SMD Antenna Specifications

CrossAir™ SMD Antenna
RoHS compliant

PN: CA-C03

2.4 GHz ISM Band Antenna

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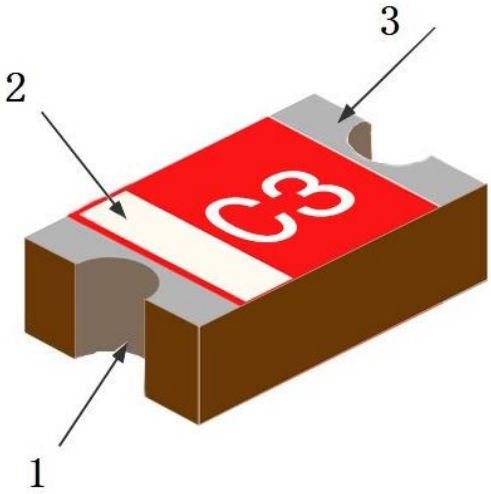
CA-C03 Specifications

Features

1. Small size SMD patch antenna with size only 5.5 X 2.0 X 1.0 mm.
2. Low energy loss, high antenna efficiency.
3. High stability under temperature and humidity changes.

Structure

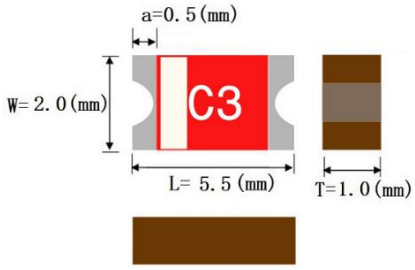


1. Antenna feeder

2. Feeder identification mark 3.

Antenna welding fixed end

Size

Three View	symbol	Size(mm)
	**L**	**5.5**±0. 1
	w	**2.0**±0. 1
	T	**1.0**±0. 1
	a	**0.5**±0. 1

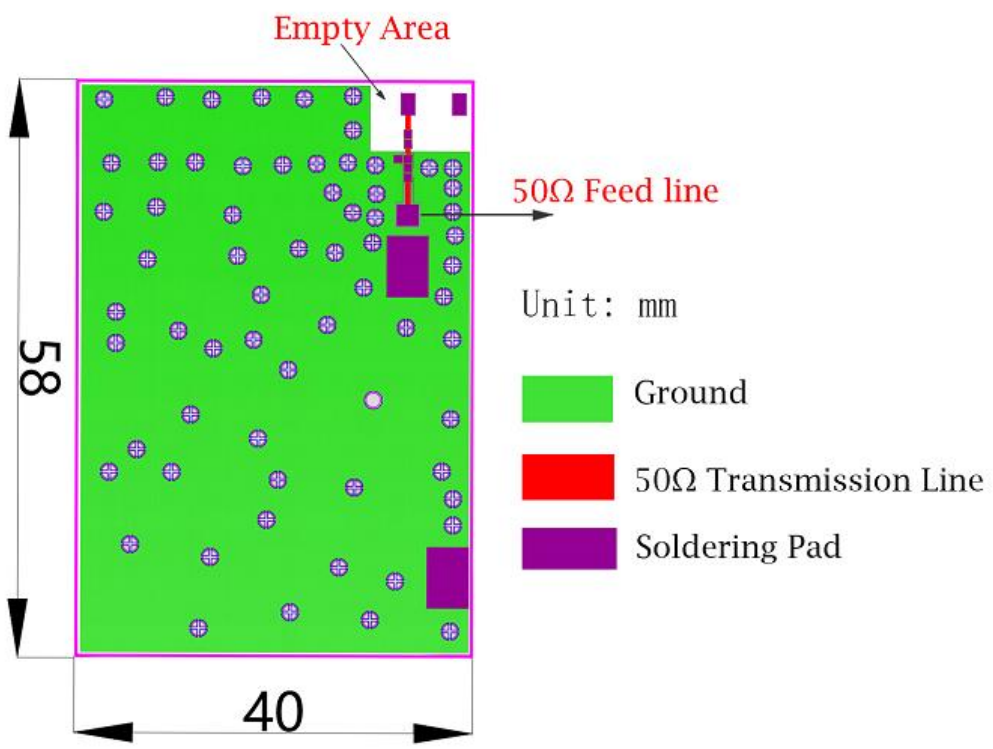
CA-C03 Specifications

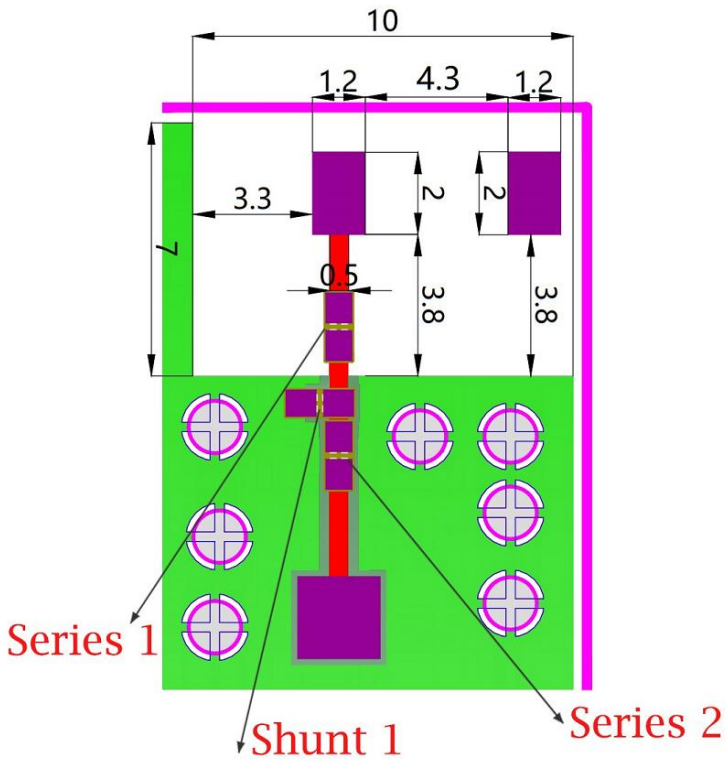
Electrical Characteristics

CA-C03	Specification
Working Frequency	2450±50MHz
Initial frequency band(GHz)	2.7GHz
Band Width	>100MHz
Impedance	50Ω
Gain(dBi)	4.3（peak）
VSWR	<2
Operation Temperature	-40℃~+95℃
Power Capacity	3W

Antenna Pad and Trace Design

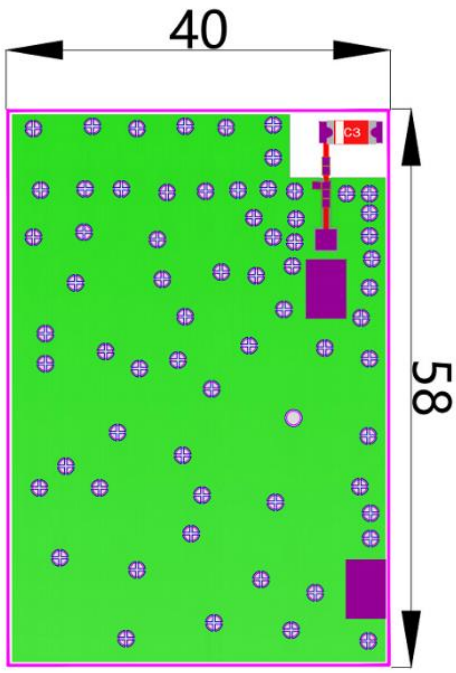
Design dimension drawing





Match device value	**Series 1**	0 Ω
	Shunt 1	3nh
	Series 2	0 Ω

Antenna test on test board (board thickness 1.0mm)



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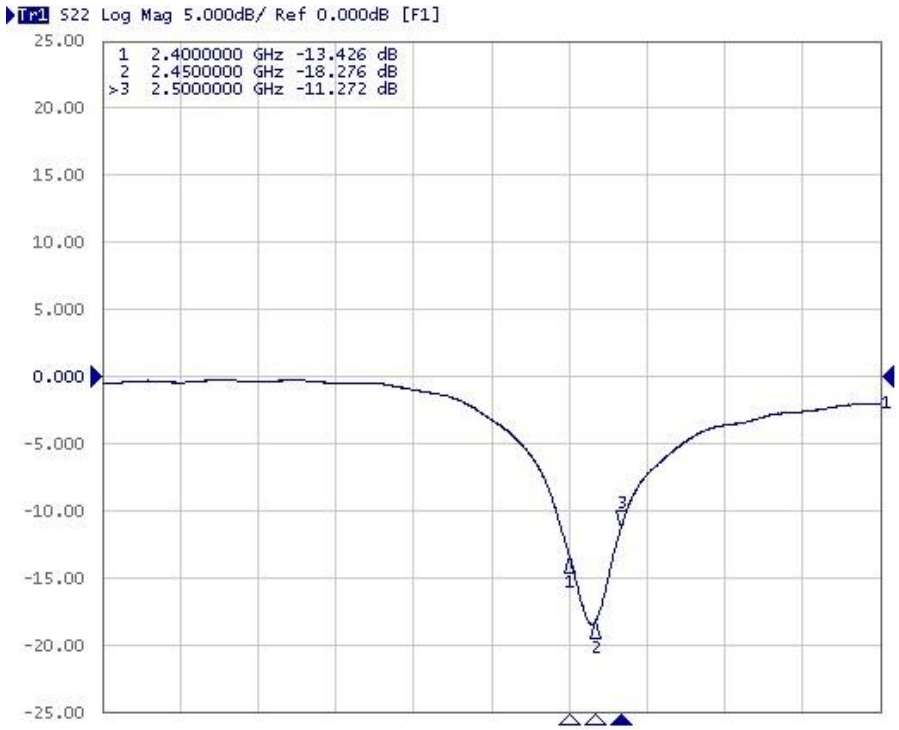
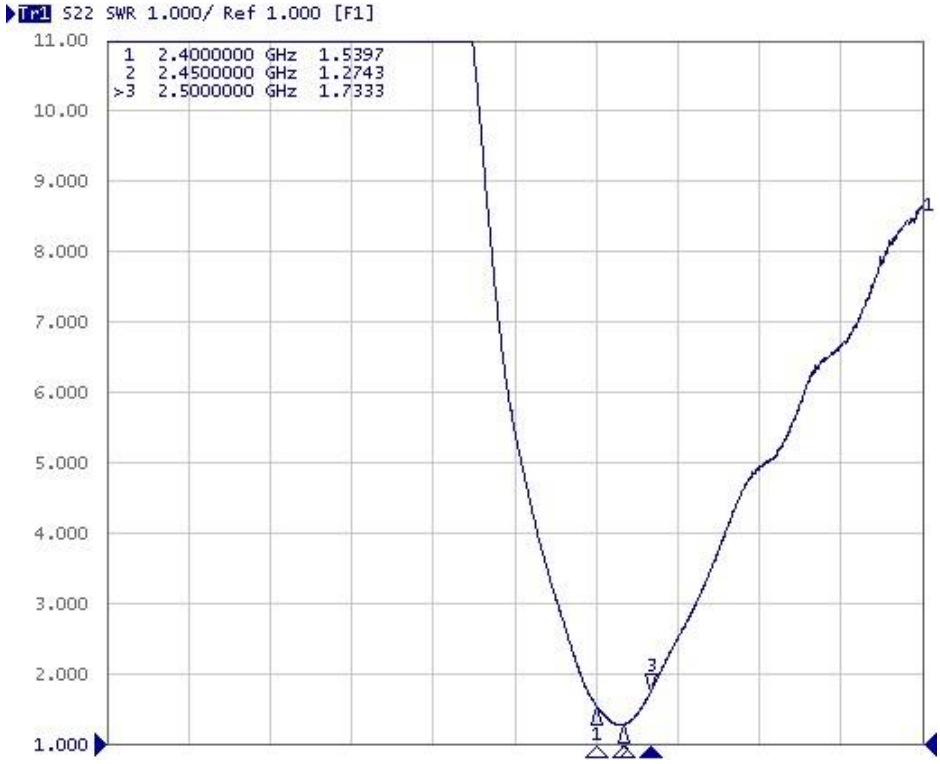
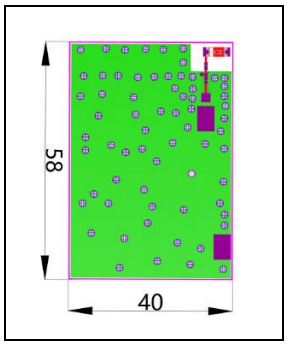
Antenna S11 Characteristics

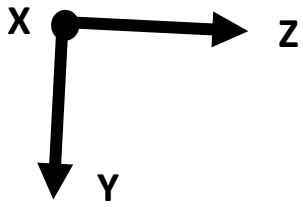


Antenna VSWR Characteristics

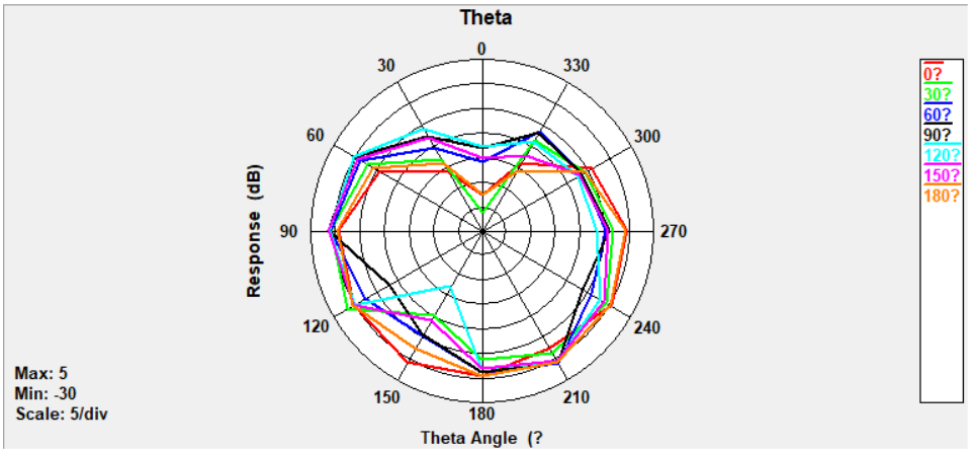


Efficiency and Radiation Patterns





Gain and across	Bandwidth 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%

Theta @2.45 GHz	

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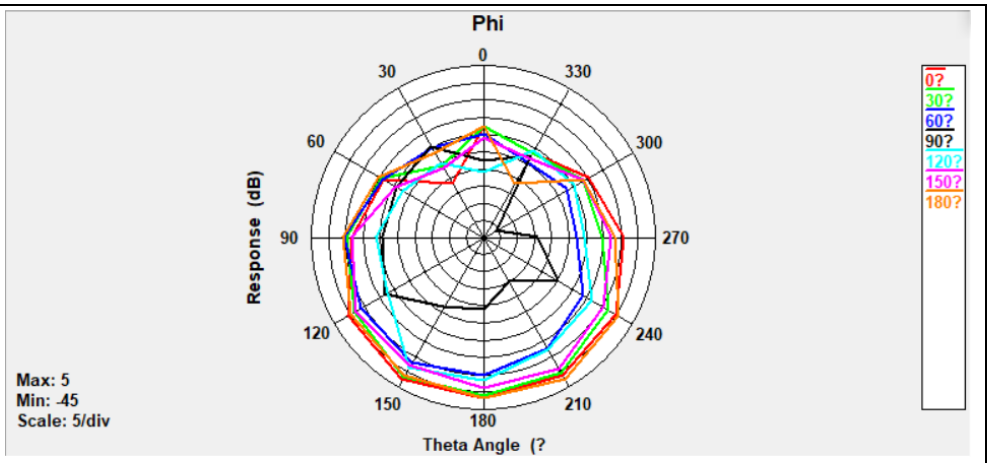
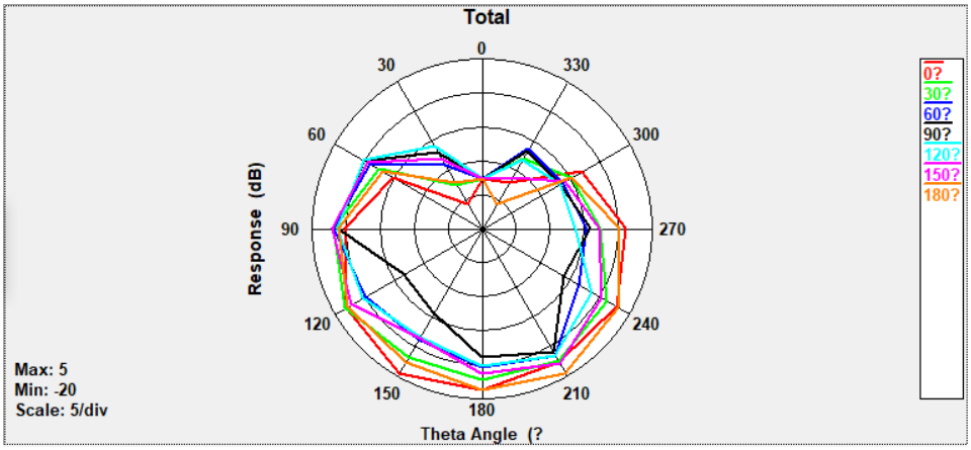
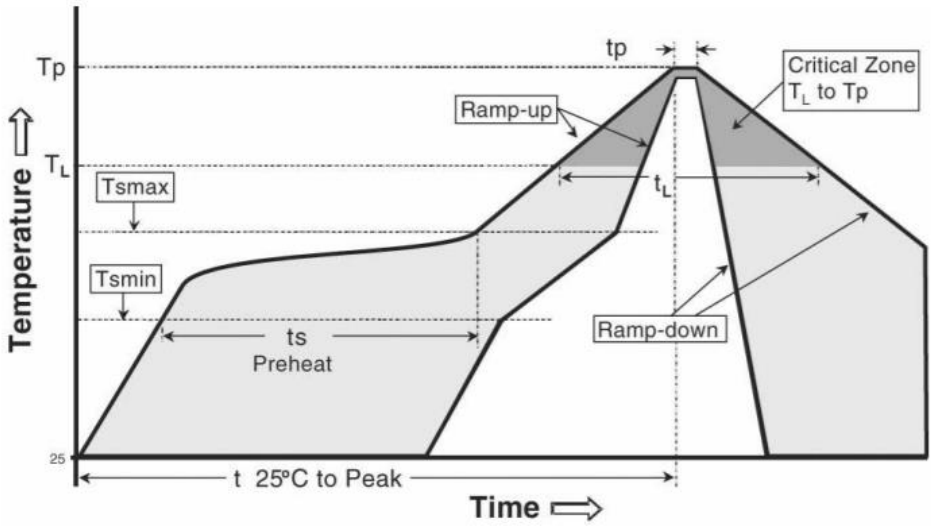
Phi @2.45 GHz	
Total @2.45 GHz	

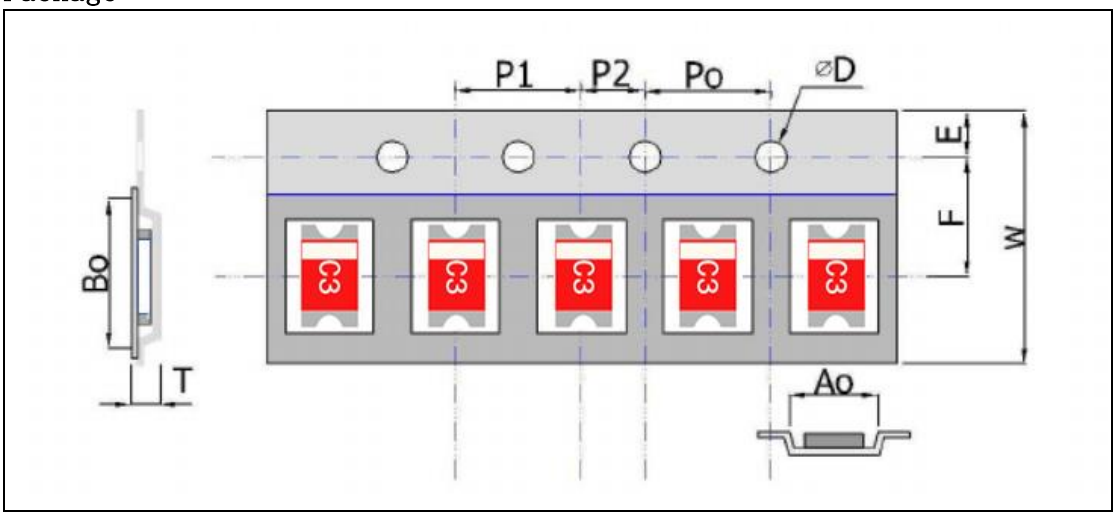
Welding conditions

As shown below:



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

Package

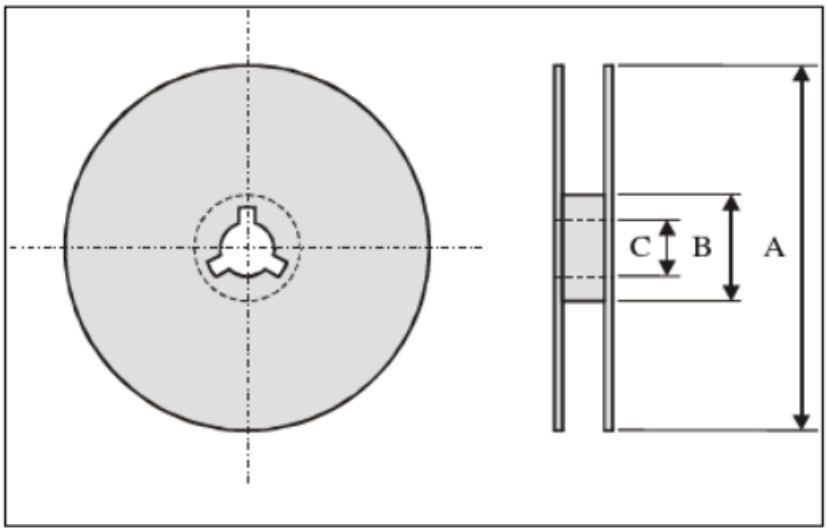


Plastic carrier tape specifications

Index	Ao	Bo	ΦD	T	W
Dimension (mm)	**3.0±0.1**	**6.0±0.1**	**1.55±0.05**	**1.2±0.1**	**11.8±0.1**
Index	**E**	**F**	**Po**	**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 size

CA-C03 Specifications



Index	A	B	C
Dimension(mm)	**178**	**60**	**13.5**

Storage Environment

The following conditions should be met when the product is stored:

Temperature : -10℃~+40℃
Humidity : 30% to 70% relative humidity

The location where the product is placed should not be exposed to corrosive gases such as sulfur.
The product should be placed in a tool box and protected from moisture and dust.
Products should be stored in warehouses away from heat, vibration, and direct sunlight. Product should be stored under airtight conditions.