APPROVAL SHEET

CrossAir[™] SMD Antenna series RoHS Compliance

PN: CA-C03

2.4 GHz ISM band antenna

Company: HWJELEC Address:1119,11/F, Hongda Creative Garden, no. 96 Yuan Xiang Road, Yunpu Street, Huangpu District, Guangzhou City

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FEATURES

1. Surface Mounted Devices (SMD) with a small dimension of 5.5 X 2.0 X 1.0 $\rm mm^3$ 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



DIMENSIONS

Figure	Symbol	Dimension(mm)	
W = 2.0 (mm) $W = 2.0 (mm)$ $L = 5.5 (mm)$ $T = 1.0 (mm)$	L	5.5 ±0.1	
	w	2.0 ±0.1	
	т	1.0 ±0.1	
	а	0.5 ±0.1	

ELECTRICAL CHARACTERISTICS

CA-C03	Specification		
Working Frequency Range	2450 ±50MHz		
Fc(GHz)	2.4GHz		
Band Width	>100MHz		
Impedance	50 Ω		
Gain(dBi)	4.3 (peak)		
VSWR	<2		
Operation Temperature	-40° ℃ ~+95 °C		
Power Capacity	3W		

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

SOLDER LAND PATTERN DESIGN





Antenna on Test Board (Thickness 1.0mm)





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Efficiency and RADIATION PATTERN

Efficiency, Radiation Pattern and Gain were dependent on measurement board design. The

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specification of CA-C03 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	4.3dBi		
Average Gain across the band	4.1dBi		
Gain Range across the band	3.9dBi~4.3dBi		
Peak Efficiency	81.7%		
Average Efficiency across the band	80.2%		
Efficiency Range across the band	78.6%~81.7%		



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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 (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	Ао	Во	ΦD	т	W
Dimension (mm)	3.0±0.1	6.0±0.1	1.55±0.05	1.2±0.1	11.8±0.1
Index	Ε	F	Ро	P1	P2
Dimension (mm)	1.75±0.1	4.6±0.1	4.0±0.1	4.0±0.1	2.0±0.1

Reel dimensions



Typing Quantity: 3000 pieces per reel.

CAUTION OF HANDLING

Storage environment condition

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

Temperature : $-10^{\circ}C^{+40}C$

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.