

DATASHEET

SIRIUS-A SZC-C-4W27 | Ceramic Chip Antenna | WI-FI/ Bluetooth

Features:

WI-FI : 2400-2500MHz

>2.5dBi Peak Gain, >55% Efficiency

Dimensions: 0.6 x 0.3 x 0.3 mm

Clearance Area: 5.0 x 2.4 mm

RoHs compliant

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Introduction

Ultra-miniature antenna for BLE/Wi-Fi/ISM – built for high-volume designs with no space to spare.

SIRIUSc is a 0201-sized ceramic chip antenna engineered for the most space-constrained applications. At just 0.6 x 0.3 x 0.3 mm, it's the smallest solution in Synzen's portfolio—perfect for high-density, cost-sensitive designs where every square millimetre counts.

Ideal for mass production, SIRIUSc has been optimized for consistent performance across the 2.4 GHz ISM band (2400–2500 MHz). Ideal for wearable health sensors and is proven to deliver reliable performance even in harsh RF environments.

Whether you're building a compact tracker, medical sensor, or next-gen consumer wearable, SIRIUSc helps you shrink your device without sacrificing connectivity.

Key Features:

- Ultra-compact 0201 footprint (0.65 x 0.35 x 0.40 mm)
- Optimized for BLE / Wi-Fi / 2.4 GHz ISM
- Designed for high-volume, space-limited designs
- Clean resonance with minimal out-of-band response
- Reliable performance in body-worn and enclosed environments
- Tape and reel packaging for automated SMT assembly
- Placement and matching support available from Synzen

Applications:

- Glucose Monitors
- Smart Patches
- Fitness Trackers
- Medical Sensors
- Body-Worn Tags
- Disposable Health Devices
- Ultra-compact IoT Nodes
- Wireless Wearables

SIRIUSc — When space is gone, and performance still matters.

Mechanical Specifications

Parameter	
Part Number	SZC-C-4W27
Name	SIRIUS c
Dimensions (mm)	0.6 x 0.3 x 0.3
Weight	0.44mg
Antenna Type	Surface Mount Ceramic Chip

Electrical / RF Specifications

Band	Frequency Range (MHz)	Avg. Efficiency (%)	Peak Gain (dBi)	VSWR	Impedance
Wi-Fi/BLE	2400-2500	>59	2.10	2.60:1	50 Ω

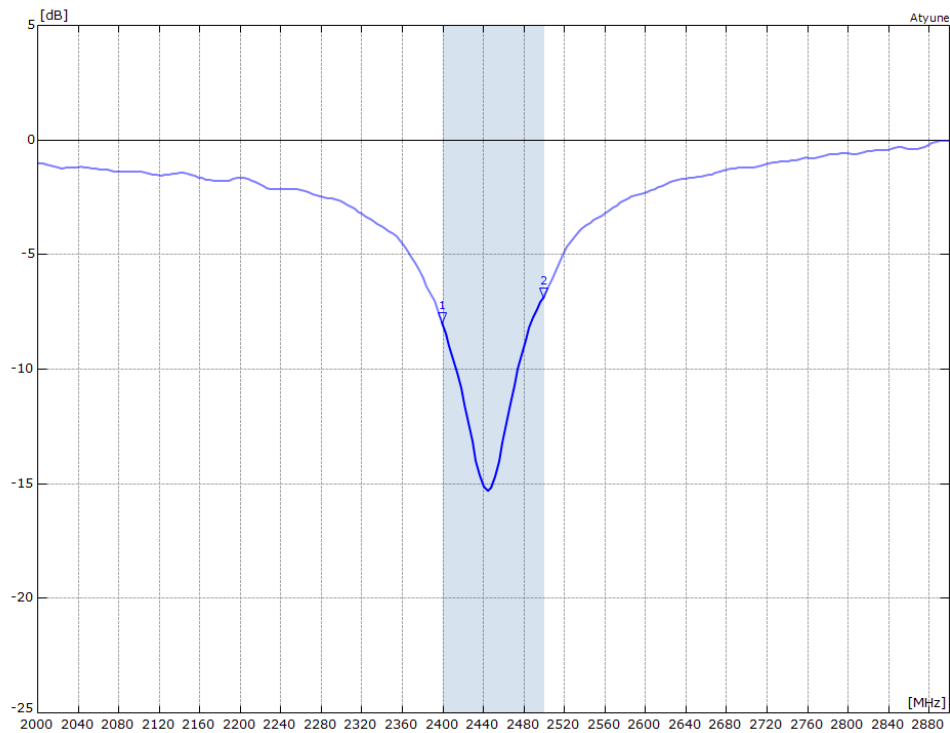
Note: All performance stated is measured of SZDV-C-4W27 evaluation kit

Environmental

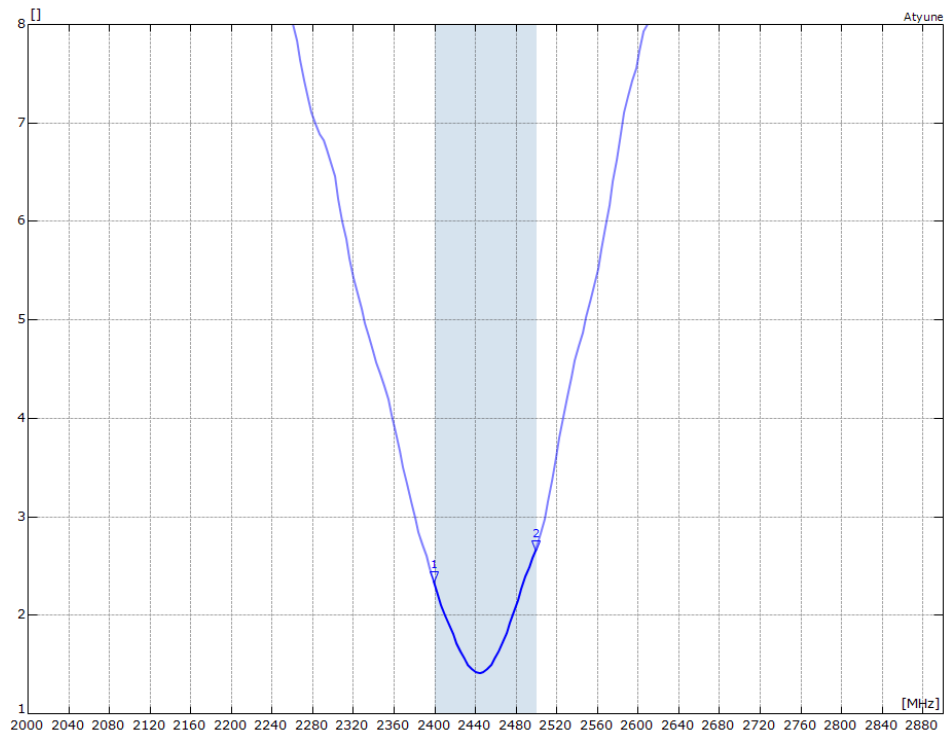
Parameter	
Operational Temperature	-55 to +125
Storage Temperature	-65 to +125
Relative Humidity (Storage)	65 $\pm$ 20% RH
Moisture Sensitivity	1
RoHs and REACH compliant	Yes

RF Characteristics

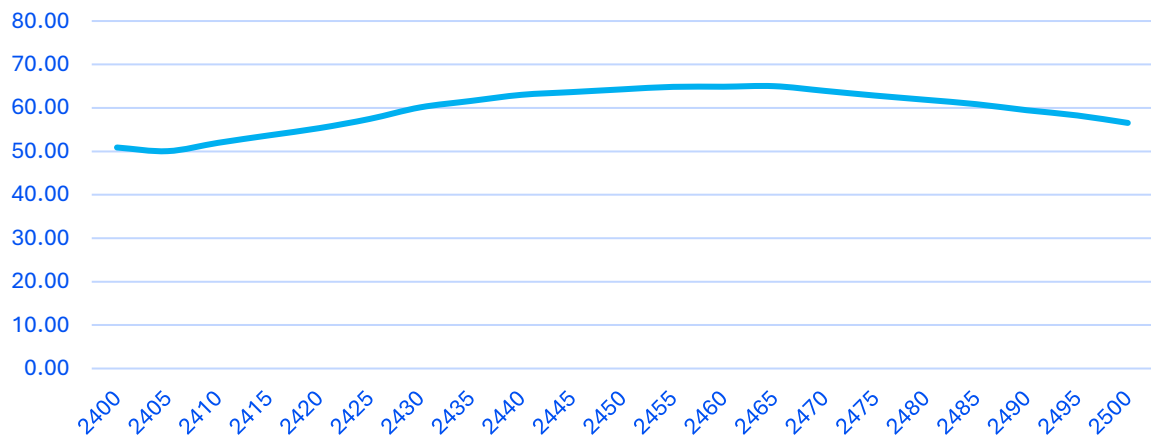
Return loss



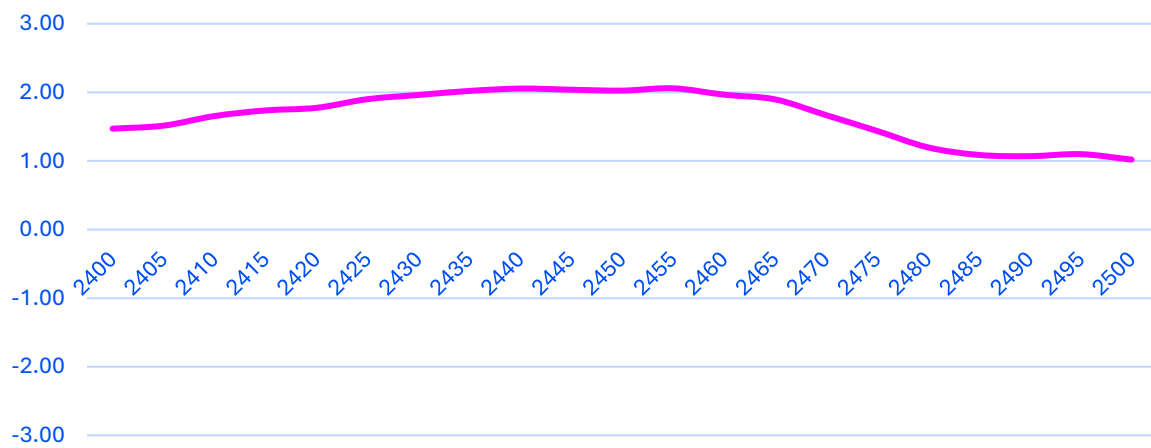
VSWR



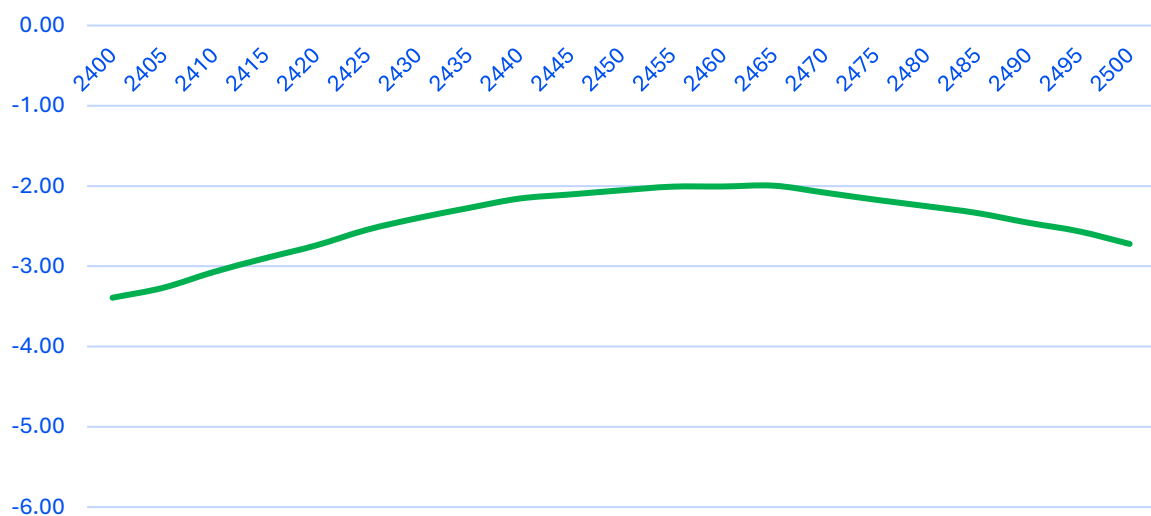
Efficiency



Peak Gain

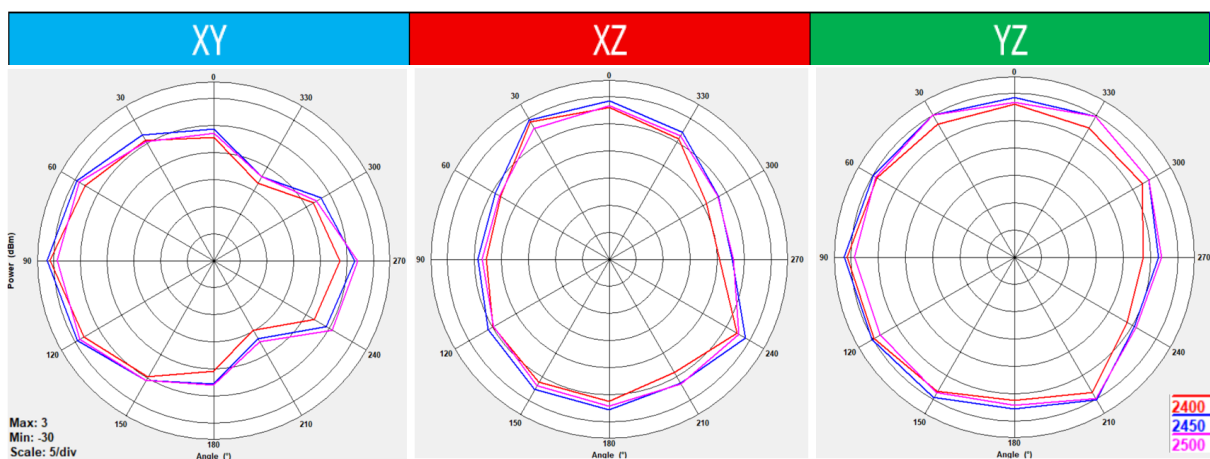
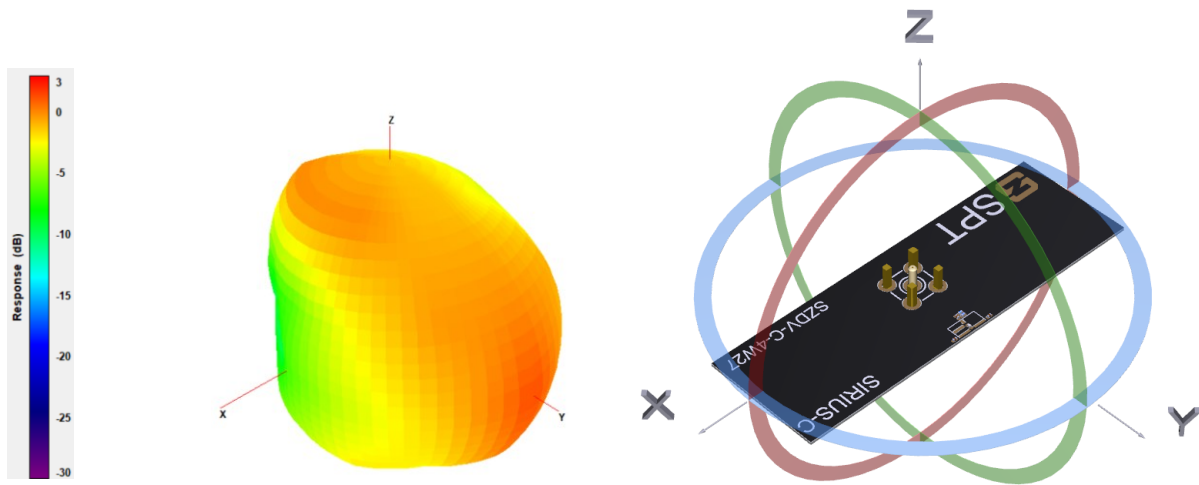


Average Gain

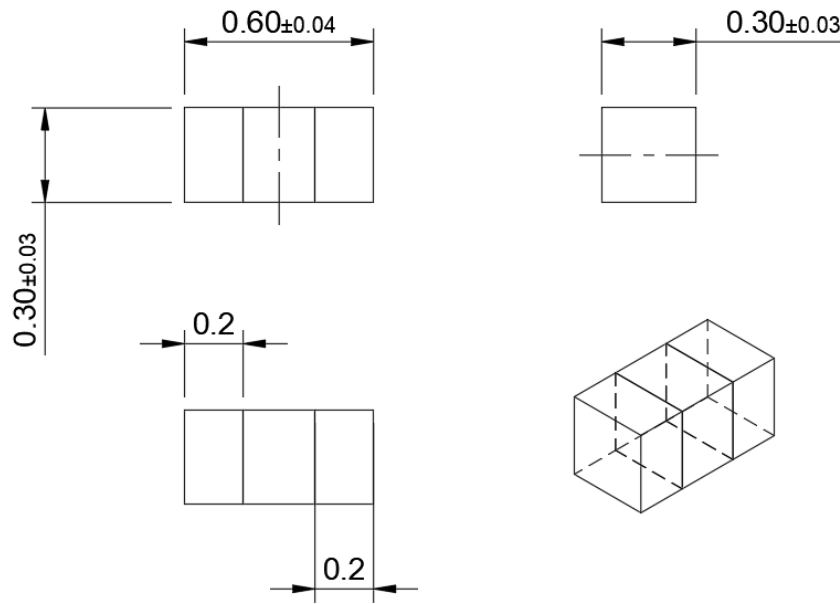


RF Radiation Patterns

RF Radiation Patterns at 2450MHz



Mechanical Drawing



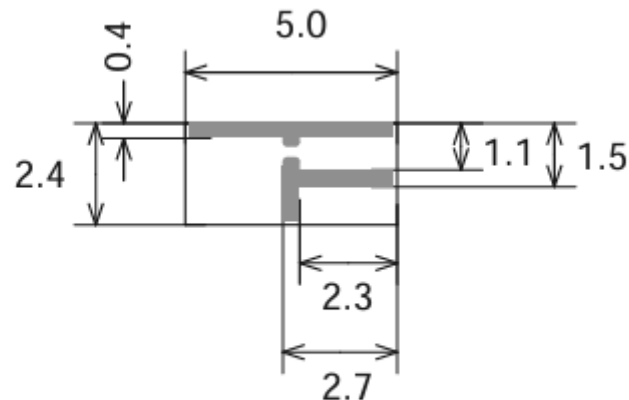
All dimensions in mm

L	W	T
0.6 ± 0.04	0.3 ± 0.03	0.3 ± 0.03

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 5.0 x 2.4 (mm) on all layers.



PAD 1, 2 = 0.4 x 0.4 (mm)

TRACE WIDTHS = 0.4mm

Schematic Symbol

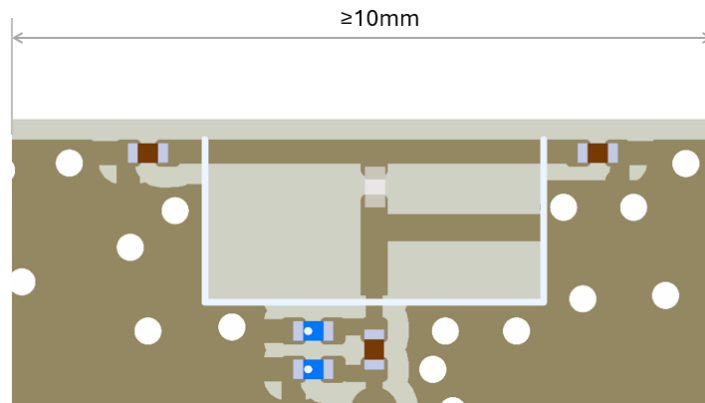


Pin	Description
1	Not orientation sensitive
2	Not orientation sensitive

PCB Layout Guide

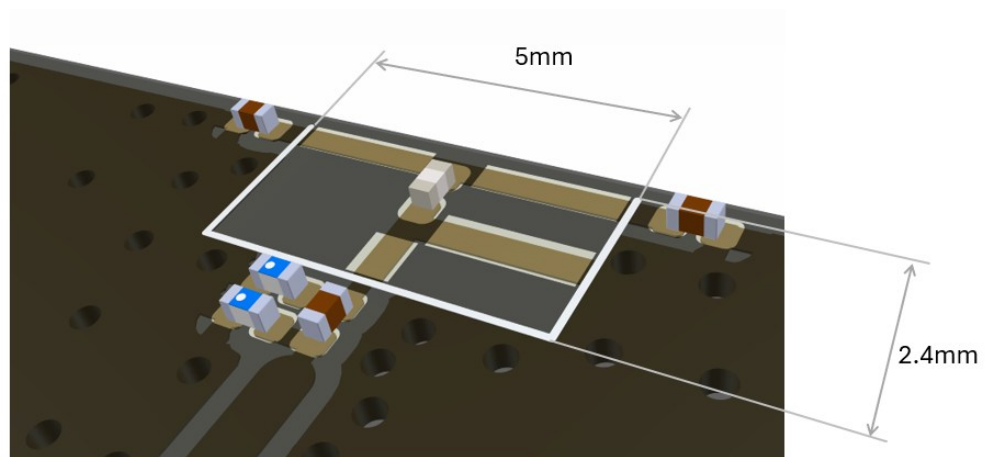
Placement

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.



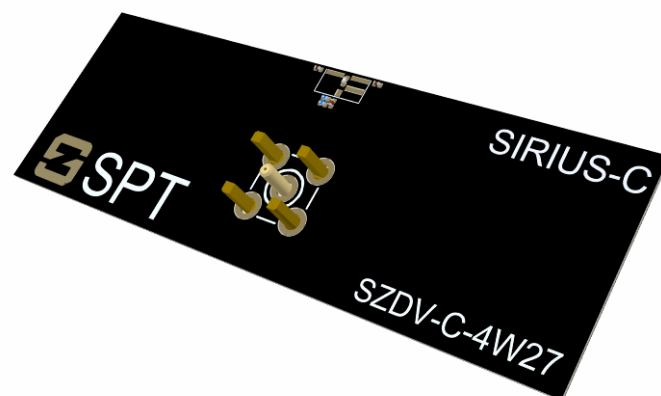
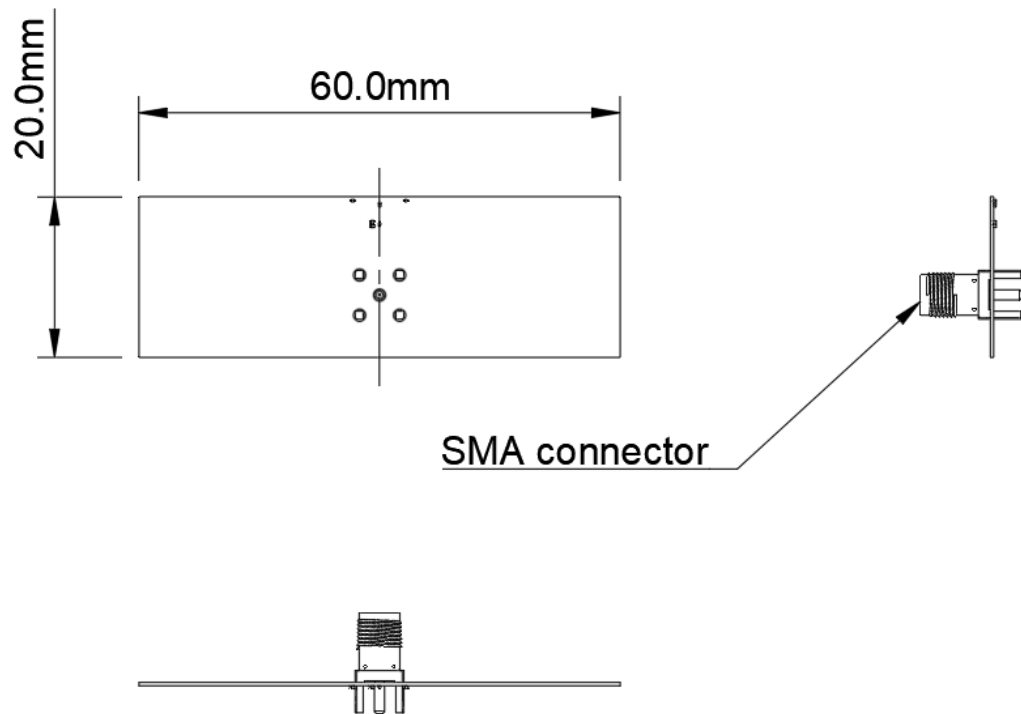
Clearance

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.



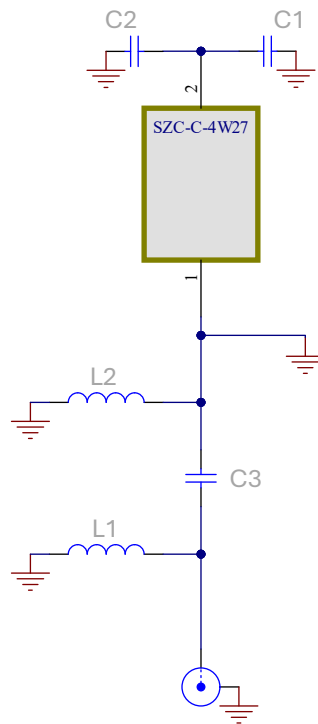
Evaluation Kit

The SZDV-C-4W27 development kit is a PCBA with the antenna (SZC-C-4W27) fitted and optimised with a matching network. Connection to the antenna is made using the fitted female SMA connector.



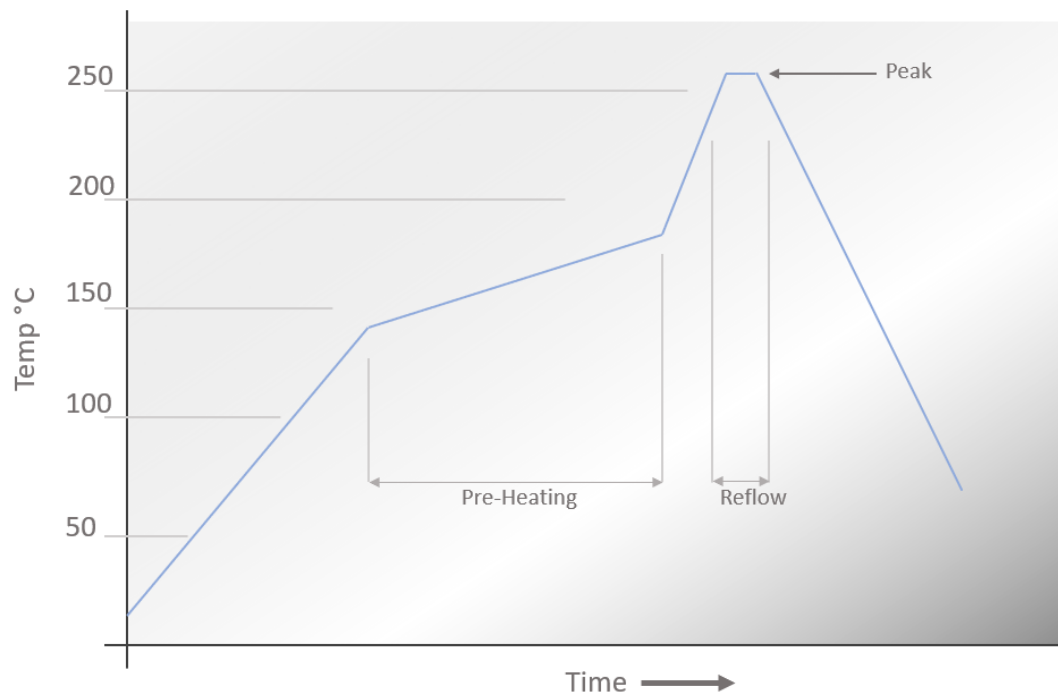
Evaluation Kit Matching Circuit

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.



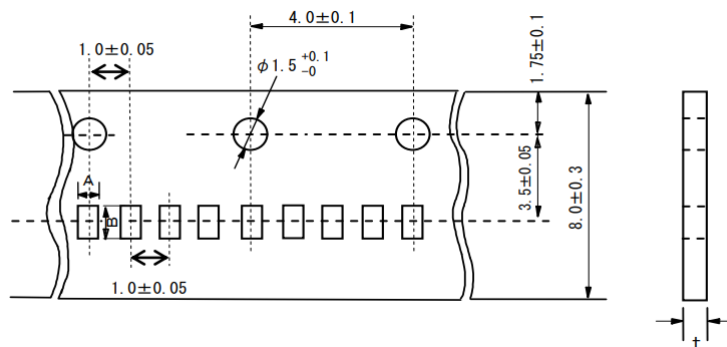
Designator	Component Type	Value	Size	Manufacturing Part No.
A1	Antenna	SIRIUSa	-	SZC-C-0W02
C3	Capacitor	0.5pF	0402	GJM1555C1HR50BB01D
L2	Inductor	1.2nH	0402	LQG15HS1N2B02D
C2	Capacitor	1.0pF	0402	GCM1555C1H1R0CA16J
L1	Inductor	Not Fitted	0402	Do Not Place
C1	Capacitor	0.3pF	0402	GJM1555C1HR30BB01D
J1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

Soldering Profile



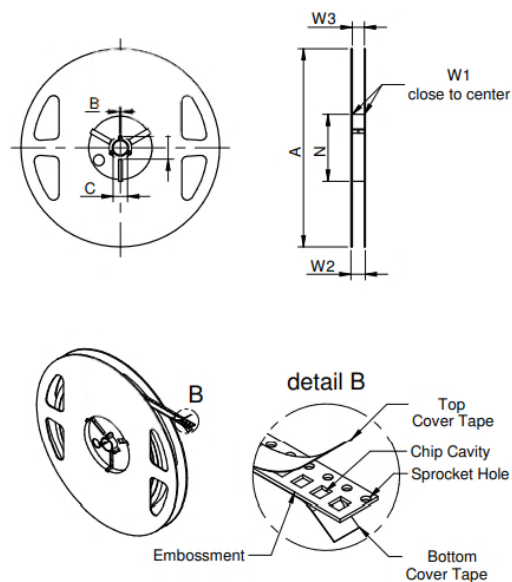
Pre-Heating	130 - 180°C	50 to 190 seconds
Reflow	>220 °C	50 to 160 seconds
Peak Temperature	260 °C	15 to 45 seconds

Packaging



Dimensions(Chip)		
L	W	T
0.6 ± 0.03	0.3 ± 0.03	0.3 ± 0.03

A *3	B *3	t
0.37	0.67	0.5 max



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.	Polystyrene/ Polyurethane
178	1.5	12.8	20.2	50	8.4	14.4	7.9	10.9	

Material Regulation

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

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