

# ISM 433MHz Helical Antenna

Ground cleared under antenna, clearance area 8.50x40.00 mm. Pulse Part Number: W3127



## Features

- Plastic supported helical antenna
- Size (helix): Length 35.35mm,  $\varnothing$  7mm
- Low weight (1.8g)
- Mounting on top of the PWB
- Through hole mechanical support pegs
- Feed contact by soldering via PWB hole
- Tray packing
- RoHS Compliant Product

## Applications

- Remote controls, toys etc.
- 433MHz ISM Band Systems

## Electrical specifications @ +25 °C

*Note: Electrical characteristics depend on test board (GP) size and antenna positioning on GP and Ground Clearance area size.*

## ISM 433MHz

Typical performance (test board size 100x40 mm, PWB ground clearance area 8.50 x40.00 mm), tuning and matching circuit: tuning 12nH series, matching 6.8nH shunt for Pulse standard evaluation board.

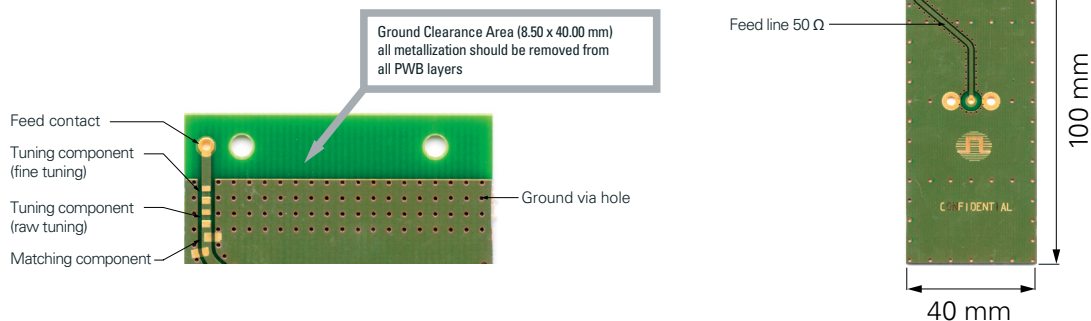
| Frequency Range [MHz] | Max Gain [dBi] | Return loss min. [dB] | Impedance [ $\Omega$ ] | Operating Temperature [°C] |
|-----------------------|----------------|-----------------------|------------------------|----------------------------|
| 433 – 435             | -2.9           | -15                   | 50                     | -40 to +85                 |

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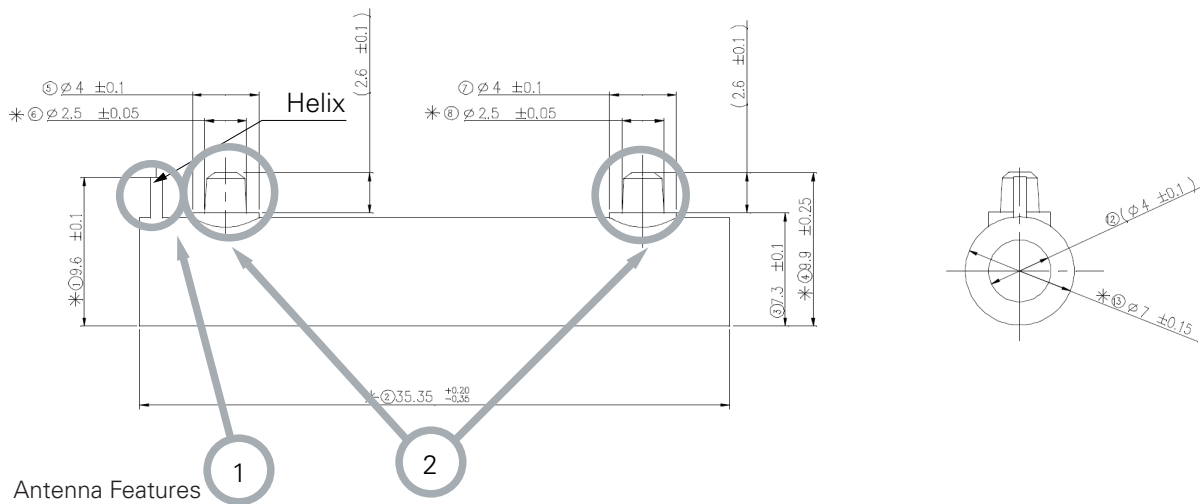
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## Terminal Configuration

### PWB Layout

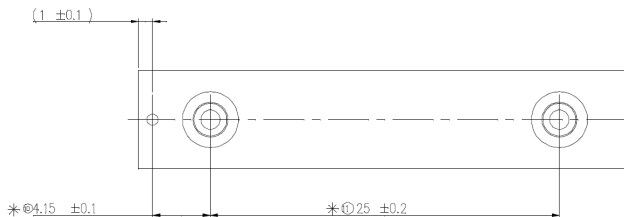


### Terminal Configuration and Antenna Dimensions



#### Antenna Features

| No. | Terminal Name | Terminal Dimensions          |
|-----|---------------|------------------------------|
| 1   | Feed terminal | Wire diameter 0.8mm          |
| 2   | Support       | Diameter 2.5mm, length 2.6mm |



Matching circuit needs to be placed on PCB close to antenna feed terminal.

Matching component values depend on device construction; size, surrounding mechanics, materials etc..

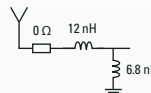
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## Typical Electrical Characteristics (T=25 °C)

Typical Return Loss S11/ impedance,

Measured on the 100x40mm test board with tuning and matching circuit



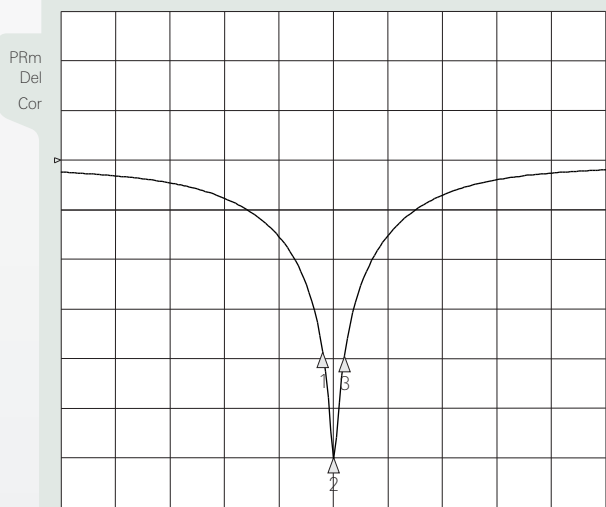
### ISM 433MHz

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CH1Markers

- 1. -21.132 dB 433 MHz
- 2. -32.939 dB 434 MHz
- 3. -21.458 dB 435 MHz

CH1 S11 log MAG 5 dB/REF 0 dB



CENTER 434.000 000 MHz

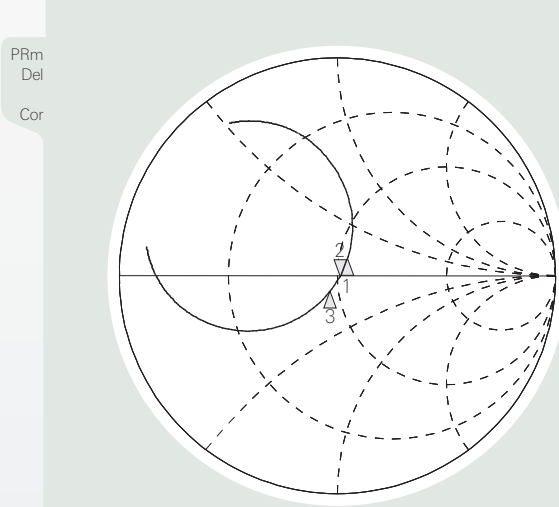
SPAN 50.000 000 MHz

### ISM 433MHz

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- |                 |            |           |
|-----------------|------------|-----------|
| 1. 54.908 Ω     | 7.666 Ω    | 433 MHz   |
| 2. 51.811 Ω     | -777.34 mΩ | 471.76 pF |
| 434.000 000 MHz |            |           |
| 3. 46.588 Ω     | -7.293 Ω   | 435 MHz   |

CH1 S11 1 U FS

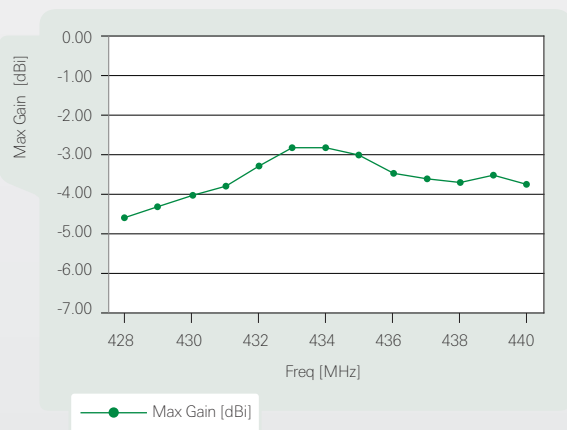


CENTER 434.000 000 MHz

SPAN 50.000 000 MHz

Free space maximum gain, PWB ground clearance area 8.50 x 40.00 mm

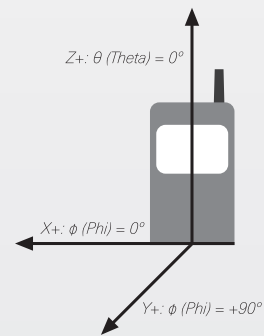
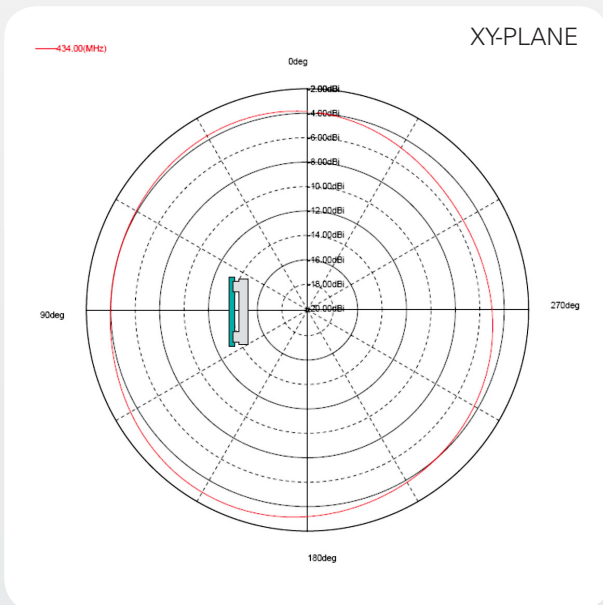
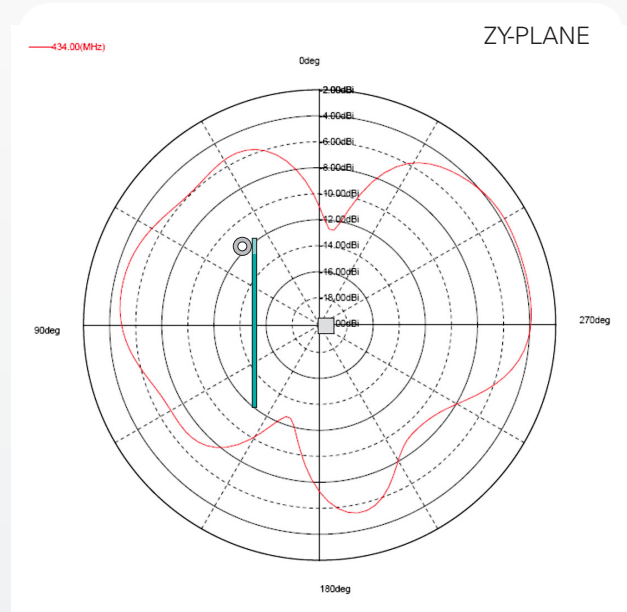
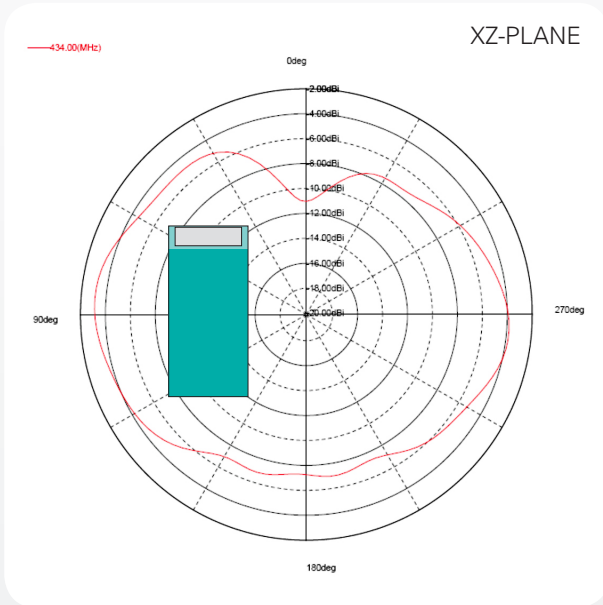
### W3127 Max Gain



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## Typical Free space Radiation Patterns



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