

2.4 GHZ SMD

AULIN

WLAN / Bluetooth / ISM SMD Antenna

SZP-C-0W01

FREQUENCY
2400 to 2500 MHz

PEAK GAIN
1.65 dBi

MOUNTING
SMD, PCB edge
center

SIZE
5.0 × 4.0 × 0.9 mm

2.4 GHZ

2400 to 2500 MHz

Covers WLAN, Bluetooth, BLE, ISM

Key Features

- For WLAN/BLE/ISM applications 2400 to 2500 MHz
- 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
- Patent pending design

1 Introduction

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 omnidirectional pattern.

— Features

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— Applications

- | | |
|------------------|--------------|
| ◆ Asset Tracking | ◆ Healthcare |
| ◆ M2M Industrial | ◆ Smart Grid |
| ◆ Tablets | ◆ Telematics |
| ◆ Access Points | ◆ OBD-II |
| ◆ Headsets | |

2 Mechanical Specifications

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

3 Electrical / RF Specifications

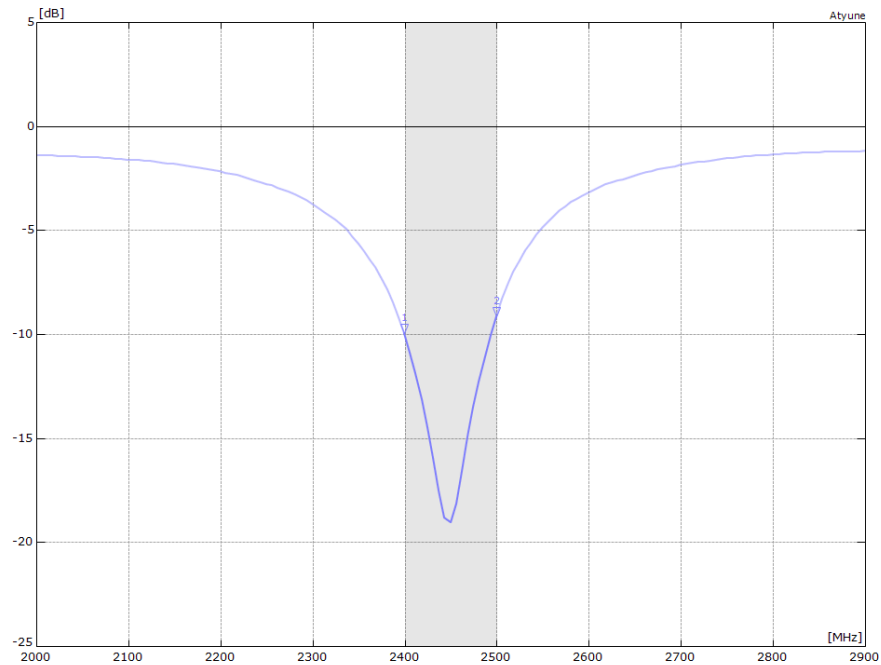
Frequency Range	2400 to 2500 MHz
Average Efficiency (Linear)	>60%
Peak Gain	1.65 dBi
VSWR (max)	2.20:1
Impedance	50 Ω
Polarization	Linear

4 Environmental

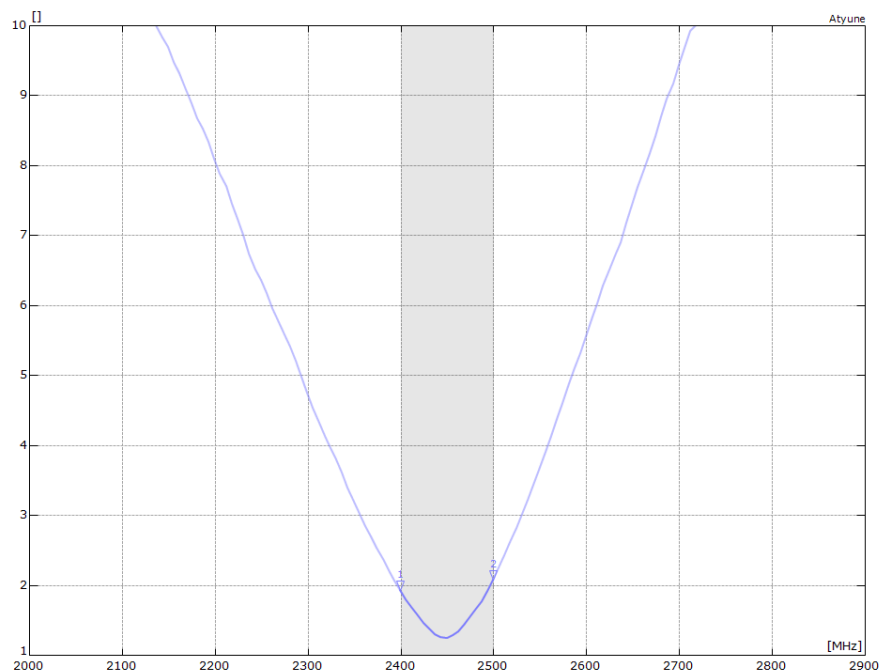
Operational Temperature	-40 to +125°C
Storage Temperature	-10 to +40°C
Relative Humidity	≤75%

5 RF Characteristics

S11 Parameter

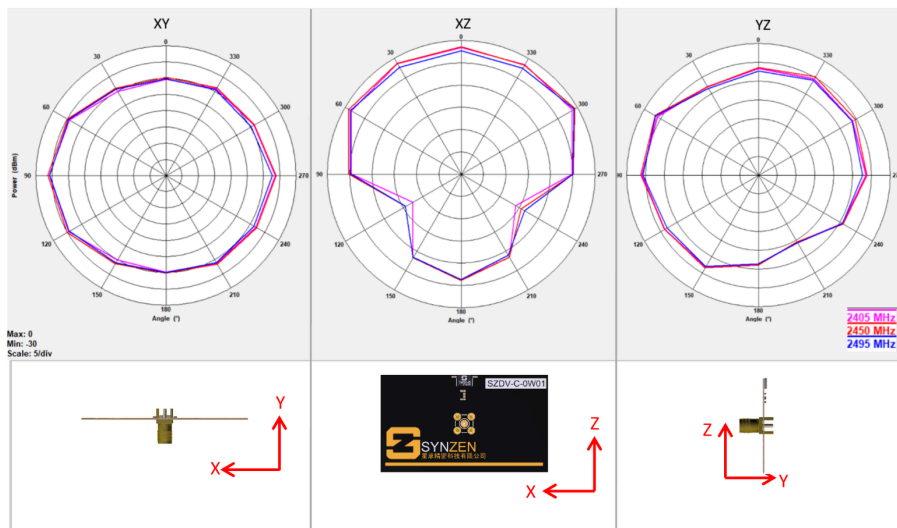


VSWR



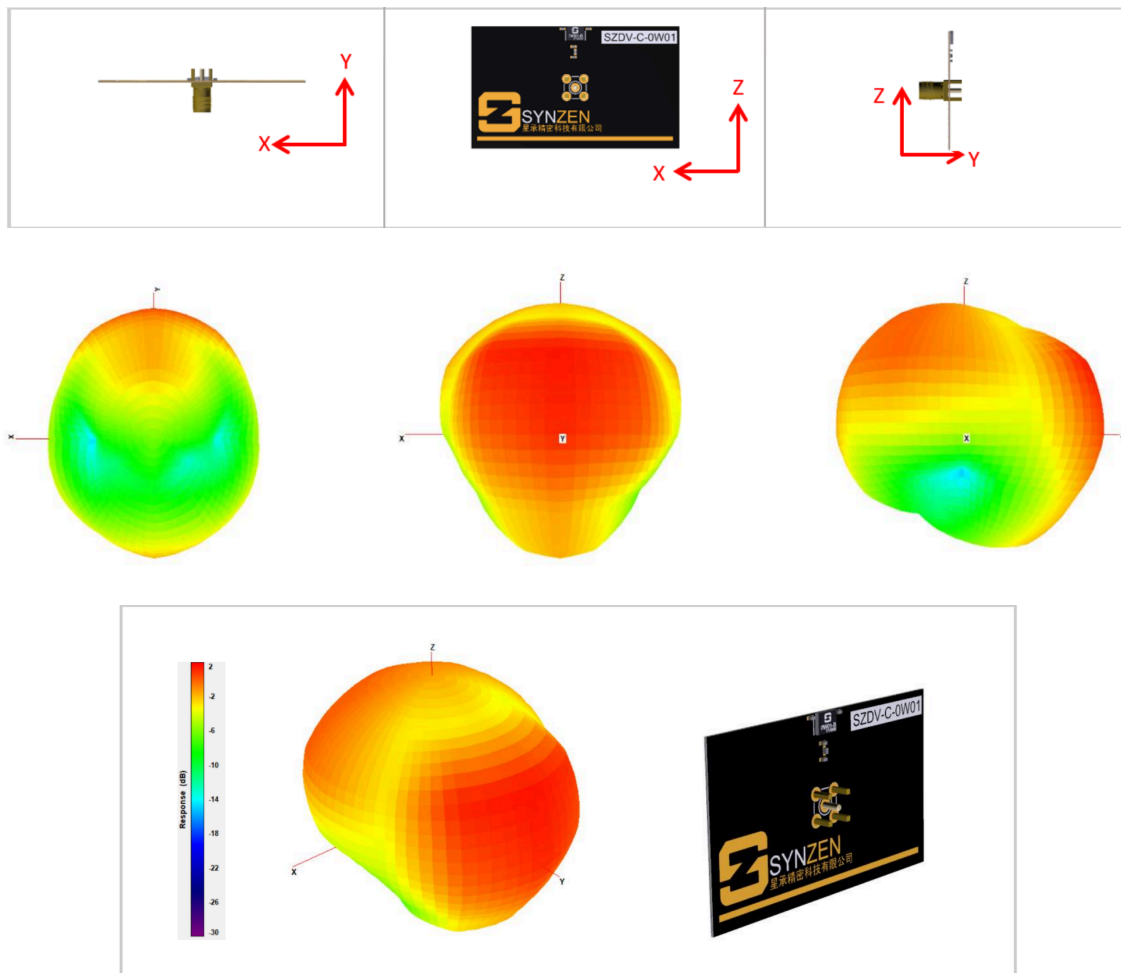
6 2D Polar Plot 2400 to 2500 MHz

MEASURED ON SYNZEN EVK (SZDV-C-0W01)

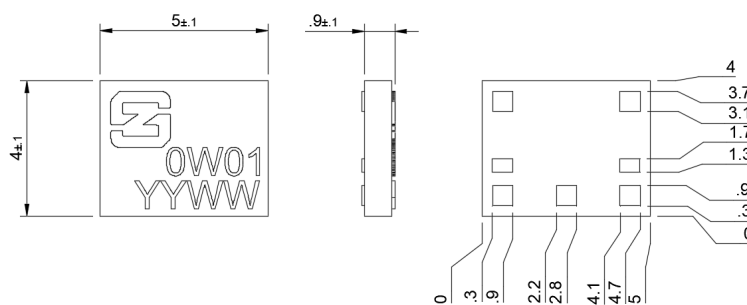


7 3D Radiation Pattern at 2450 MHz

MEASURED ON SYNZEN EVK (SZDV-C-0W01), FREQUENCY POINT 2450 MHZ



8 Antenna Mechanical Drawing



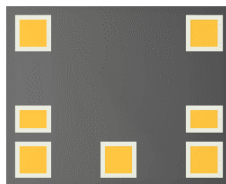
All dimensions in mm

9 Top and Bottom View

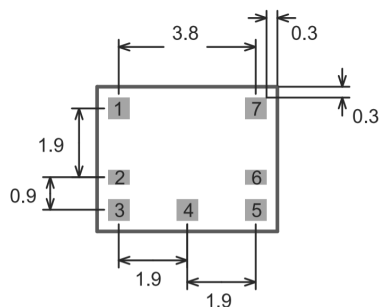
Top



Bottom



10 Required Host PCB Footprint



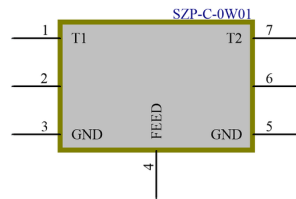
The host PCB requires the footprint shown above. PCB library files and DXF are available from our website www.synzen.com.tw/products.

The required clearance for the host PCB is 5.0×4.0 mm on all layers.

Pins 1, 3, 4, 7 = 0.6×0.6 mm. Pins 2, 6 = 0.4×0.6 mm.

11 SZP-C-0W01 Schematic Symbol

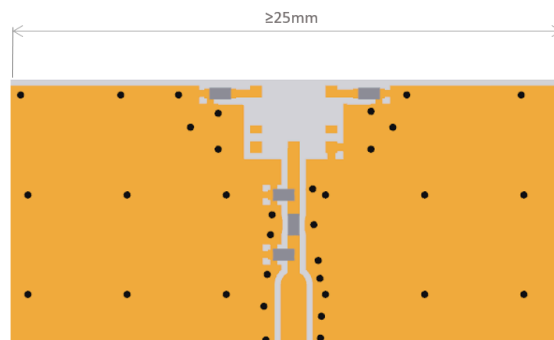
The schematic symbol for the antenna is shown below with a description of each pin.



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

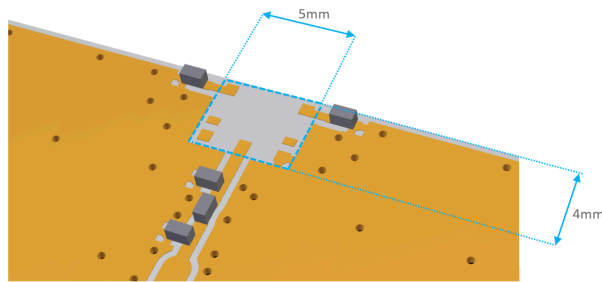
12 Placement

The antenna is designed to function placed at the center 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.



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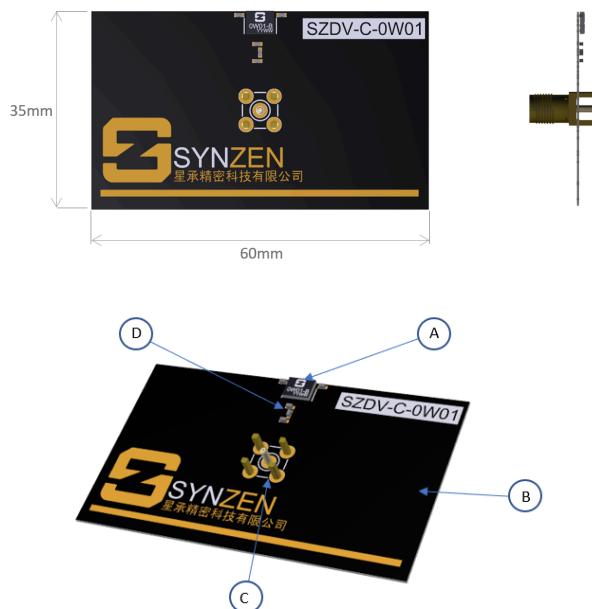
Required Clearance



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.

14 SZDV-C-0W01 Evaluation Kit

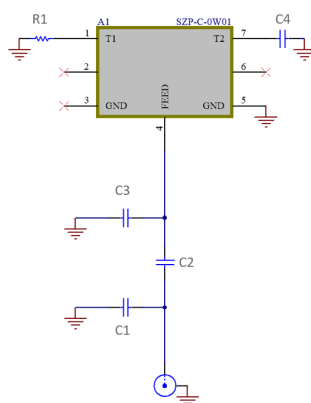
The SZDV-C-0W01 evaluation kit is a PCBA with the antenna (SZP-C-0W01) fitted and optimized with a matching network. Connection to the antenna is made using the fitted female SMA connector.



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

15 Evaluation Kit Matching Circuit

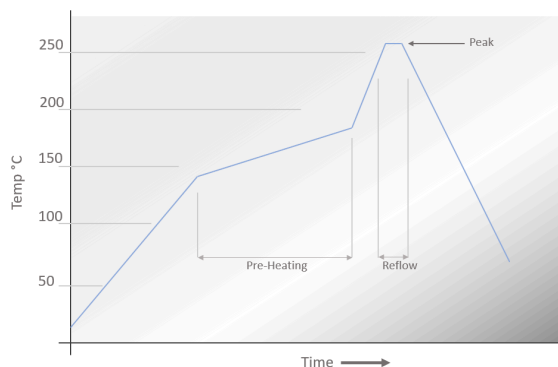
The circuit of the EVK along with the BOM is shown below. The matching network topology should be used on the device host PCB, although the matching values will be dependent on the host PCB and device environment. Synzen provide a matching service to optimize your device to ensure the best performance. 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	6.8 pF	0402	GCM1555C1H6R8DA16D
C3	Capacitor	1.0 pF	0402	GCM1555C1H1R0CA16J
R1	Resistor	0R	0402	Nonspecific part
C4	Capacitor	4.7 pF	0402	GCM1555C1H4R7CA16D
J1	SMA Connector			ACE solution A3SAFTST135

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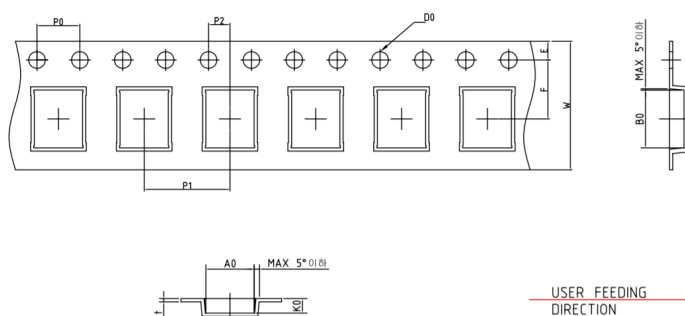
Reflow Profile



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

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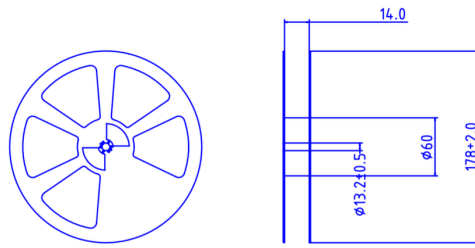
Tape and Reel



1. 10 sprocket hole pitch cumulative tolerance ± 0.2
2. Camber not to exceed 1mm in 100mm.
3. A0 and B0 measured on a plane 0.1mm above the bottom of the pocket
4. K0 measured from a plane on the inside bottom of the pocket to the top surface of the carrier.

Dimension	Value (mm)
W	12.0 ± 0.3
E	1.75 ± 0.1
F	5.50 ± 0.1
D0	1.55 ± 0.05
P1	8.0 ± 0.1
P0	4.0 ± 0.1
P2	2.0 ± 0.1
A0	4.40 ± 0.15
B0	5.40 ± 0.15
K0	1.30 ± 0.15
T	0.3 ± 0.05

18 Reel



Anti-static Reel	Type	Color	Size	Hub
Reel dimension	PS	White	Ø178	Ø60

19 Halogen Free

This product is halogen free.

20 Compliance

ROHS

Compliant

Conforms to EU RoHS Directive 2011/65/EU as amended by Delegated Directive (EU) 2015/863.

REACH

Compliant

Conforms to EU REACH Regulation (EC) No 1907/2006.

CERTIFICATE

On request

A certificate of conformance is available upon request from sales@synzen.com.tw.

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