

Product Brief



nanoSplatTM nSP250 Embedded WiFi/WLAN Antenna

The nanoSplatTM nSP250 is a surface-mount antenna for embedded WiFi/WLAN and other 2.4 GHz or 5.8 GHz ISM or U-NII frequency band applications. It uses a grounded-line technique to achieve outstanding performance in a tiny surface-mount package. The nSP250 exhibits low proximity effect with a very hemispherical radiation pattern, making it ideal for handheld devices and applications typically subject to interference.

The nSP250 is available in tape and reel packaging and is designed for reflow-solder mounting directly to a printed circuit board for high-volume applications.



Features

- Ultra-compact package (9.6 mm x 8.4 mm x 1.1 mm)
- Excellent performance with smallest ground plane (40 mm x 20 mm)
- Resistant to proximity effect
- Omnidirectional radiation pattern
- Direct surface-mount PCB attachment
- Reflow- or hand-solder assembly
- High gain (2.7 dBi at 2.4 GHz, 3.7 dBi at 5.8 GHz)
- High efficiency (66% at 2.4 GHz, 69% at 5.8 GHz)

Applications

- Single- and dual-band WiFi/WLAN/802.11
- Bluetooth® and ZigBee®
- Smart Home networking
- Sensing and remote monitoring
- Hand-held devices
- Internet of Things (IoT) devices
- U-NII and ISM applications

Ordering Information

Part Number	Description
ANT-DB1-nSP250-B	Bulk quantities supplied in cut tape
ANT-DB1-nSP250-T	Tape and reel (1000 per reel)
AEK-DB1-nSP250	Antenna evaluation kit

Available from Linix Technologies and select distributors and representatives.

Electrical Specifications

	2.4 GHz ISM	U-NII	5.8 GHz ISM/ U-NII-3
Frequency Range	2.4 GHz to 2.5 GHz	5.150 GHz to 5.725 GHz	5.725 GHz to 5.875 GHz
VSWR	≤ 2.0 : 1	≤ 2.2 : 1	≤ 2.4 : 1
Peak Gain	2.7 dBi	4.3 dBi	3.7 dBi
Average Gain	-1.8 dBi	-1.9 dBi	-1.6 dBi
Efficiency	65%	60%	70%
Polarization	Linear		
Radiation	Omnidirectional		
Max Power	5 W		
Wavelength	1/4-wave		
Impedance	50 Ω		
Connection	Surface-mount		
Weight	0.16 g (0.006 oz)		
Dimensions	9.6 mm x 8.4 mm x 1.1 mm (0.38 in x 0.33 in x 0.04 in)		
Operating Temperature	-40 °C to +130 °C		
ESD Sensitivity	NOT ESD sensitive. As a best practice, Linx may use ESD packaging.		

Electrical specifications and plots measured with a 40 mm x 20 mm (1.6 in x 0.8 in) reference ground plane.

VSWR

Figure 1 provides the voltage standing wave ratio (VSWR) across the nSP250 bandwidth. The target 2.4 GHz and 5.8 GHz ISM bands used for WiFi/WLAN are highlighted, as is the U-NII band. VSWR describes the power reflected from the antenna back to the radio. A lower VSWR value indicates better antenna performance at a given frequency. Reflected power is also shown on the right-side vertical axis as a gauge of the percentage of transmitter power reflected back from the antenna.

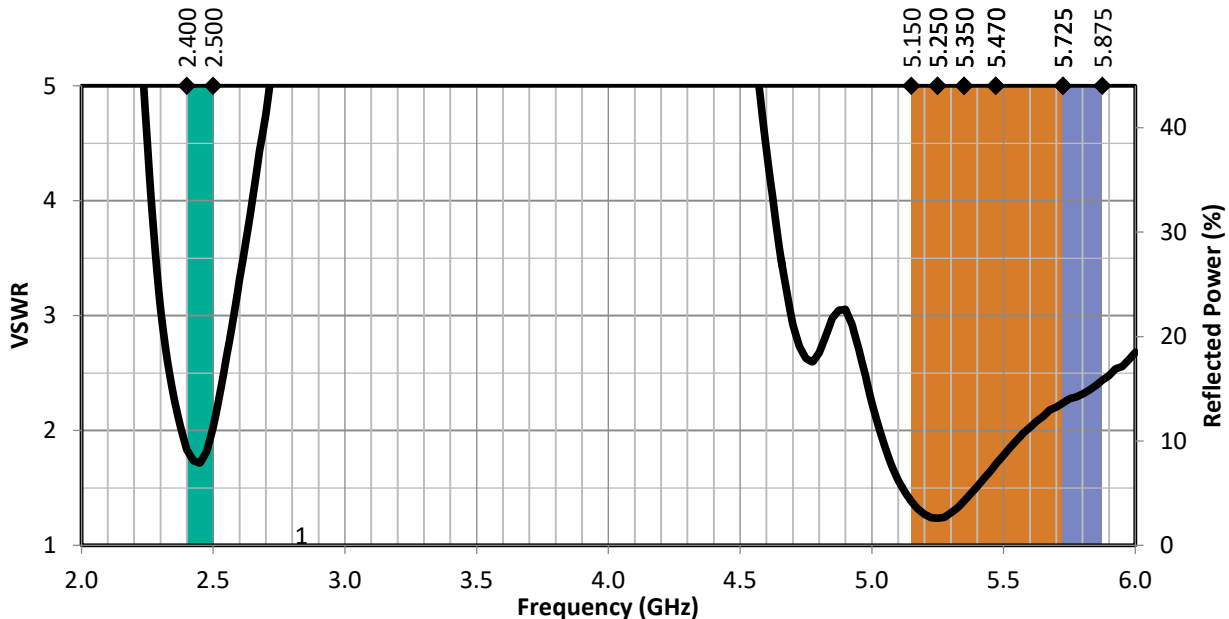


Figure 1. nSP250 VSWR with Frequency Band Highlights

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