

2.4 GHZ SMD (PIFA)

ERIDANI

WLAN / BLE / ISM SMD Antenna

SZP-N-2W05

FREQUENCY
2400 to 2500 MHz

PEAK GAIN
0.23 dBi

MOUNTING
SMD, over GND

SIZE
12.5 × 5.4 × 3.3 mm

2.4 GHZ 2400 to 2500 MHz Covers Wi-Fi, BLE, ISM

Key Features

- For WLAN / ISM / BLE applications 2.4 to 2.5 GHz
- Ideal for wearable devices
- Small form factor of 12.5 × 5.4 × 3.3 mm including clearance area
- SMD component supplied in tape and reel
- Suitable for sealing with resin / potting compounds
- Works over GND plane

1 Introduction

ERIDANI, surface mount antenna for working over a ground plane, for Wi-Fi / BLE / ISM applications. For use internal to a device which requires an integrated antenna solution. High performance with a small form factor for simple integration.

A surface mounted SMD antenna for use over the GND, no clearance required.

— Features

- ◆ For WLAN / ISM / BLE applications 2.4 to 2.5 GHz
- ◆ Ideal for wearable devices
- ◆ Small form factor of 12.5 × 5.4 × 3.3 mm including clearance area
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— Applications

- | | |
|------------------|---------------|
| ◆ Access Points | ◆ Set Top Box |
| ◆ M2M Industrial | ◆ Wearables |
| ◆ Smart Meters | ◆ Tags |
| ◆ Smart Grid | ◆ IoT |
| ◆ Healthcare | |

2 Mechanical Specifications

Part Number	SZP-N-2W05
Name	ERIDANI
Dimensions (mm)	12.5 × 5.4 × 3.3
Weight	<0.2 g
Antenna Type	Surface Mount Device (PIFA)

3 RF Specifications

Band	Frequency Range (MHz)	Avg Efficiency (%)	Peak Gain (dBi)	Impedance	Polarization
2.4 GHz Wi-Fi	2400 to 2500	>45	0.23	50 Ω	Linear

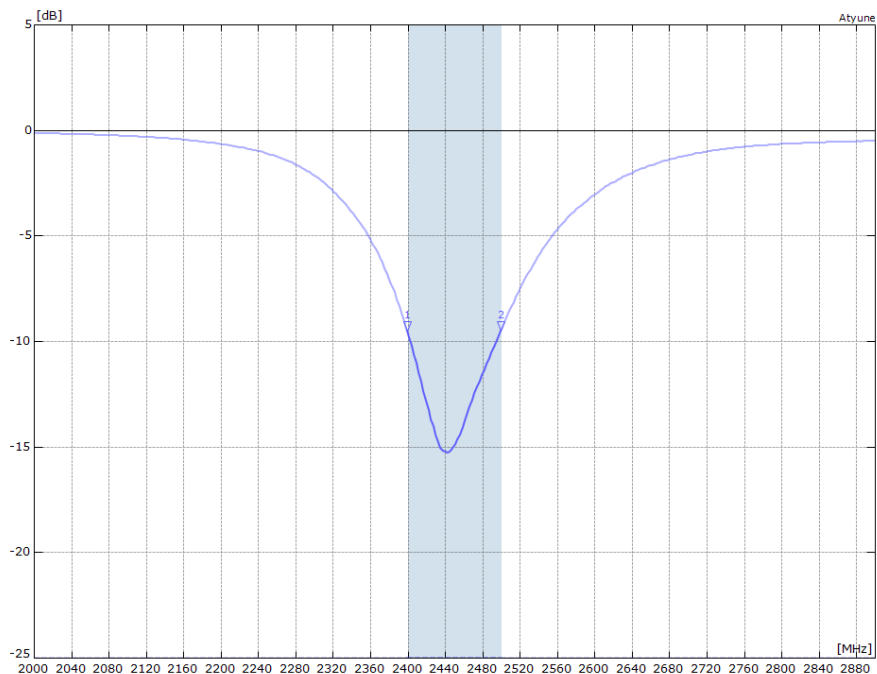
*All performance stated is measured on the SZDV-N-2W05 evaluation kit.

4 Environmental

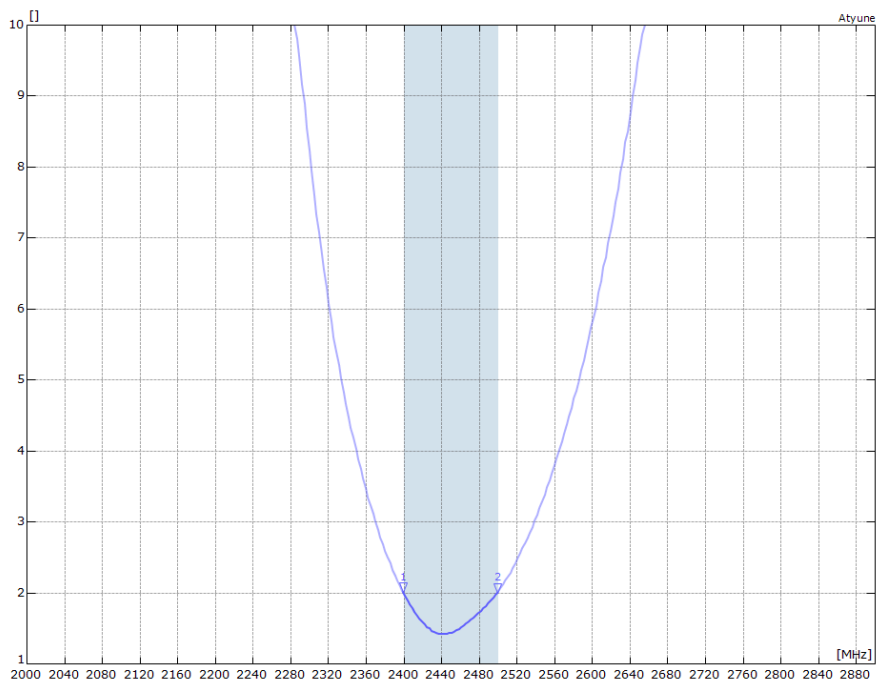
Operational Temperature	-40 to +125°C
Storage Temperature	-10 to +40°C
Relative Humidity	≤75%

5 RF Characteristics

S11 Parameter

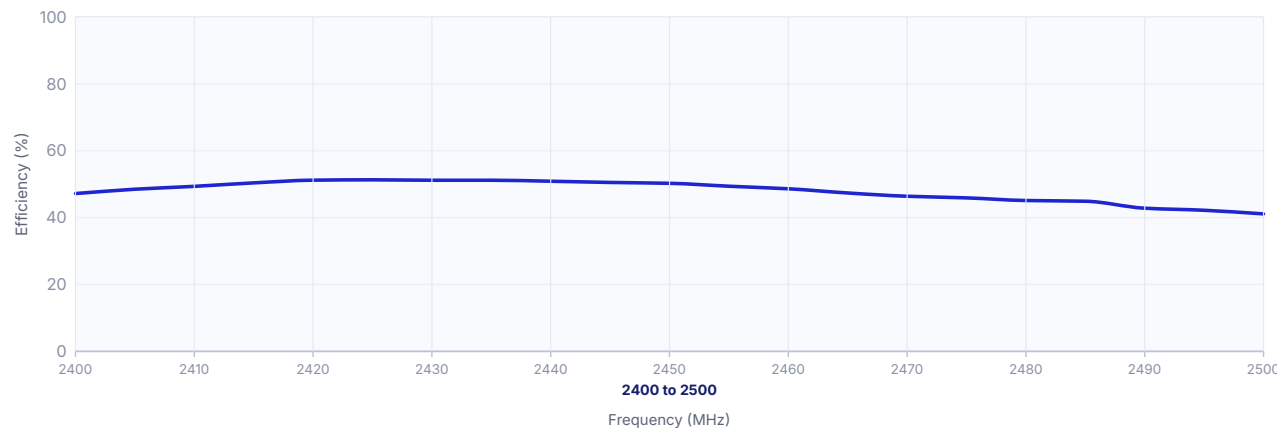


VSWR

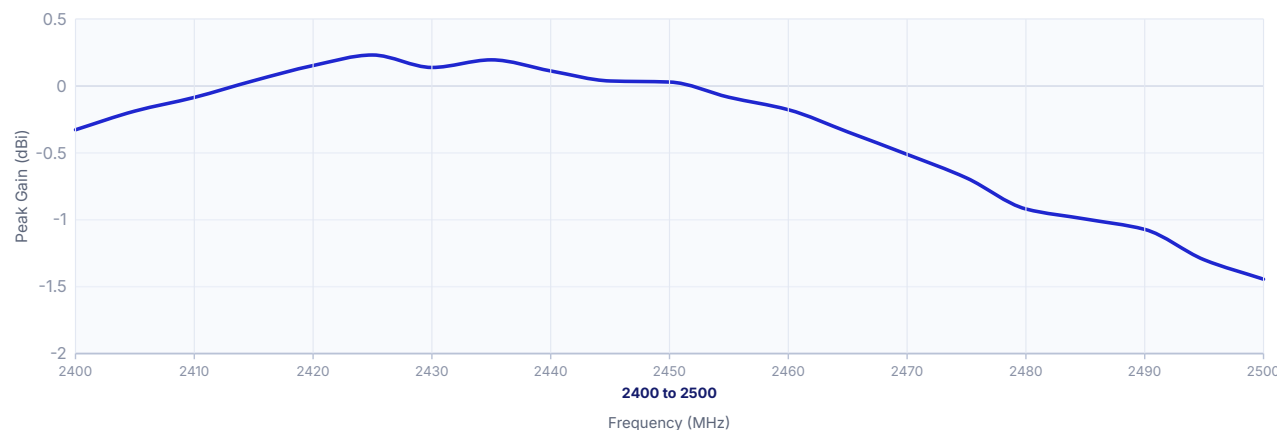


6 Antenna Performance

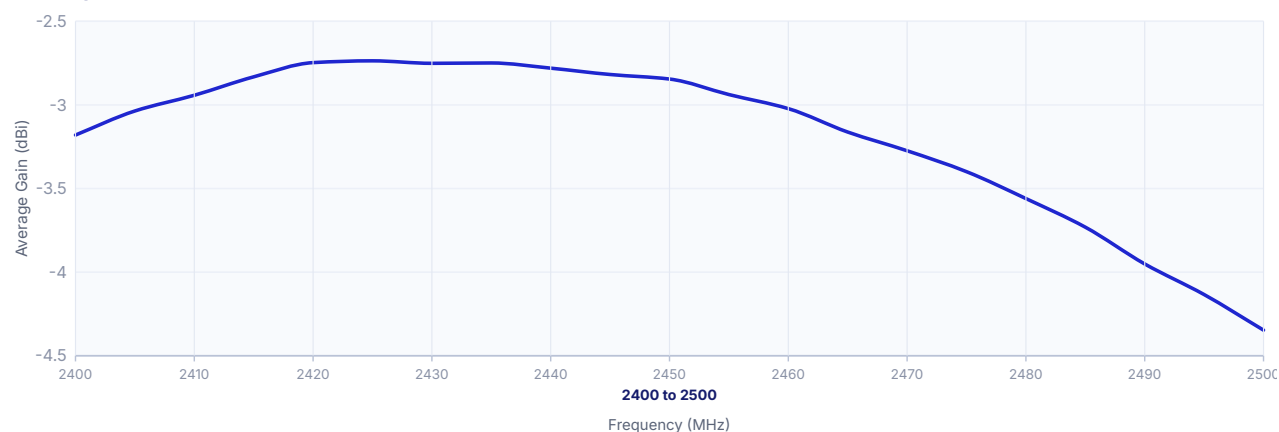
Efficiency



Peak Gain

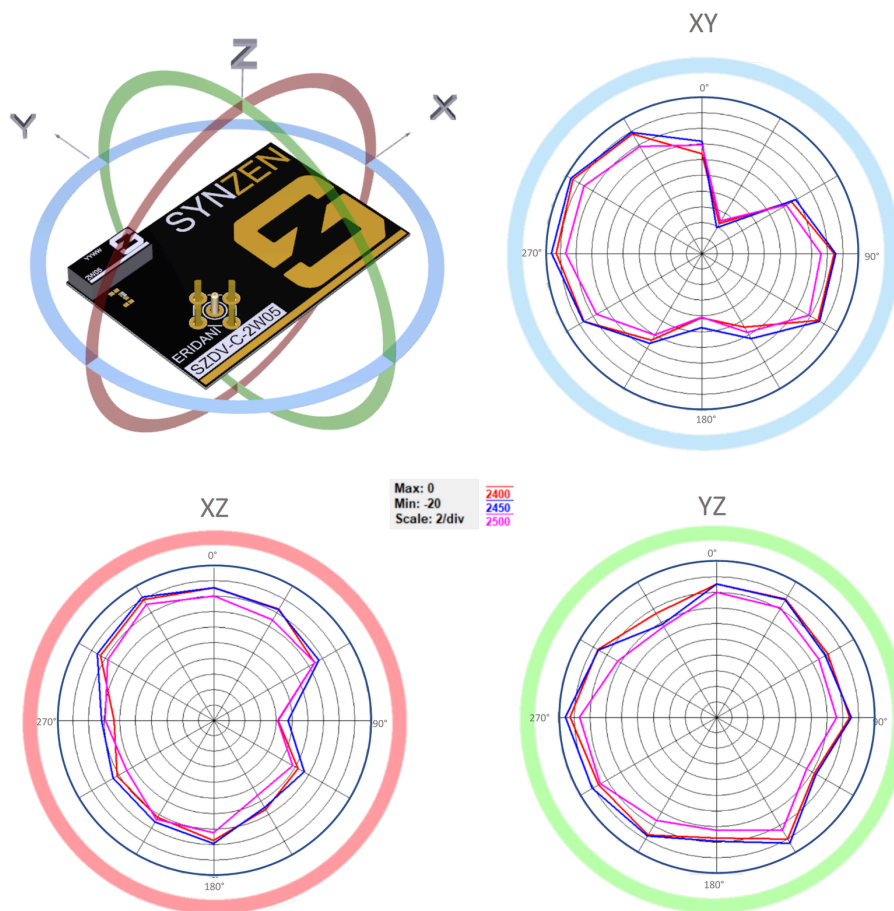


Average Gain



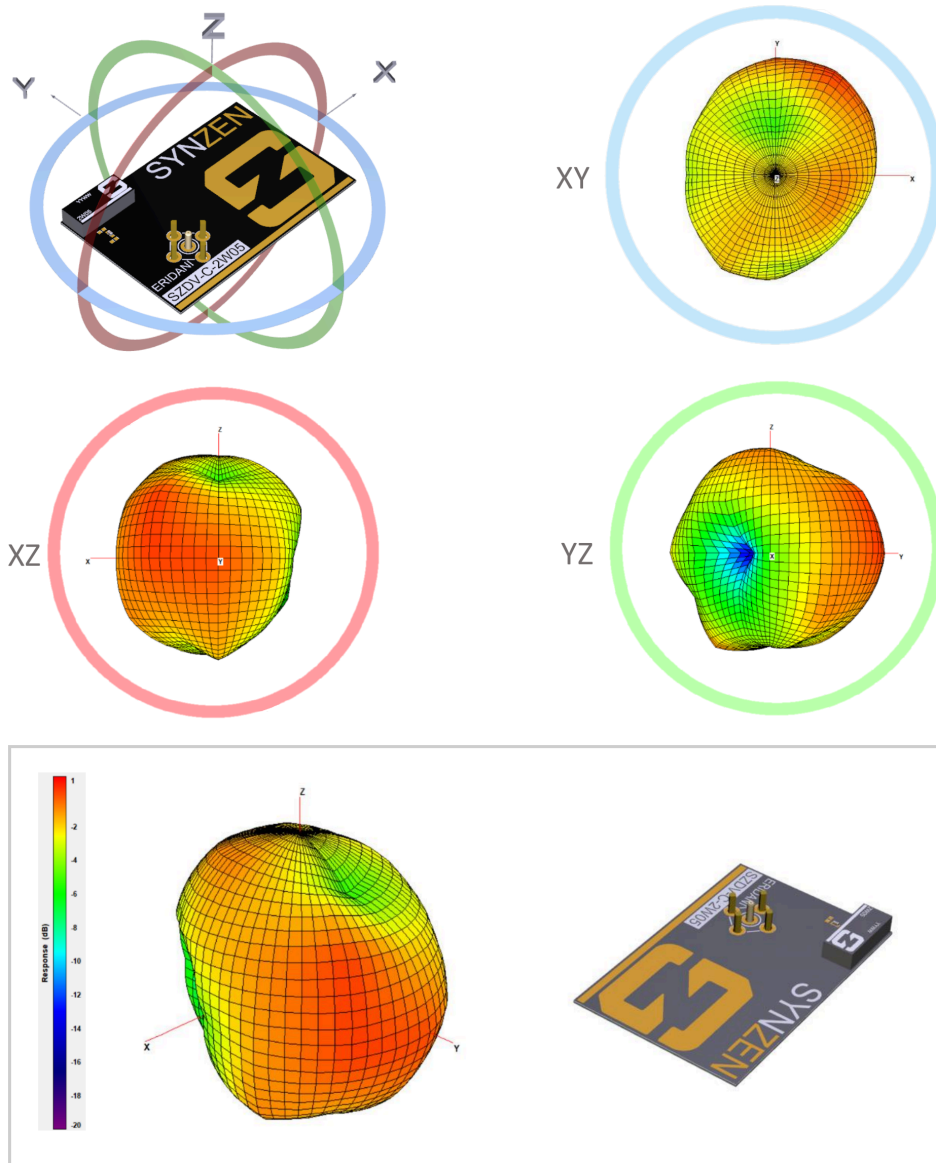
7 2D Polar Plot 2400 to 2500 MHz

MEASURED ON SYNZEN EVK (SZDV-N-2W05)

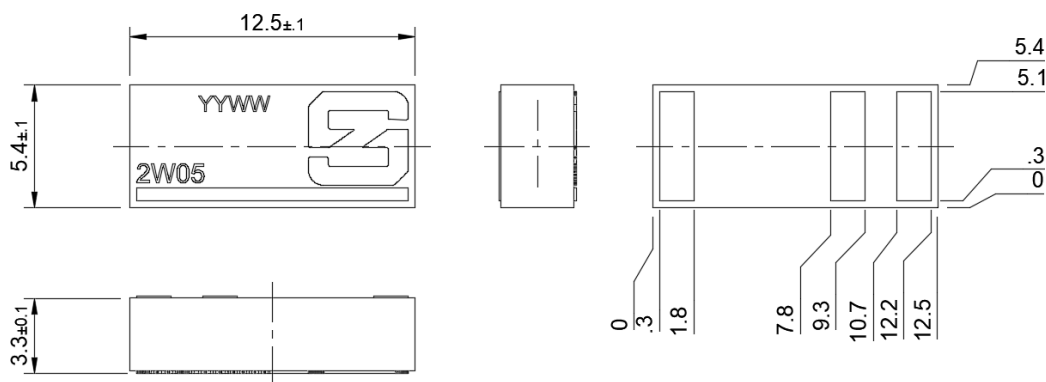


8 3D Radiation Pattern at 2450 MHz

MEASURED ON SYNZEN EVK (SZDV-N-2W05), FREQUENCY POINT 2450 MHZ



9 Antenna Mechanical Drawing



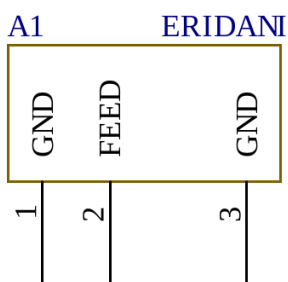
All dimensions in mm

10 Required Host PCB Footprint

PCB library files and DXF for the required host PCB footprint are available from our website www.synzen.com.tw/products.

11 SZP-N-2W05 Schematic Symbol

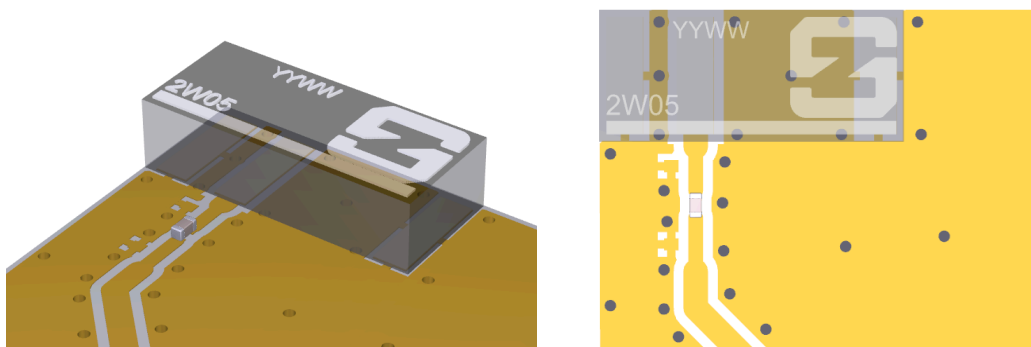
The schematic symbol for the antenna is shown below with a description of each pin.



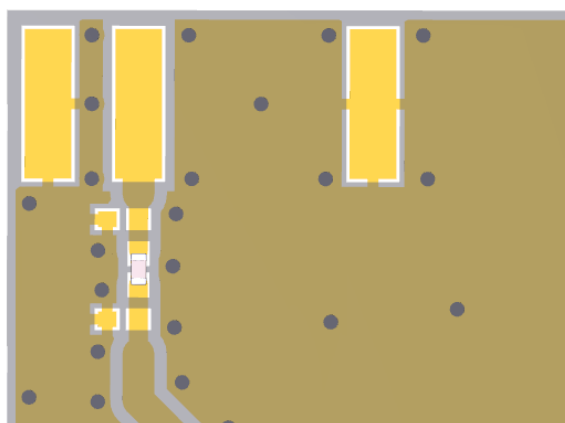
Pin	Description
1, 3	GND (Ground)
2	RF Feed

12 Placement

The antenna is designed to function placed towards the PCB corner. This can also be offset away from the corner while still maintaining good performance if close to the PCB edge.



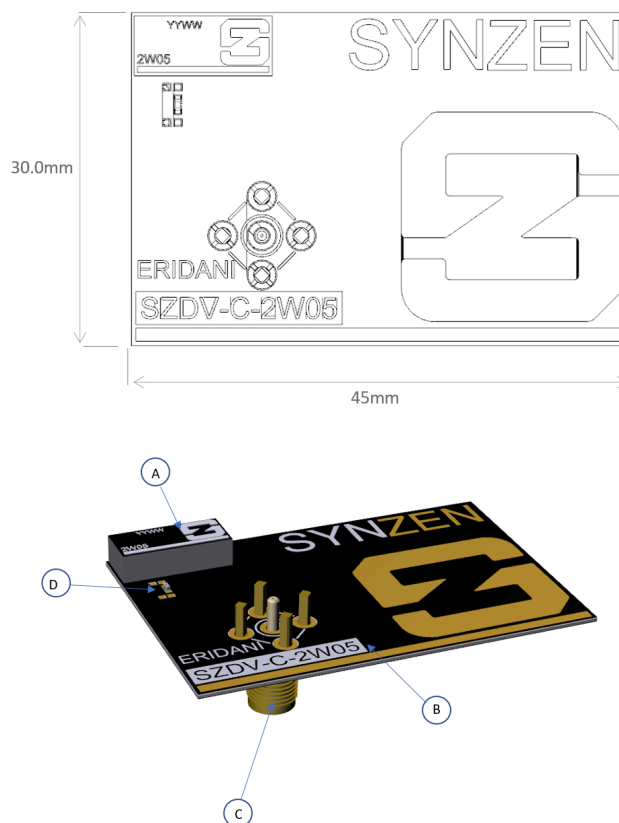
13 Required Clearance



No clearance is required and GND should be flooded below the antenna.

14 SZDV-N-2W05 Evaluation Kit

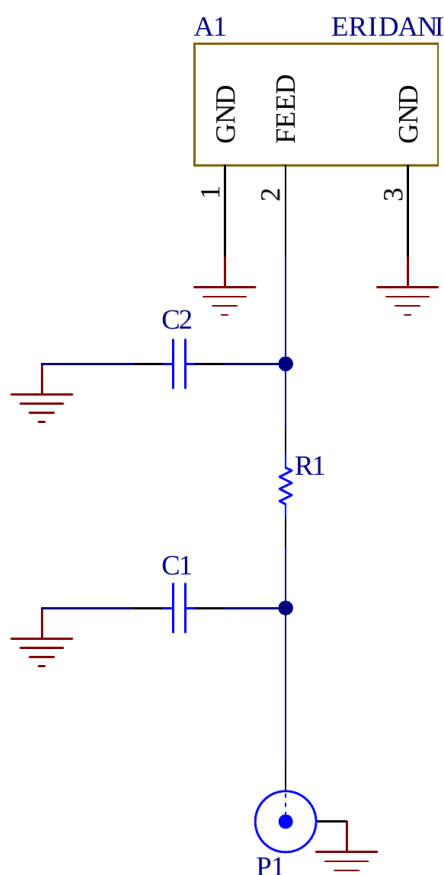
The SZDV-N-2W05 evaluation kit is a PCBA with the antenna (SZP-N-2W05) fitted and optimized with a matching network. Connection to the antenna is made using the fitted female SMA connector.



Item	Description
A	SZP-N-2W05 (Antenna)
B	Host PCB
C	SMA Connector
D	Matching Circuit

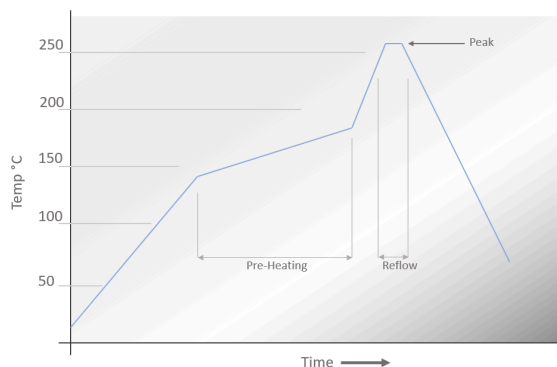
15 Evaluation Kit Matching Circuit

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.



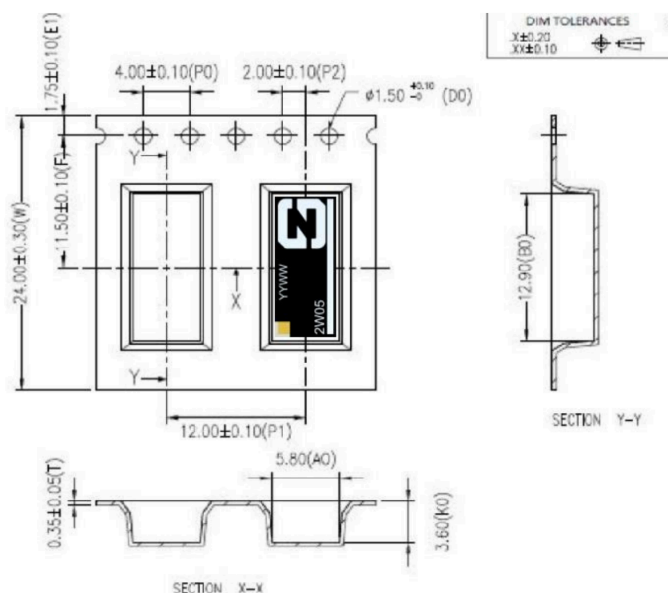
Designator	Component Type	Value	Size	Manufacturing Part No.
A1	Antenna	ERIDANI		SZP-N-2W05
R1	Resistor	0R	0402	Nonspecific part
C1, C2	NA	DNP	0402	Not Fitted
P1	SMA Connector			ACE solution A3SAFTST135

16 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

17 Tape and Reel



18 Tape Notes

- ◆ Part conforms to EIA-481-D standards
- ◆ All dimensions in millimeters unless otherwise stated
- ◆ Material: Conductive polystyrene
- ◆ Packing length for 22" reel: 51.0 meters (1:4)
- ◆ Component packing to 13" reel: 1000 pcs

19 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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