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ONE mXTEND™ (NN02-201)

DATASHEET

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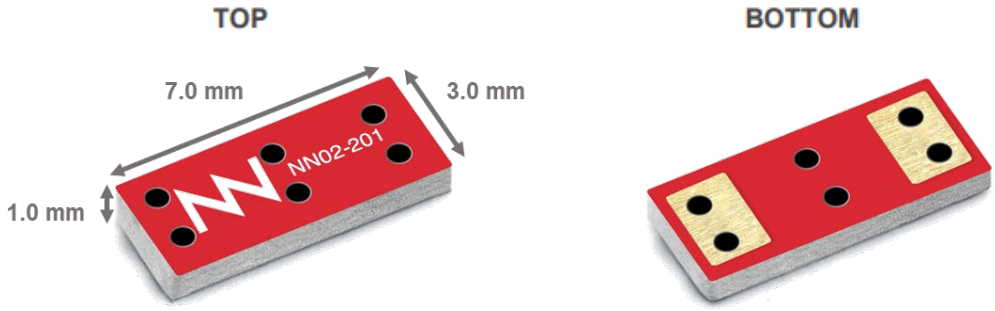
The ONE mXTEND™ antenna booster, with a **volume of only 21mm³**, is the smallest chip of the Virtual Antenna™ family. This miniature, multipurpose and ultra slim component is designed to provide multiband connectivity at **cellular IoT**, including connectivity within several 2G, 3G, 4G and 5G bands, but also for other regions of the spectrum, such as **Wi-Fi 6E**.



Product Benefits

- **Smallest volume:** Multiband cellular/ISM IoT performance in the smallest volume form factor: 7.0 mm x 3.0 mm x 1.0 mm.
- **Multiband:** 2G/3G, NB-IoT/LTE-M, 5G, ISM and Wi-Fi 6E applications.
- **Wide reach:** Multi regional product (compatible with multiple regional standards).
- **Reliability**: Off-the-Shelf standard product, no antenna part customization (electronic optimization).
- **Use cases:** Wi-Fi 6E devices and IoT entry level products such as miniature. trackers, IoT sensors, wearables and alike.

Operation Bands Summary

- GSM, UMTS, 5G, Wi-Fi 6E (824 – 960MHz, 1710 – 2170MHz, 3300 – 5000MHz, 5170 – 5835 MHz and 5925 – 7125 MHz)

1. AVAILABLE SOLUTIONS SUMMARY

Class	Frequency Regions	Frequency range	More detailed info
1 Port	1	3300 – 5000 MHz	5G
1 Port	2	880 – 894 MHz & 1710 – 2170 MHz	CELLULAR EUROPE
1 Port	2	824 – 960 MHz & 1710 – 2170 MHz	CELLULAR USA
1 Port	3	2400 – 2500 MHz & 5170 – 5835 MHz & 5925 – 7125 MHz	Wi-Fi 6E

2. DETAILED AVAILABLE SOLUTIONS

2.1. 5G SOLUTION

Technical features	3300 MHz – 5000 MHz
Average Efficiency	> 70 %
Peak Gain	4.1
VSWR	< 3:1
Radiation Pattern	Omnidirectional
Polarization	Linear
Weight (approx.)	0.02 g.
Temperature	-40 to +125 ºC
Impedance	50 Ω
Dimensions (L x W x H)	7.0 mm x 3.0 mm x 1.0 mm

Technical features. Measures from the evaluation board (131 mm x 60 mm x 1 mm).

2.2 CELLULAR EUROPE SOLUTION

Technical features	880 – 960 MHz	1710 – 2170 MHz
Average Efficiency	> 55%	> 65%
Peak Gain	1.3 dBi	1.7 dBi
VSWR	< 3:1	
Radiation Pattern	Omnidirectional	
Polarization	Linear	
Weight (approx.)	0.02 g.	
Temperature	-40 to +125 ºC	
Impedance	50 Ω	
Dimensions (L x W x H)	7.0 mm x 3.0 mm x 1.0 mm	

Technical features. Measures from the evaluation board (131 mm x 60 mm x 1 mm).

2.3 CELLULAR USA SOLUTION

Technical features	824 – 894 MHz	1850 – 2170 MHz
Average Efficiency	> 65%	> 70%
Peak Gain	1.9	2.0
VSWR	< 3:1	
Radiation Pattern	Omnidirectional	
Polarization	Linear	
Weight (approx.)	0.02 g.	
Temperature	-40 to +125 ºC	
Impedance	50 Ω	
Dimensions (L x W x H)	7.0 mm x 3.0 mm x 1.0 mm	

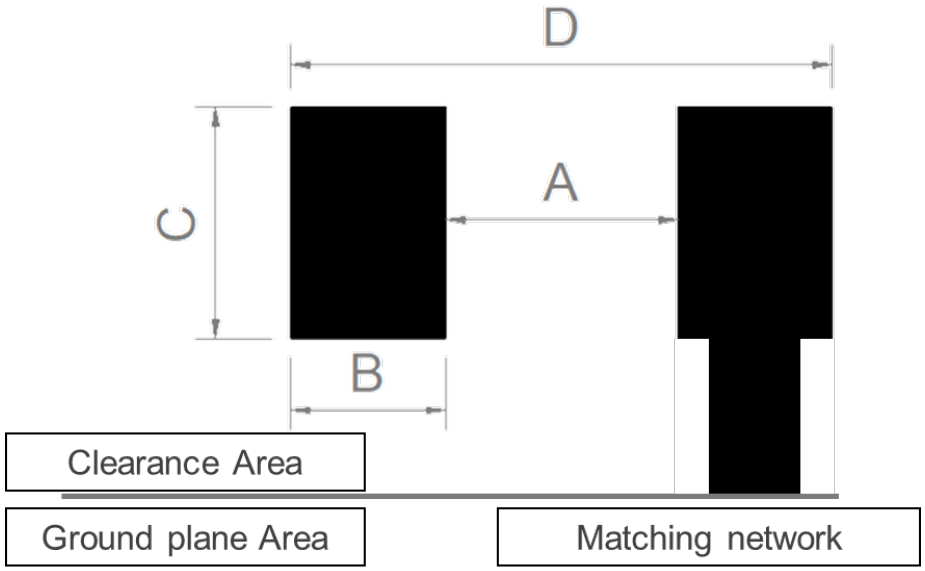
Technical features. Measures from the evaluation board (131 mm x 60 mm x 1 mm).

2.4 WI-FI 6E SOLUTION

Technical features	2400 – 2500 MHz	5170 – 5835 MHz	5925 – 7125 MHz
Average Efficiency	> 80%	> 85%	> 85%
Peak Gain	3.2	3.3	5.0
VSWR	< 2.5:1		
Radiation Pattern	Omnidirectional		
Polarization	Linear		
Weight (approx.)	0.02 g.		
Temperature	-40 to +125 ºC		
Impedance	50 Ω		
Dimensions (L x W x H)	7.0 mm x 3.0 mm x 1.0 mm		

Technical features. Measures from the evaluation board (86 mm x 54 mm x 1 mm).

2.5 ANTENNA FOOTPRINT



Measure	mm
A	3.0
B	1.65
C	2.3
D	6.3

Tolerance: ±0.05mm

Footprint dimensions for the ONE mXTEND™ (NN02-201) antenna booster.

If you need assistance to design your matching network beyond this application note, please contact support@ignion.io, or if you are designing a **different device size** or a **different frequency band**, **we can assist you** in less than 24 hours. Please, try our free-of-charge[1] Antenna Intelligence Cloud, which will get you a complete design report including a custom matching network for your device in 24h[1]. Additional information related to Ignion's range of R&D services is available at: https://ignion.io/rdservices/

[1] See terms and conditions for a free Antenna Intelligence Cloud service in 24h at: https://www.ignion.io/antenna-intelligence/

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