WLAN SMD Ceramic Antenna SZC-C-0W02

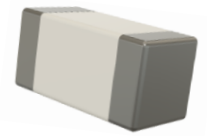
WLAN/Bluetooth/ISM: 2.40 – 2.50 GHz

Description

A high-performance solution for embedded design. Synzen have created SIRIUSa, the optimal solution for WLAN/Bluetooth/ISM applications that simplify the design in process and allows you to focus on the product development.

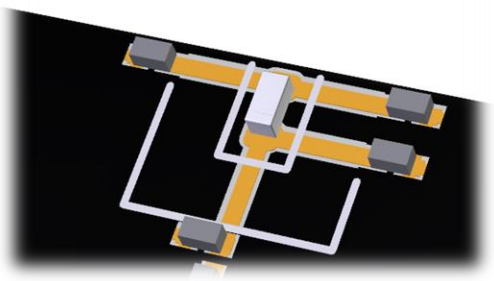
This antenna resonates best when placed at the centre of the longest PCB edge and produces a near omni directional pattern.

- For WLAN/Bluetooth/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 >70% efficiency
- Ideal for smaller wearable designs.
- Suitable for sealing with resin / potting compounds



Applications

Industrial/Scientific/Medical	M2M Industrial	Smart Meters
Access Point	Headsets	Healthcare
Smart Grid	ODBII	Tablets



General Specifications

Mechanical Specifications

Part Number	SZC-C-0W02
Name	SIRIUSa
Dimensions	1.6 x 0.8 x 0.8 (mm)
Required Clearance area	6.0 x 5.0 (mm)
Weight	<0.1g
Antenna Type	Surface Mount Device

RF Specifications*

Frequency Range	2400 – 2500MHz
Average Efficiency (Linear)	>75%
Peak Gain	3.0dBi
S11 (max)	<-11.0dB
VSWR (max)	1.75:1
Impedance	50 Ω
Polarization	Linear

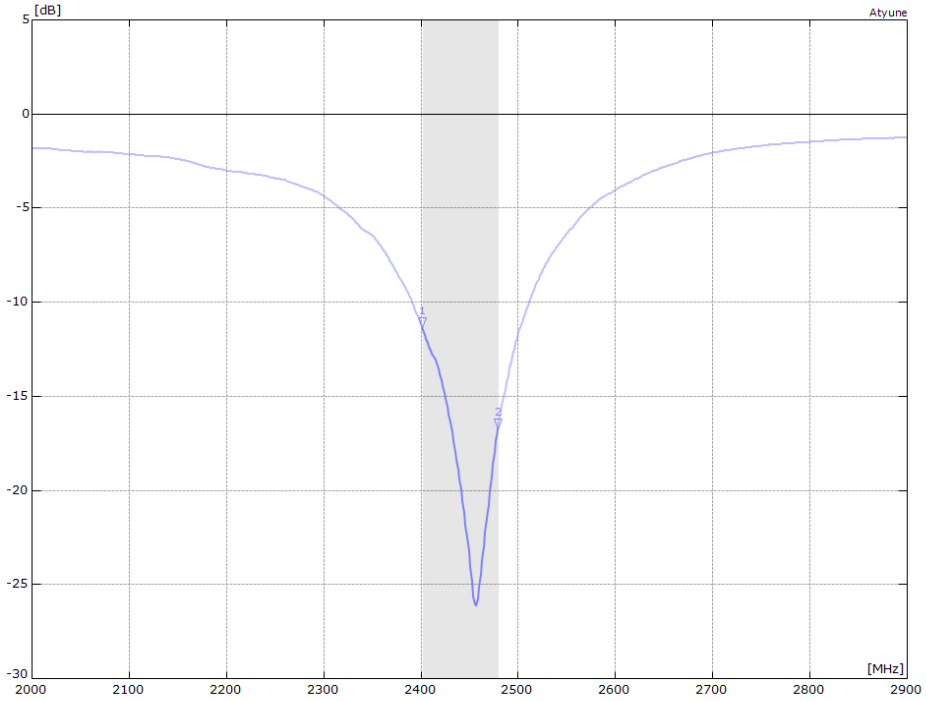
*All performance stated is measured of SZDV-C-0W02 evaluation kit

Environmental Specifications

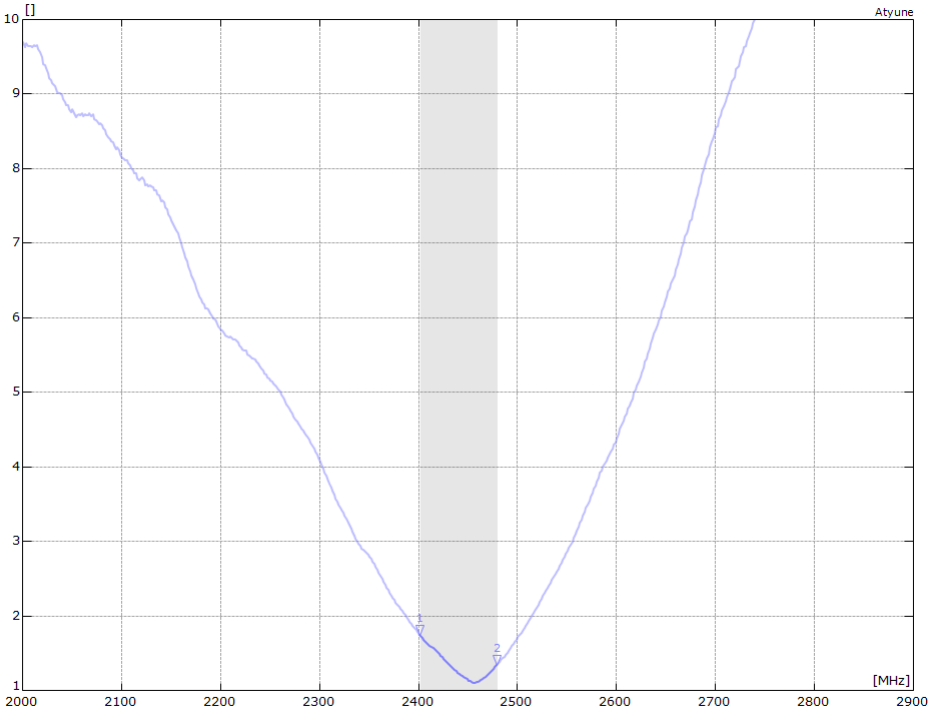
Operational Temperature	-40 to +125 (°C)
Storage Temperature	-10 to +40 (°C)
Relative Humidity	≤75%

RF Characteristics

S11 Parameter



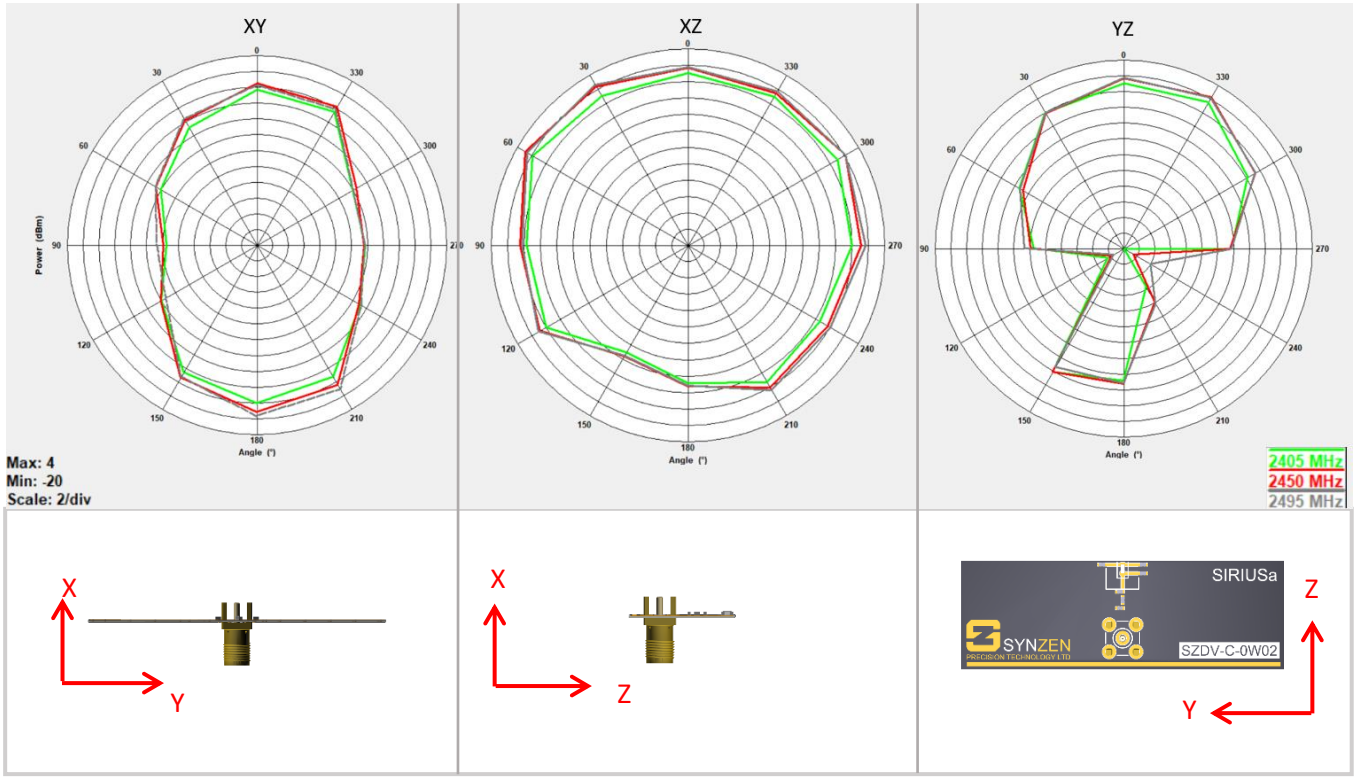
VSWR



Radiated Performance

2D Polar Plot

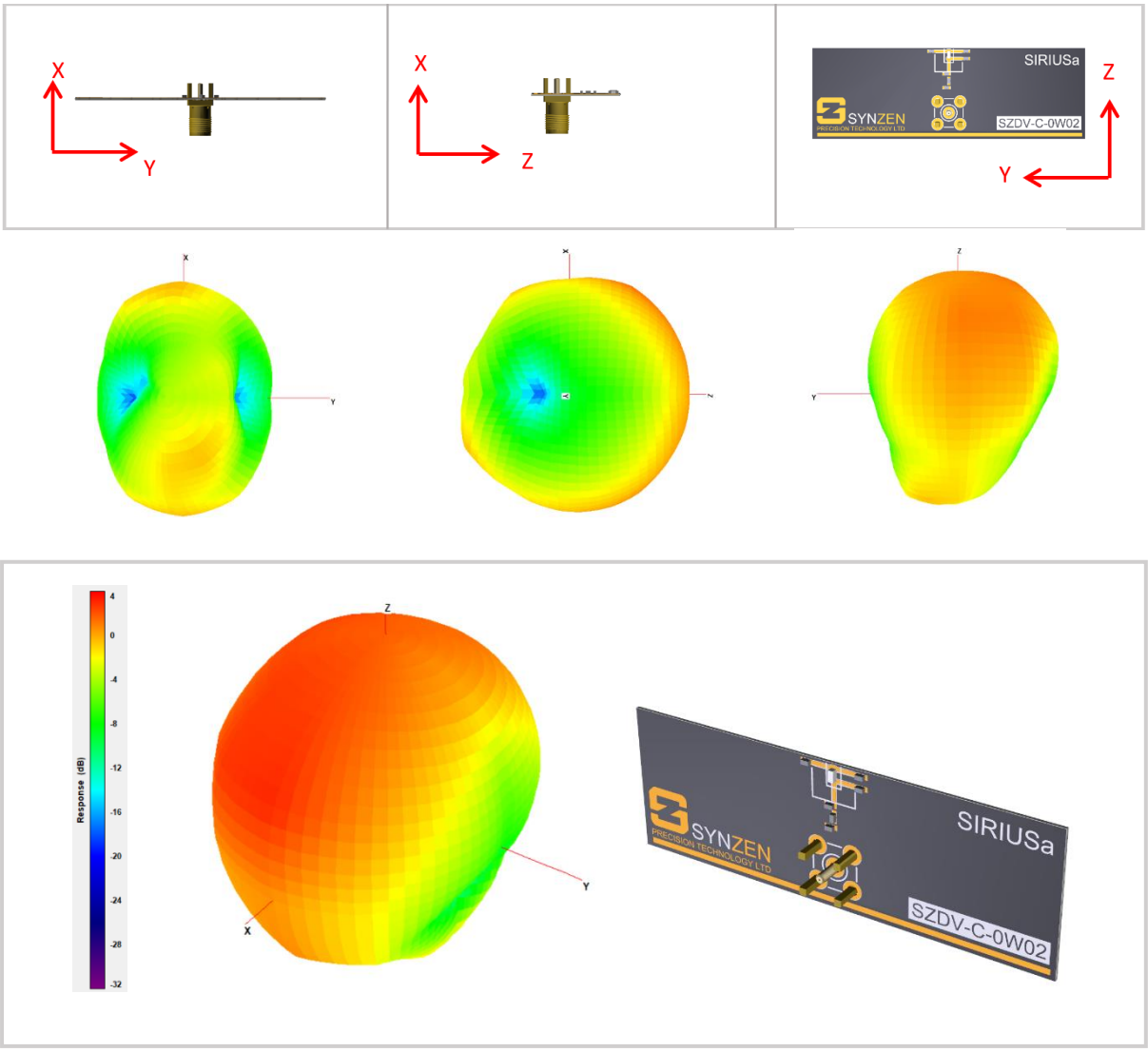
The data shown was measured on Synzen DVK (SZDV-C-0W02)



Radiated Performance

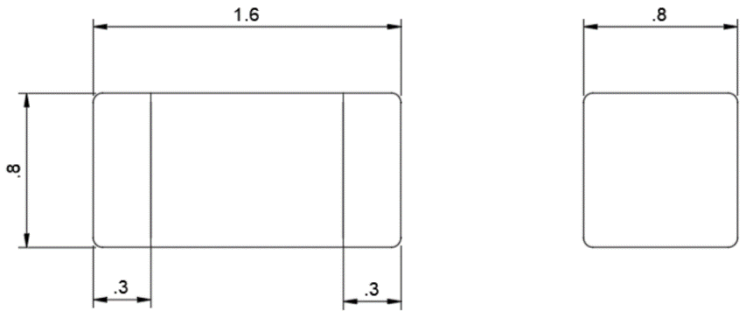
3D Radiation Pattern

The data shown was measured on Synzen DVK (SZDV-C-0W02). The frequency point shown here is 2450MHz.



Mechanical

Antenna Mechanical Drawing

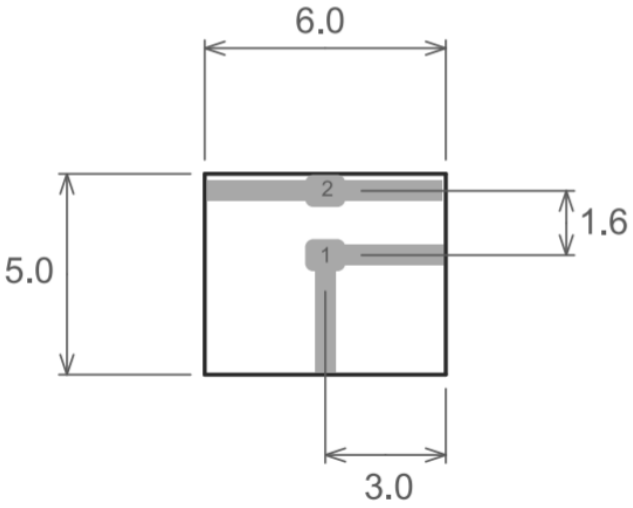


All dimensions in mm

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 6.0 x 5.0 (mm) on all layers.



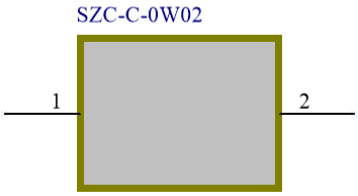
Pins 1,2 = 1.0 x 0.8 (mm)
Trace = 0.5mm width

All dimensions in mm

Antenna Pinout

SZC-C-0W02 Schematic Symbol

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

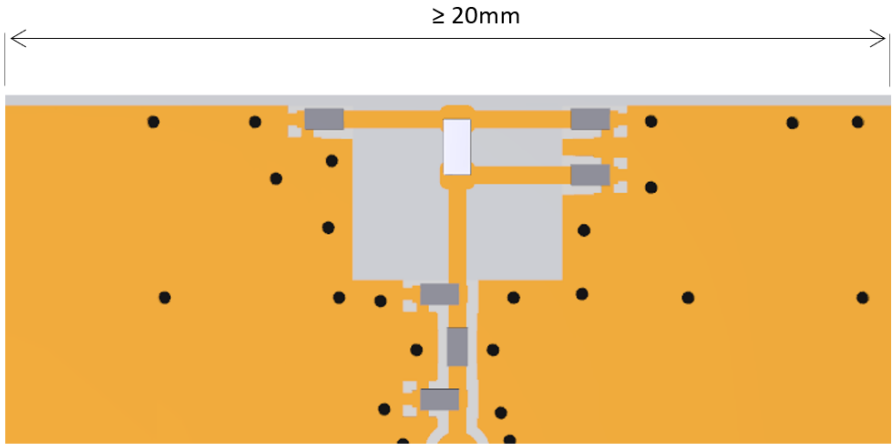


Pin	Description
1	Not orientation sensitive
2	Not orientation sensitive

PCB Layout Requirements

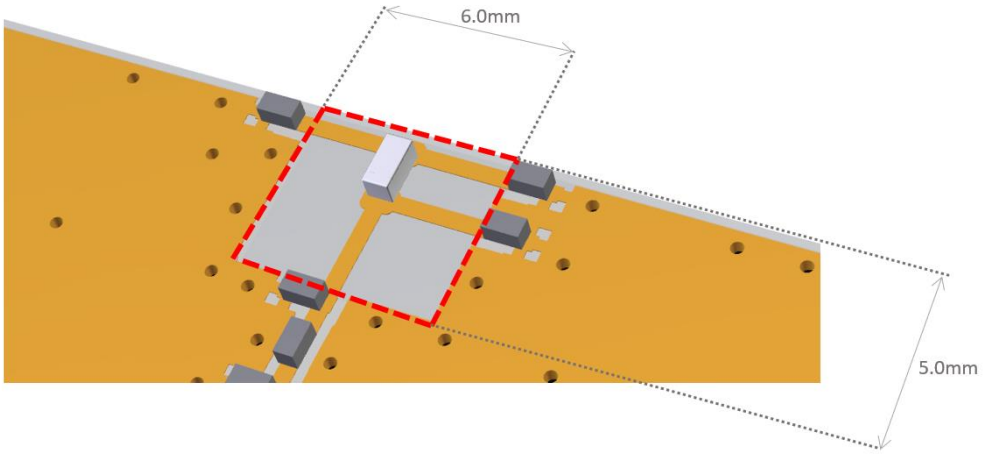
Placement

The antenna is designed to function placed at the centre of the longest PCB edge. Where possible the top and bottom layers of the PCB should be flooded with GND, this optimizes the antenna performance.



Clearance

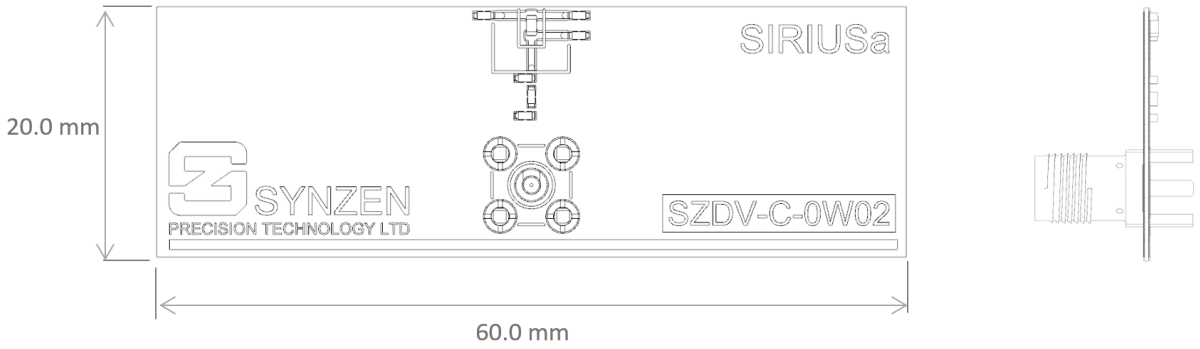
A clearance is required through all PCB layers for the precise area shown. Also, any components such as battery or display must also avoid this area. The rest of the area under the antenna should be filled GND.

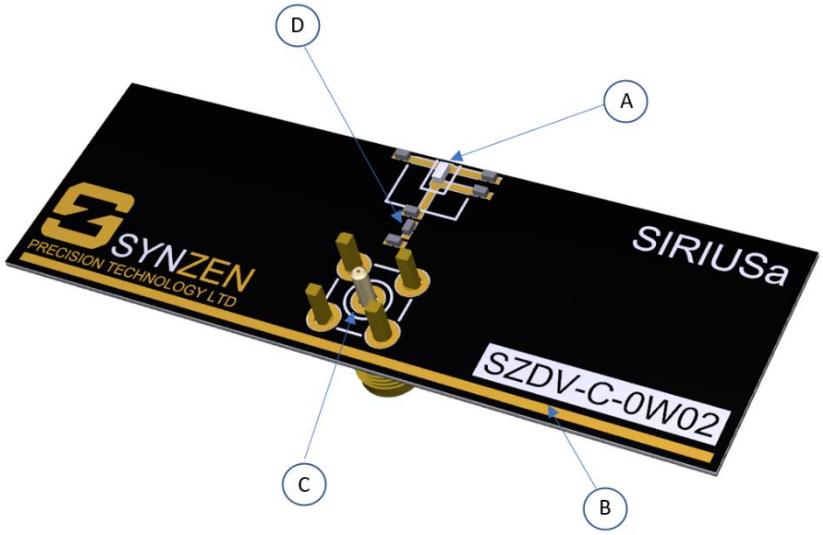


Development Kit

SZDV-C-0W02 Development Kit

The SZDV-C-0W02 development kit is a PCBA with the antenna (SZC-C-0W02) fitted and optimised with a matching network. Connection to the antenna is made using the fitted female SMA connector.



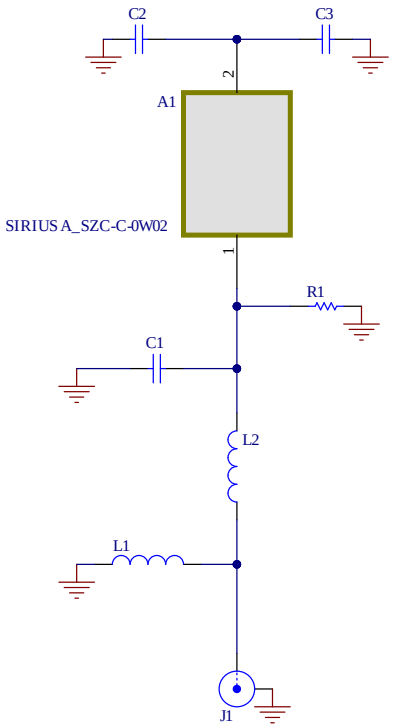


A	SZC-C-0W02 (Antenna)
B	Host PCB
C	SMA Connector
D	Matching Circuit

Development Kit Schematic

Development Kit Matching Circuit

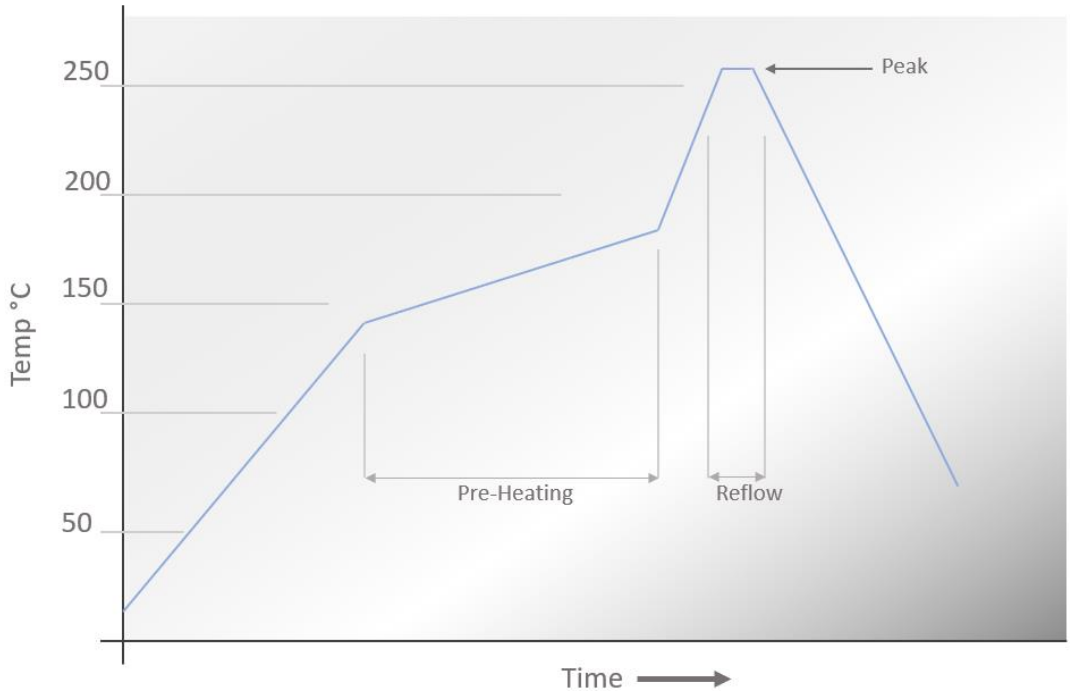
The circuit of the DEV kit along with the BOM is shown below. The matching network topology should be used on the device host PCB although the matching values will be dependent on the host PCB and device environment. Synzen provide a matching service to optimise your device to ensure the best performance,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



Designator	Component Type	Value	Size	Manufacturing Part No.
A1	Antenna	SIRIUSa	-	SZC-C-0W02
R1	Resistor	0R	0402	Nonspecific part
C3	Capacitor	0.5pF	0402	GJM1555C1HR50BB01D
L2	Inductor	1.2nH	0402	LQG15HS1N2B02D
C2	Capacitor	1.0pF	0402	GCM1555C1H1R0CA16J
L1	Inductor	Not Fitted	0402	Do Not Place
C1	Capacitor	0.3pF	0402	GJM1555C1HR30BB01D
J1	SMA Connector	-	-	ACE solution A3SAFTST135

Soldering

Reflow Profile

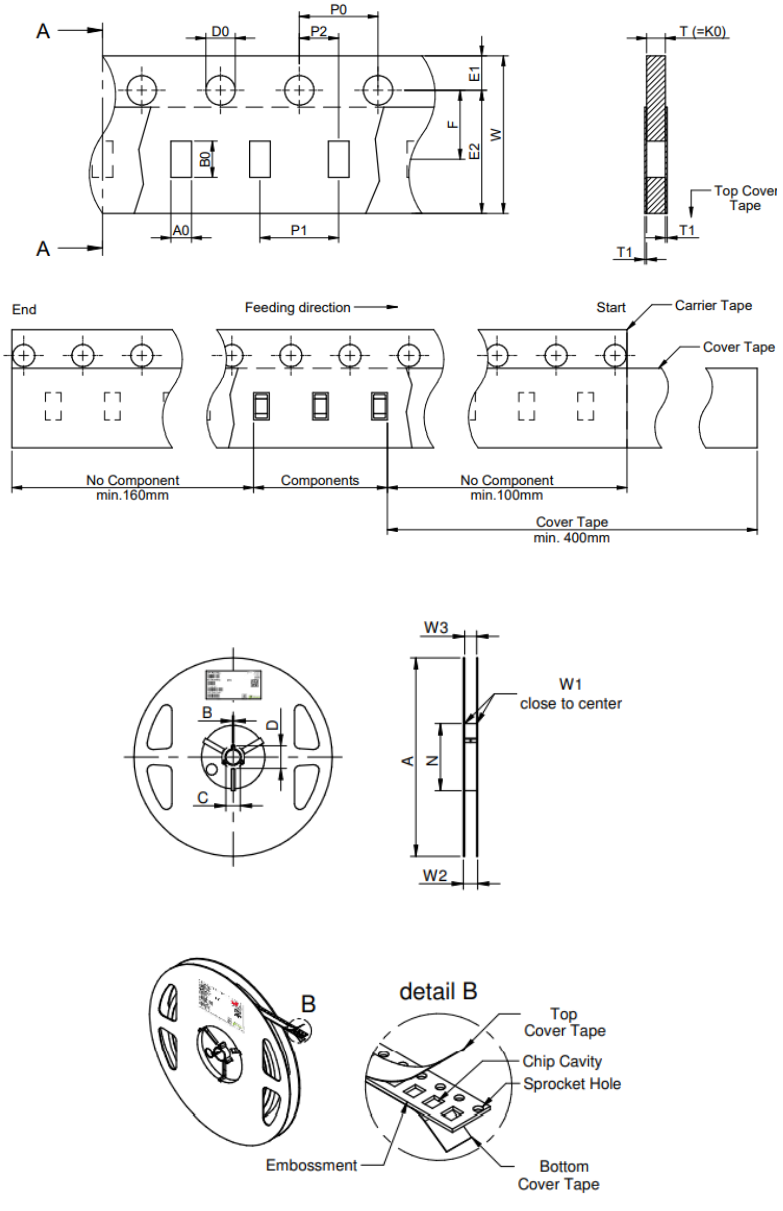


Pre-Heating	130 - 180°C	50 to 190 seconds
Reflow	>220 °C	50 to 160 seconds
Peak Temperature	260 °C	15 to 45 seconds

Packaging

Tape and Reel

		A0	B0	W	T	T1	P0	P1	P2	D0	E1	E2	F	Tape Type 1a	VPE / packaging unit
tolerance	Tolerances	typ.	typ.	+0,3/ -0,1	typ.	max.	±0,1		+0,05	+0,1 / -0,0	±0,1	min.	±0,05		pcs.
size	0603	1.05	1.85	8.00	0.95	0.10	4.00	4.00	2.00	1.50	1.75	6.25	3.50	Paper	4000



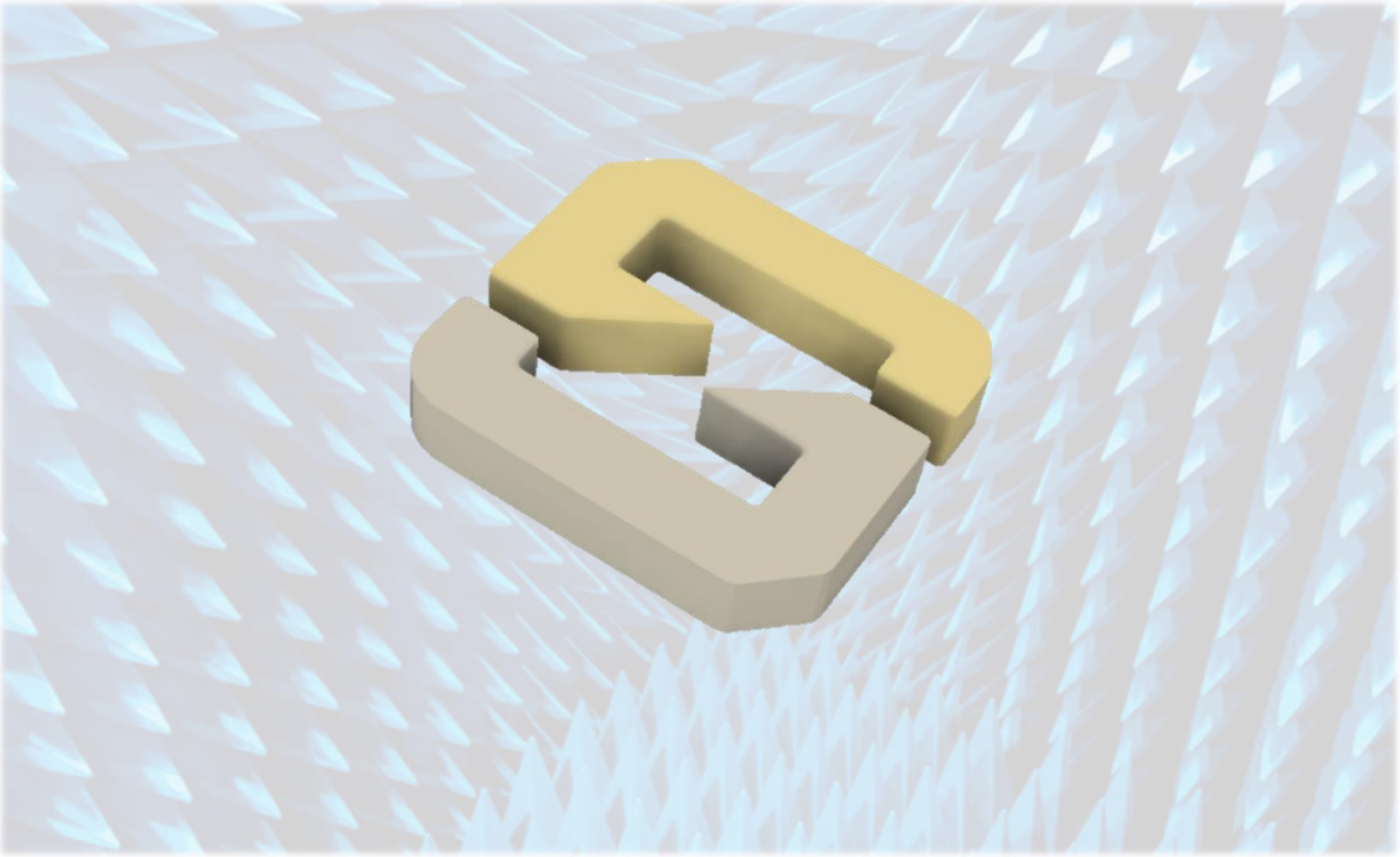
A (mm)	B (mm)	C (mm)	D (mm)	N (mm)	W1 (mm)	W2 (mm)	W3 (mm)	W3 (mm)	Material
± 2,0	min.	min.	min.	min.	+1,5	max.	min.	max.	
178	1.5	12.8	20.2	50	8.4	14.4	7.9	10.9	Polystyrene/ Polyurethane

Environmental

Material Regulation

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

Synzen Precision Technology Ltd



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