



WLAN SMD Antenna

SZP-C-0W01

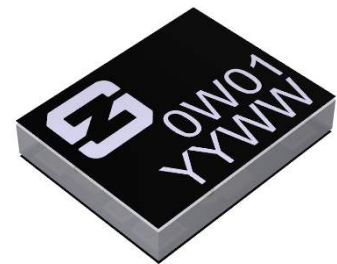
WLAN/Bluetooth/ISM: 2.40 – 2.50 GHz

Description

A highly compact yet high-performance solution for embedded design. Synzen have created the optimal solution for WLAN/BLE/ISM applications that simplify the design in process and allows you to focus on the product.

This antenna resonates best placed at the center of the longest PCB edge and produces a near omni directional pattern.

- For WLAN/BLE/ISM Applications 2400 - 2500MHz
- Highly Resistant to detuning
- Clean resonance with no unwanted out of band response.
- SMD component supplied in Tape and reel
- High performance yet ultra-small form factor
- Ideal for wearable or smaller designs.
- Simple design in with no additional clearance needed
- Space saving over trace antennas
- Suitable for sealing with resin / potting compounds

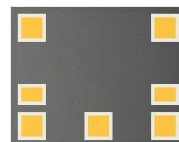


Applications

Asset Tracking
Access Point
Smart Grid

M2M Industrial
Headsets
Telematics

Tablets
Healthcare
OBD-II



Patent pending design



General Specifications

Mechanical Specifications

Part Number	SZP-C-0W01
Name	AULIN
Dimensions	5.0 x 4.0 x 0.9 (mm)
Required Clearance area	5.0 x 4.0 (mm)
Weight	<0.2g
Antenna Type	Surface Mount Device

RF Specifications

Frequency Range	2400 – 2500MHz
Average Efficiency (Linear)	>60%
Peak Gain	1.65dBi
S11 (max)	<-dB
VSWR (max)	2.20:1
Impedance	50 Ω
Polarization	Linear

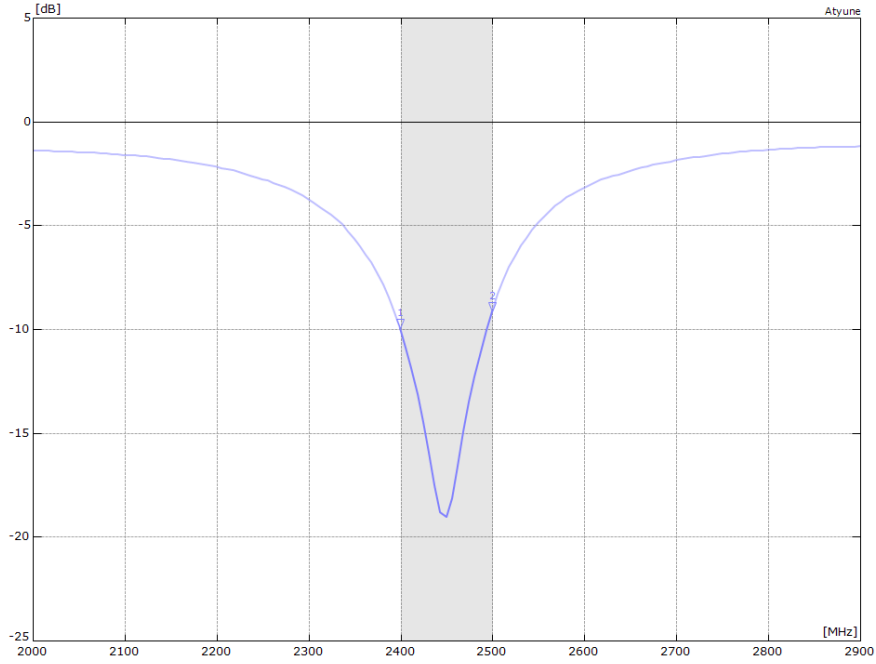
Environmental Specifications

Operational Temperature	-40 to +125 (°C)
Storage Temperature	-10 to +40 (°C)
Relative Humidity	≤75%

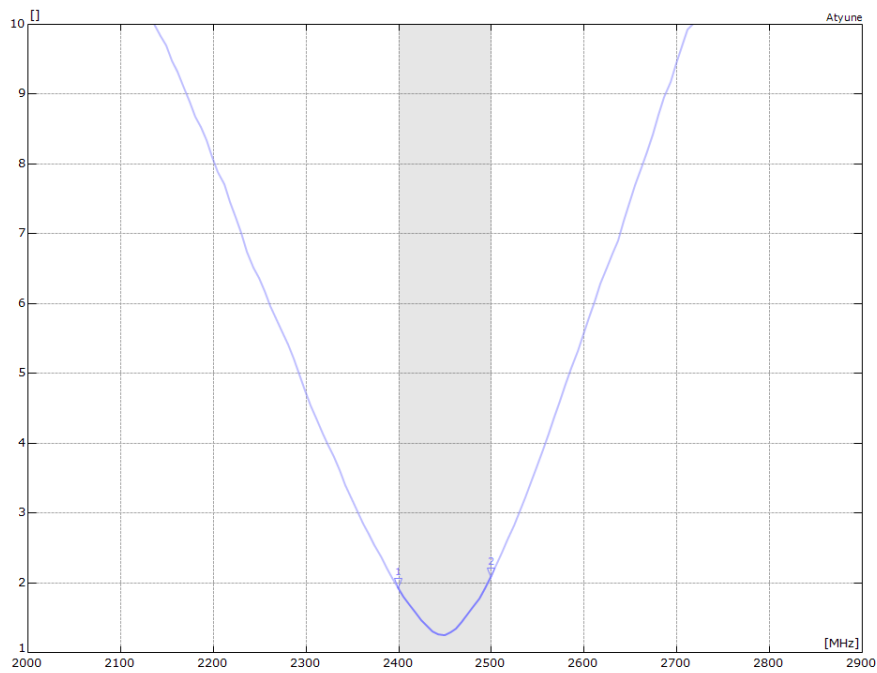


RF Characteristics

S11 Parameter



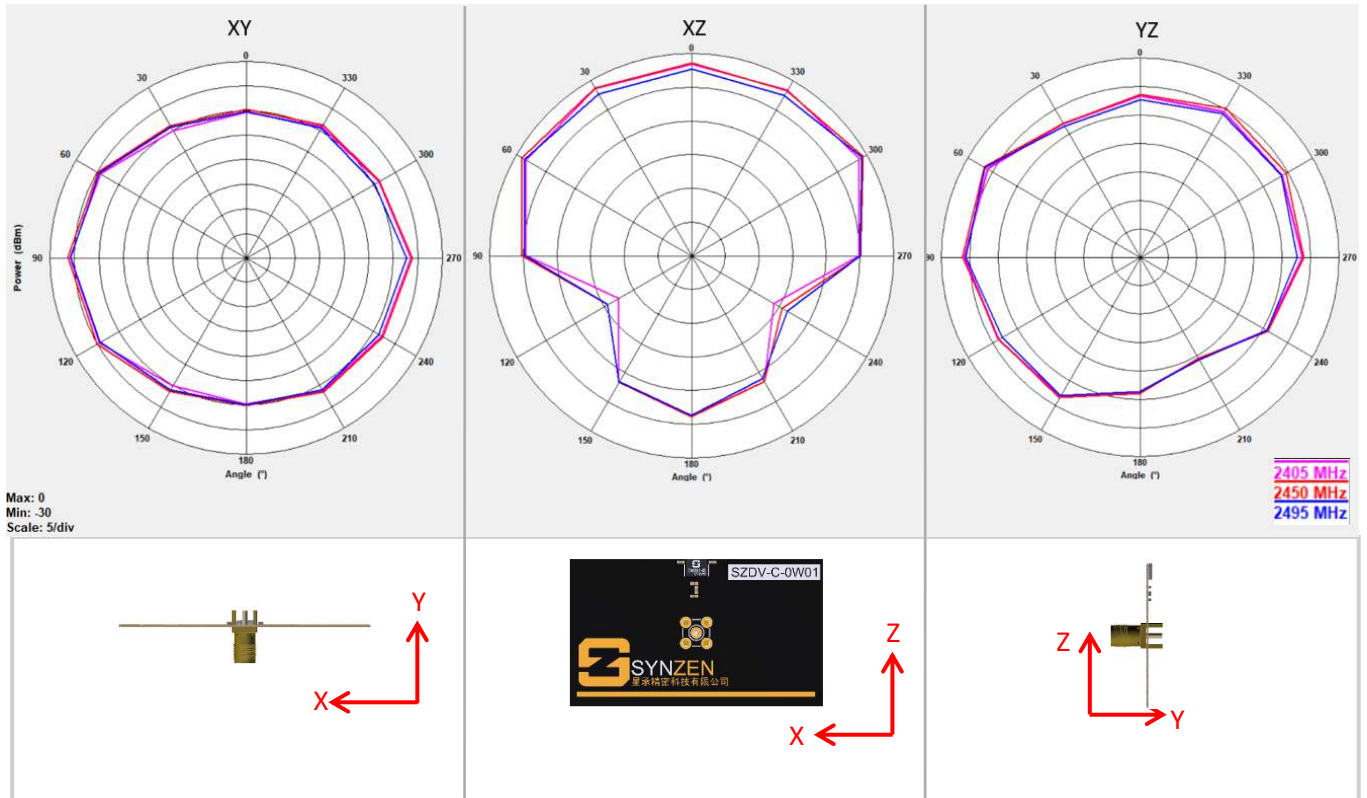
VSWR



Radiated Performance

2D Polar Plot

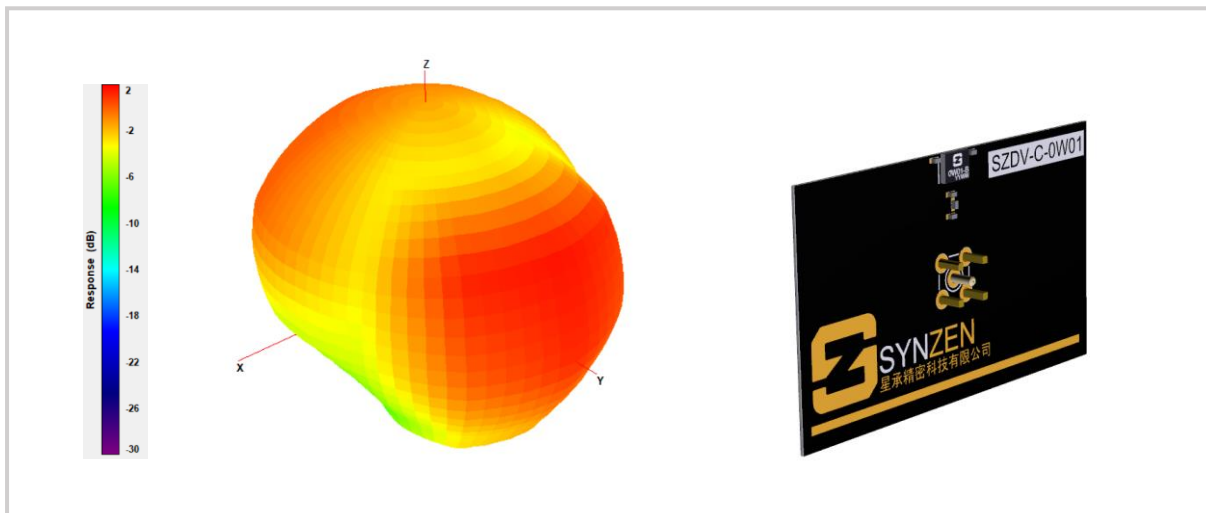
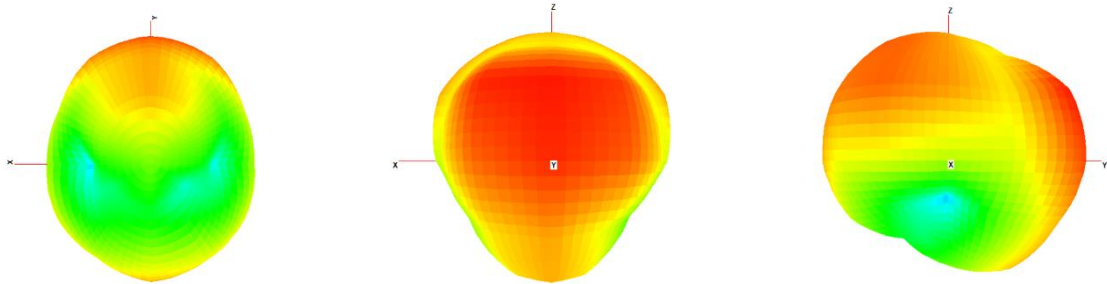
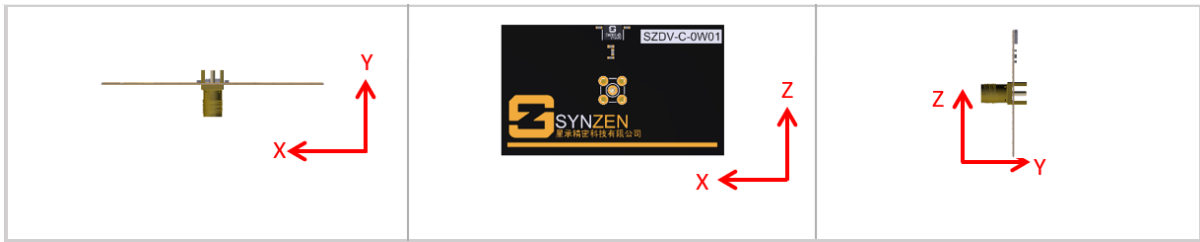
The data shown was measured on Synzen DVK (SZDV-C-0W01)



Radiated Performance

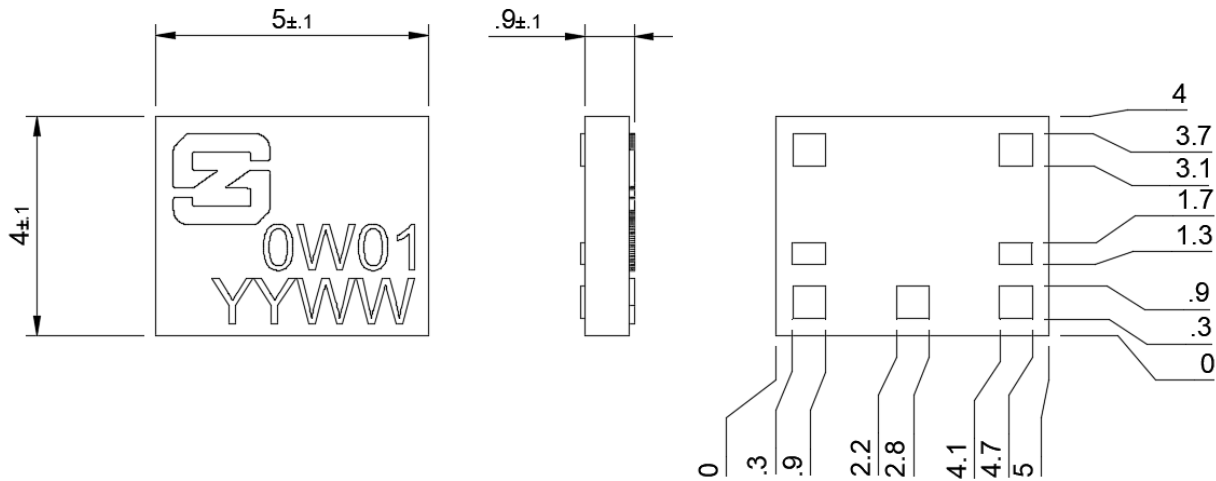
3D Radiation Pattern

The data shown was measured on Synzen DVK (SZDV-C-0W01). The frequency point shown here is 2450MHz.



Mechanical

Antenna Mechanical Drawing

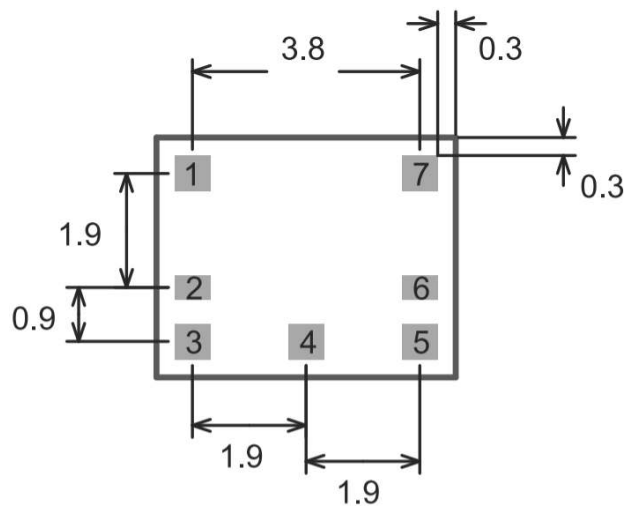


All dimensions in mm

Required Host PCB Footprint

The host PCB requires the footprint shown below. PCB library files and DXF is available from our website www.synzen.com.tw/products.

The required clearance for the host PCB is 5 x 4 (mm) on all layers.



Pins 1,3,4,7 = 0.6 x 0.6 (mm)

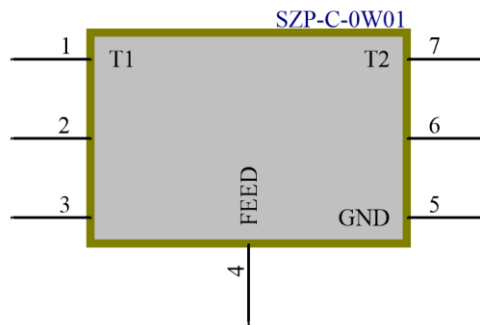
Pin 2,6 = 0.4 x 0.6 (mm)

All dimensions in mm

Antenna Pinout

SZP-C-0W01 Schematic Symbol

The schematic symbol for the antenna is shown below with a description of each pin.

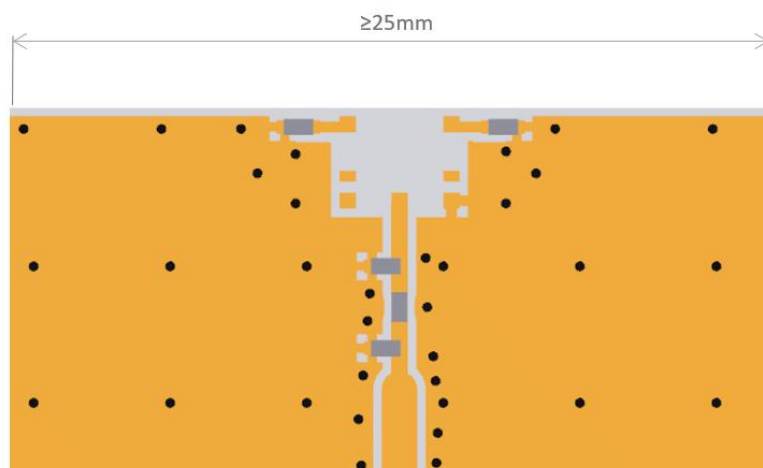


Pin	Description
1,7	Tuning Pins
2,3,6	Not used, leave unconnected
4	Feed to Matching network
5	Ground

PCB Layout Requirements

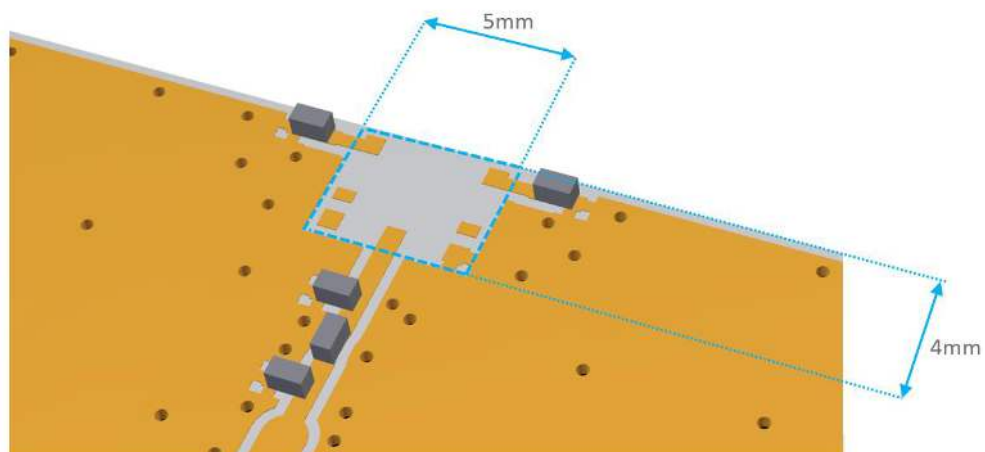
Placement

The antenna is designed to function placed at the centre of the longest PCB edge equidistant from either side as shown here. Where possible the top and bottom side of the PCB should be flooded with GND, this optimizes the antenna performance but also assists in preventing noise that GNSS systems are sensitive to.



Clearance

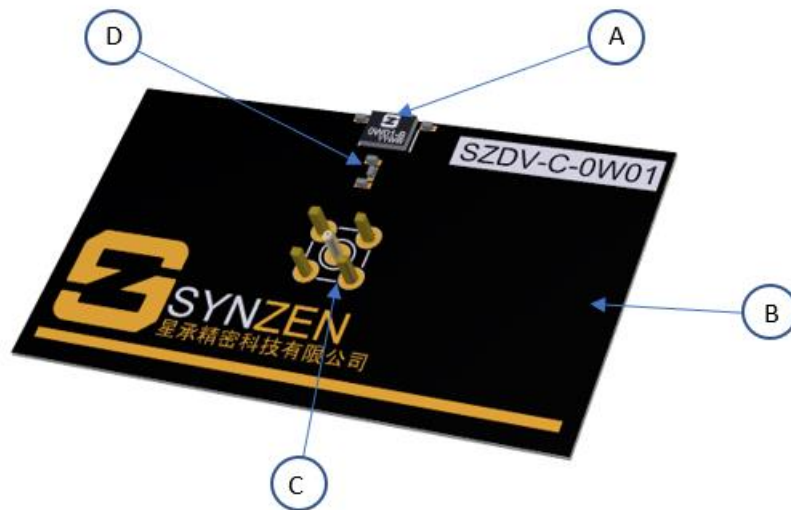
A clearance is required through all PCB layers for the precise area shown. Also, any components such as battery or display must also avoid this area.



Development Kit

SZDV-C-0W01 Development Kit

The SZDV-C-0W01 development kit is a PCBA with the GNSS antenna (SZP-C-0W01) fitted and optimised with a matching network. Connection to the antenna is made using the fitted female SMA connector.

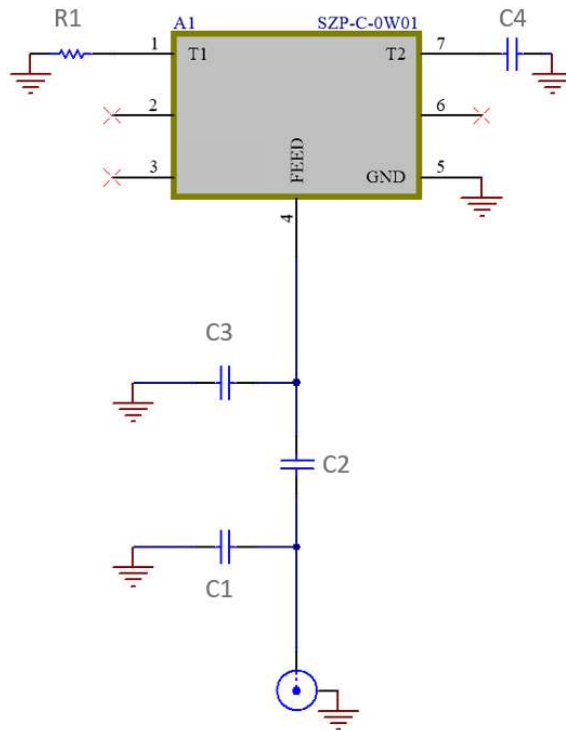


A	SZP-C-0W01 (AULIN)
B	Host PCB
C	SMA Connector
D	Matching Circuit

Development Kit Schematic

Development Kit Matching Circuit

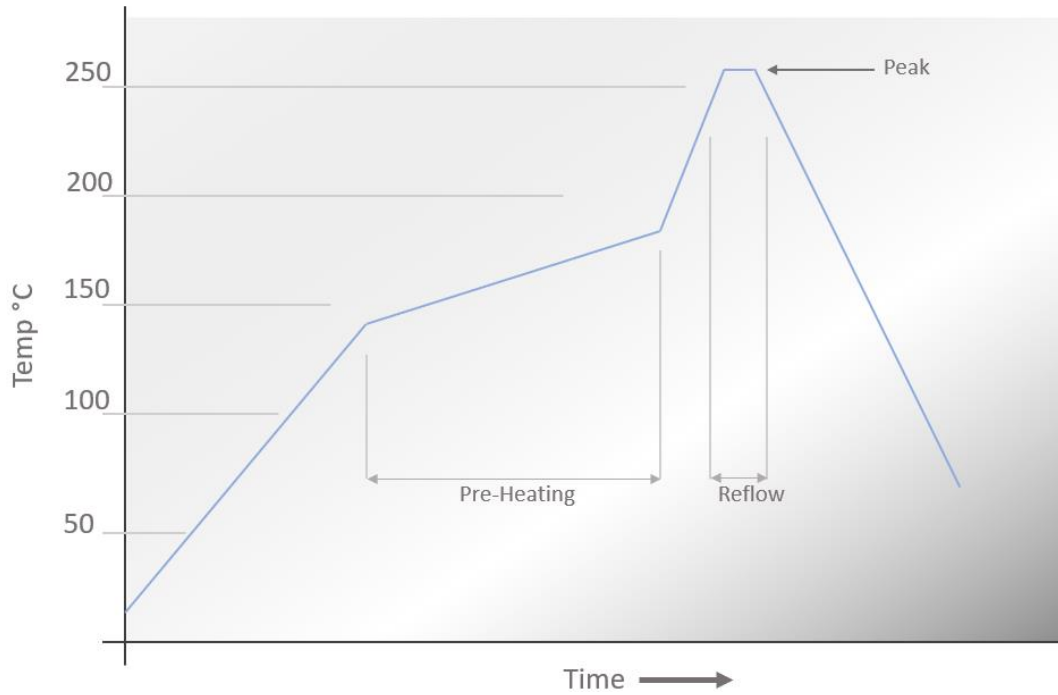
The circuit of the DEV kit along with the BOM is shown below. The matching network topology should be used on the device host PCB although the matching values will be dependent on the host PCB and device environment. Synzen provide a matching service to optimise your device to ensure the best performance, please contact sales@synzen.com.tw for more information.



Designator	Component Type	Value	Size	Manufacturing Part No.
A1	Antenna	AULIN	-	SZP-C-0W01
C1	Capacitor	Not Fitted	0402	Do Not Place
C2	Capacitor	6.8pF	0402	GCM1555C1H6R8DA16D
C3	Capacitor	1.0pF	0402	GCM1555C1H1R0CA16J
R1	Resistor	0R	0402	Non-specific part
C4	Capacitor	4.7pF	0402	GCM1555C1H4R7CA16D
J1	SMA Connector	-	-	ACE solution A3SAFTST135

Soldering

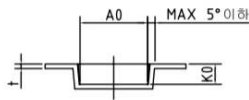
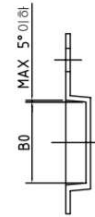
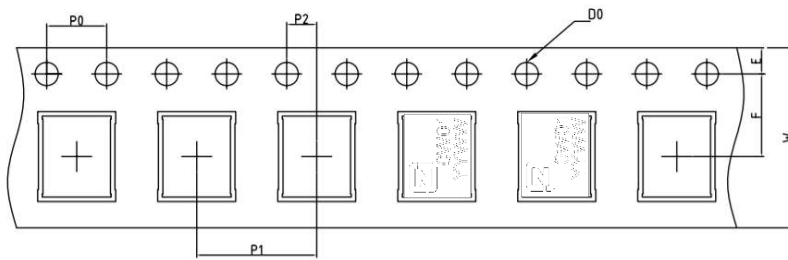
Reflow Profile



Pre-Heating	130 - 180°C	50 to 190 seconds
Reflow	>220 °C	50 to 160 seconds
Peak Temperature	260 °C	15 to 45 seconds

Packaging

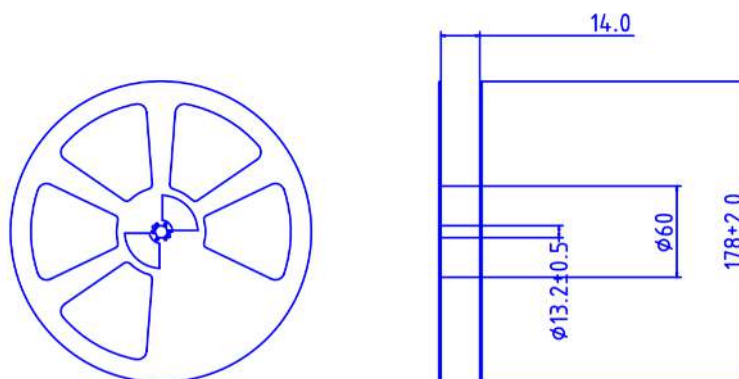
Tape and Reel



USER FEEDING
DIRECTION →

NAME	SPEC.
W	12.0±0.3
E	1.75±0.1
F	5.50±0.1
Do	1.55±0.05
P1	8.0±0.1
Po	4.0±0.1
P2	2.0±0.1
Ao	4.40±0.15
Bo	5.40±0.15
Ko	1.30±0.15
T	0.3±0.05

- 10 sprocket hole pitch cumulative tolerance ± 0.2
- Camber not to exceed 1mm in 100mm.
- Ao and Bo measured on a plane 0.1mm above the bottom of the pocket
- Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.



ANTI-STATIC

REEL DIMENSION	Type	Color	Size	Hub
	PS	White	φ178	φ60



Environmental

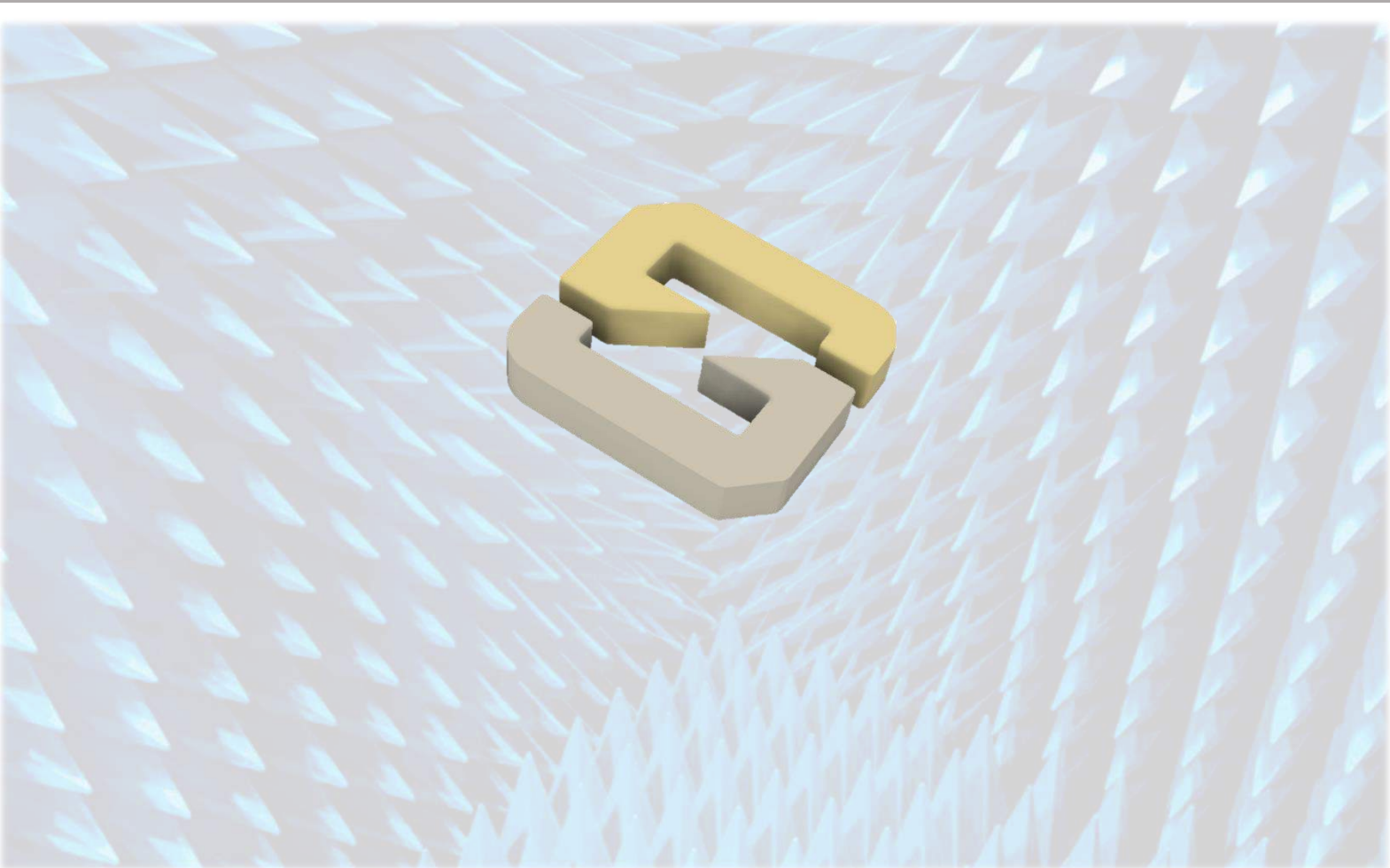
Material Regulation

The antenna has been tested to conform to RoHS requirements. A certificate of conformance is available upon request.

This product is Halogen free.



Synzen Precision Technology Ltd



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