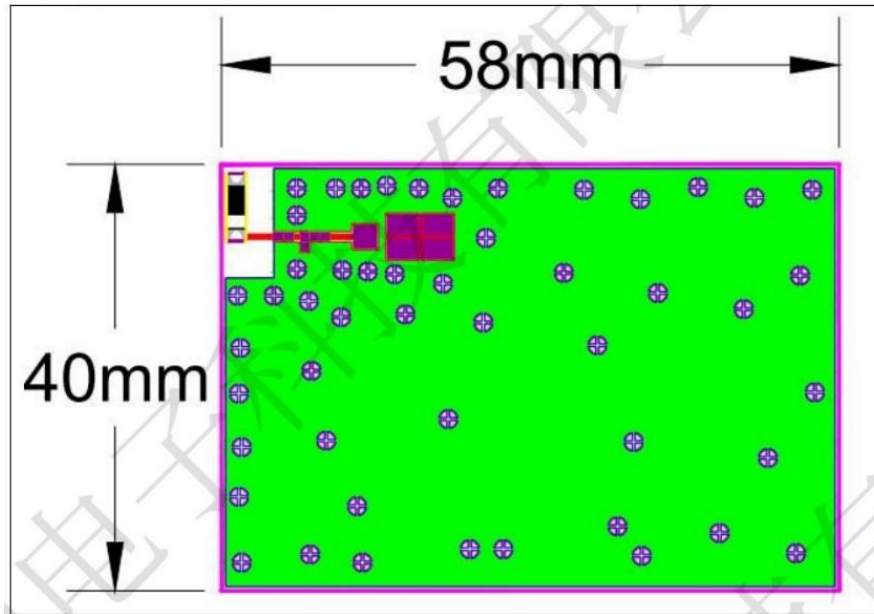


Matching Component Standard Values

Component Position	Component Type	Nominal Value
Series 1	High-frequency Inductor	3.0nH
Shunt 1 (to GND)	High-frequency Inductor	2.7nH
Series 2	High-frequency Inductor	3.6nH

Reference Test PCB (Board Thickness: 1.0mm)

Test board outer dimension: 58mm × 40mm

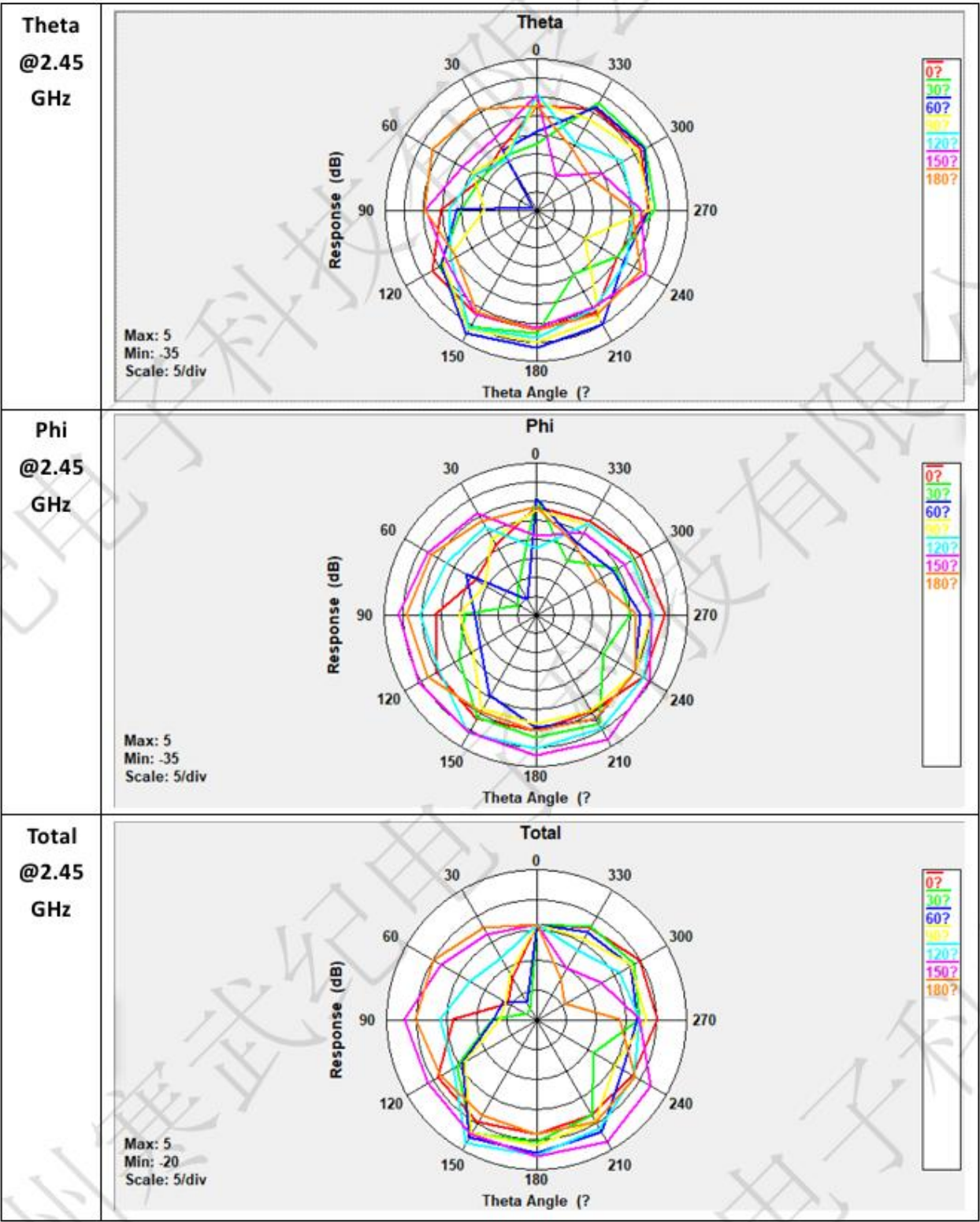




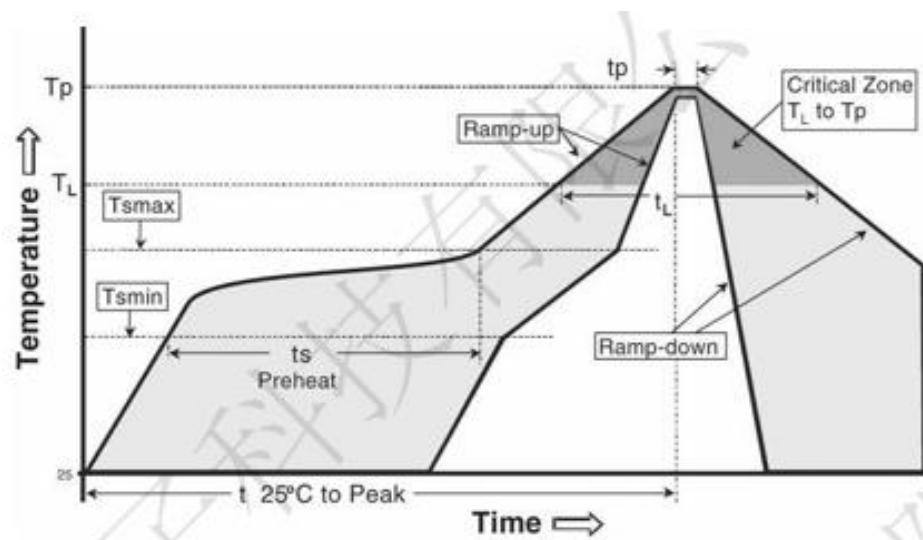
Gain & Radiation Efficiency (2.4GHz–2.5GHz Band)

All data measured in ETS 3D Anechoic Chamber based on the reference test PCB layout and defined test orientation.

Performance Index	Test Result
Peak Gain	4.33 dBi
Average In-band Gain	4.0 dBi
In-band Gain Variation Range	3.59 dBi ~ 4.33 dBi
Peak Radiation Efficiency	62.50%
Average In-band Efficiency	57.50%
In-band Efficiency Variation Range	51.3% ~ 62.5%

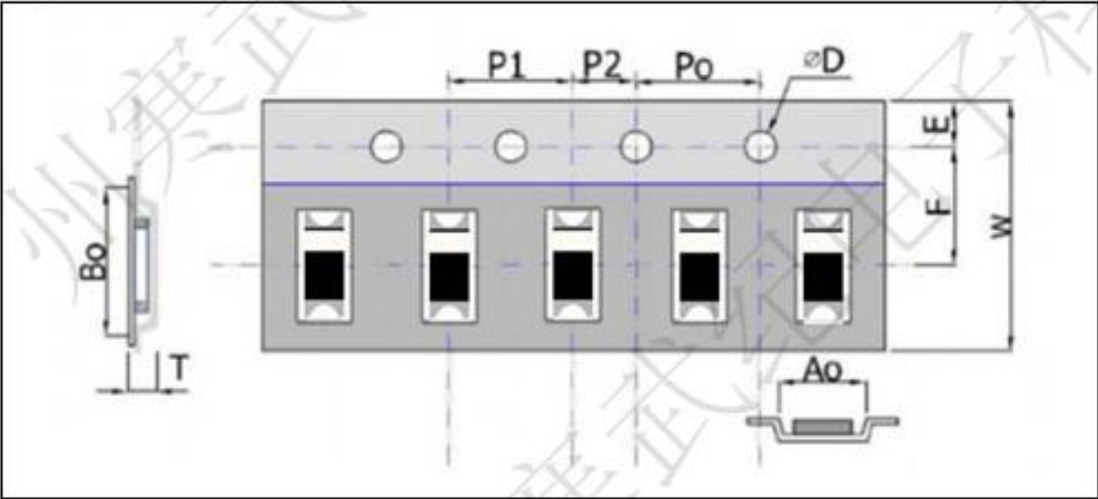


Reflow Soldering Profile



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

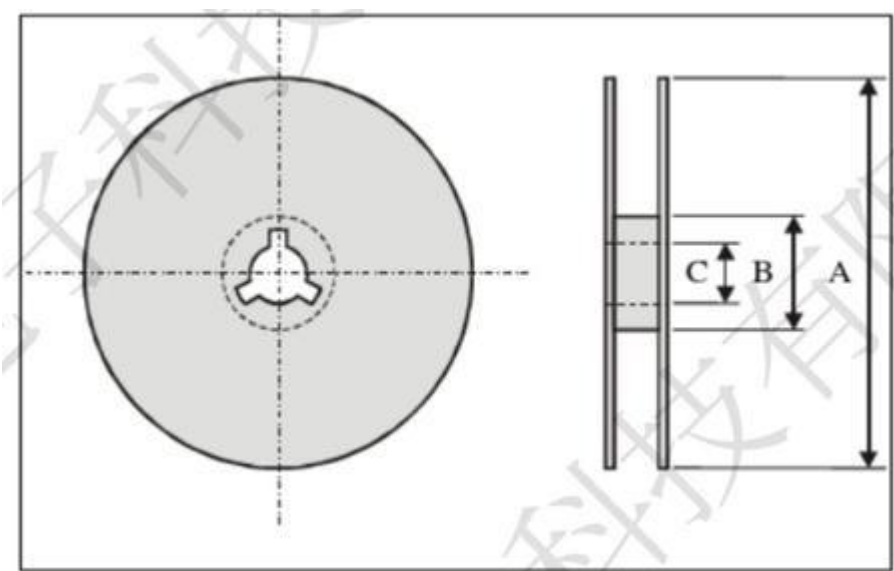
包装



Plastic Carrier Tape (Unit: mm)

Index	Ao	Bo	ΦD	T	W
Dimension (mm)	1.3±0.1	5.8±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)	330	100	13.5

Standard packing quantity: 3000 pieces per reel

Storage Requirements

1. Ambient temperature: \(-10^{\circ}\text{C} \sim +40^{\circ}\text{C}\)
2. Relative humidity: 30% ~ 70% RH
3. Isolate from corrosive gases such as sulfur, chlorine and acid vapors — these contaminants oxidize electrode surfaces and degrade solderability.
4. Store in sealed containers to avoid moisture and dust contamination.
5. Warehouse storage restrictions: Avoid direct sunlight, high heat and mechanical vibration.
6. Keep products airtight during long-term storage.

Business & Technical Support Contacts

Sales Team

1. He Zhiling Mobile: +86 13611498429 WeChat: gzhwjelec Email: hezhiling@hwjelec.com
2. Liang Qijun Mobile: +86 18122043436 WeChat: hwjelec Email: liangqijun@hwjelec.com

Technical Support

Engineer Chen Mobile: +86 18028016875 WeChat: gzhanwuji Email: chenpengfei@hwjelec.com

Company Information

- Company Name: Guangzhou Hanwuji Electronic Technology Co., Ltd.
- Address: 1101, 11th Floor, Building 1, Hongda Creative Park, Yuanxiang Road, Yunpu Subdistrict, Huangpu District, Guangzhou City
- Official Website: <http://www.gzhwjdz.com/>

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