NBWIFIIN

802.11b/g/n Wireless Module

PCB Version with Internal Antenna Installed | UFL Version is External Antenna Ready

NetBurner

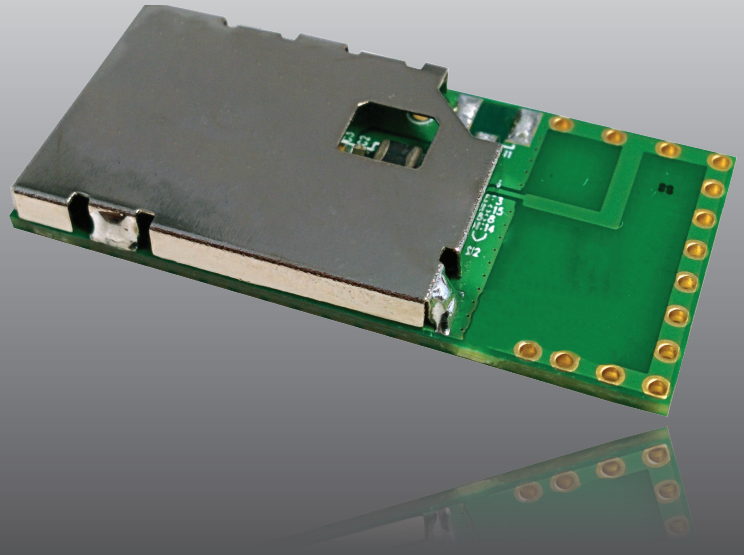
DATASHEET

Key Points

- Secure data communications with 128-bit WEP, WPA-PSK (TKIP), WPA2-PSK Authentication
- Wireless Standards: IEEE 802.11 b/g/n, 2.4GHz RF band mode PA

Features

- Compatible with NetBurner NANO54415, MOD54415, MOD5234, MOD5270 Modules
- SPI & UART Interface
- Operating range: -45° to 85°C



Hardware Specifications

Wireless Standards
- IEEE 802.11 b/g/n
- 2.4GHz RF band mode PA

Security
128-bit WEP, WPA-PSK (TKIP), WPA2-PSK Authentication

Interface
SPI & UART

Power
DC Input Voltage: 3.3V @ 110 mA (typical)

Environmental Operating Temperature
-45° to 85°C

RoHS Compliance
The Restriction of Hazardous Substances guidelines ensure that electronics are manufactured with fewer environment harming materials.

Agency Approvals
CE, FCC

Compatibility
To use the NBWIFIIN-SOM-XXXIR, you will need a compatible Ethernet Core module and development kit:

Table 1: **NBWIFIIN Compatibility Table**

Part Number	PCB Version	UFL Version	Additional information
MOD5234 (100 & 200 Version)	No	Yes	
MOD5270 (100 & 200 Version)	No	Yes	
MOD5272 (100 & 200 Version)	Yes	Yes	
MOD5282 (100 & 200 Version)	Yes	Yes	
MOD54415 (100 & 200 Version)	Yes	Yes	
MOD54417 (100 & 200 Version)	Yes	Yes	
NANO54415 (200 Version)	Yes	Yes	
SB70LC (100 & 200 Version)	No	Yes	

Note 1: The development kit must include a MOD-DEV-70 carrier development board revision 1.6 (or later). If you have a module development kit with a carrier board revision earlier than 1.6 (MOD-DEV-70), you will need to purchase a new development kit.

Note 2: If you are using a NANO module you will need to manually jumper the adapter board to work with the NANO development board.

Module Pinout and Signal Description

The NBWIFIIN-SOM-PCBIR and NBWIFIIN-SOM-UFLIR modules have a 44-pin LGA interface which enables you to quickly and easily connect to your own carrier board. Table 1 provides descriptions of the pin functions of the module interface.

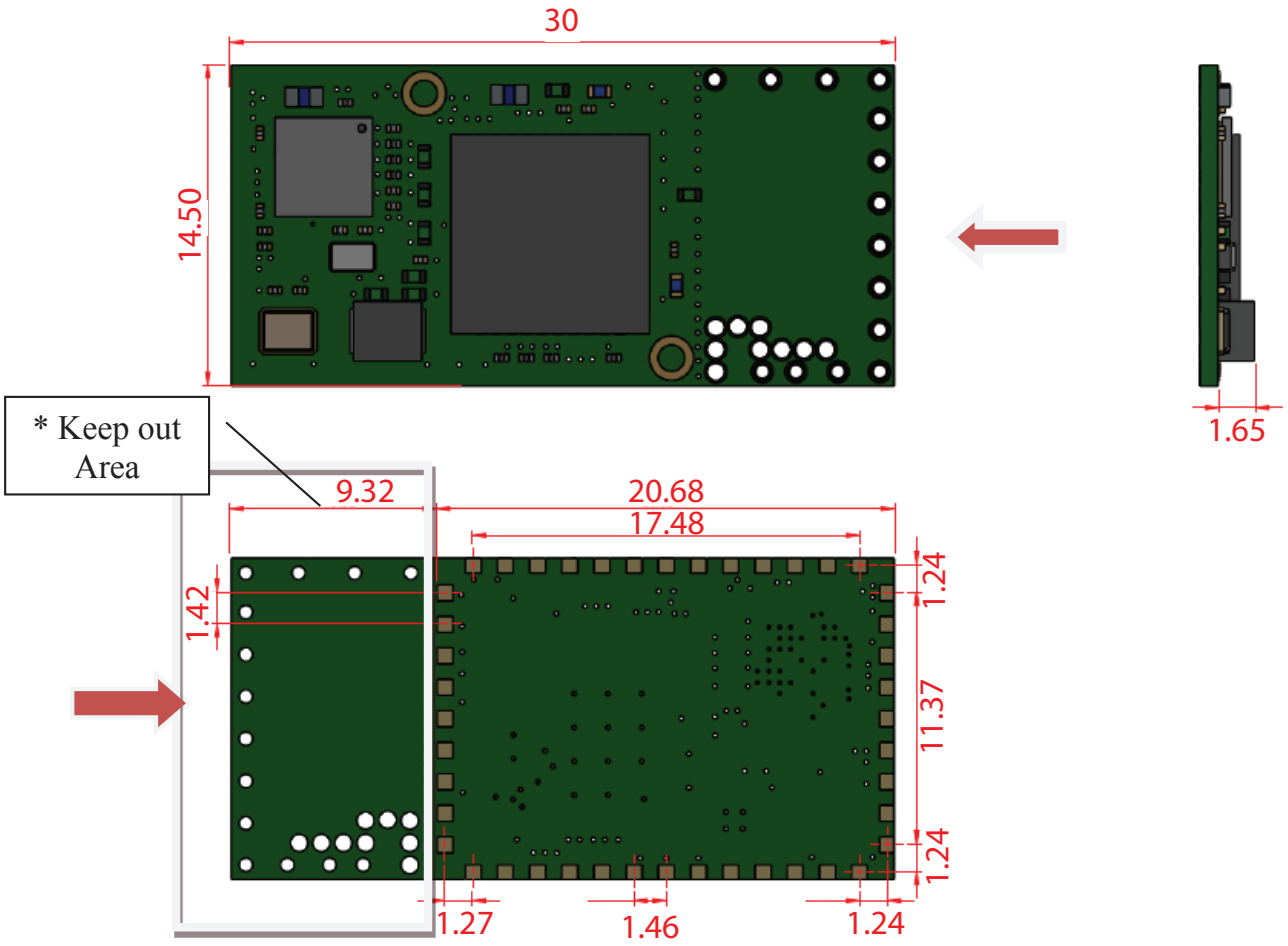
Table 1: **SOM Interface Pinout and Signal Descriptions**

Pin	Type	Pin Definition	Signal Description
1	G	GND	Ground
2	I	VDD	3.3V
3	G	GND	Ground
4	I/O	TMS	JTAG TMS
5	I/O	TCK	JTAG TCK
6	I/O	TDI	JTAG TDI
7	I/O	TD0	JTAG TD0
8	I/O	TDRSTN	JTAG TDRSTN
9	I/O	SPI_MOSI	SPI Host Interface
10	I/O	SPI_MISO	SPI Host Interface
11	I/O	SPI_SCK	SPI Host Interface
12	I/O	SPI_SSN	SPI Host Interface
13	-	NC	NC
14	I	VDD	3.3V
15	I	VBAT	3.3V
16	I	Wakeup	
17	G	GND	Ground
18	I	DP	USB Data Plus (not currently supported)
19	I/O	DM	USB Data Minus
20	G	GND	Ground
21	I/O	RX	UART Receive
22	I/O	TX	UART Transmit
23	I/O	IRQ (GPIO0)	IRQ Input
24	I/O	CNFG1 (GPIO1)	1 = SPI Mode, 0 = UART Mode
25	I/O	CNFG2 (GPIO2)	Reserved, Pull High with 4.7K Resistor
26	-	NC	NC
27	-	NC	NC
28	I	DBG_TX	Reserved
29	I	DBG_RX	Reserved
30	O	RES	Reserved
31	I	RES	Reserved
32	I	RES	Reserved
33	I	BOOT 0	Reserved
34	I	RSTN	Reset
35	G	GND	Ground
36	G	GND	Ground
37	G	GND	Ground
38	G	GND	Ground
39	G	GND	Ground
40	G	GND	Ground
41	G	GND	Ground
42	G	GND	Ground
43	G	GND	Ground
44	G	GND	Ground

Mechanical Specifications

The NBWIFIIN-SOM -PCBIR and -UFLIR version have the same footprint. The physical dimensions of the board are as follow:

Figure 2: **Antenna is in etch**



”Keep out” area should ideally have the antenna hanging off the side of the PCB for best performance. If you do not hang the antenna off the PCB, ensure no ground planes or traces are placed under the antenna (keep out area). Surrounding metal will affect the antenna performance. * External Antenna does not require “keep out” area

Items	Description
Length	30 mm (-/+0.5 mm)
Width	14.5 mm (-/+0.5 mm)
Height	2.5 ± 0.2 mm
Package	44 pin LGA

NBWIFIIN-SOM Footprint

Figure 3: **Module Dimensions - Top View (mm)**

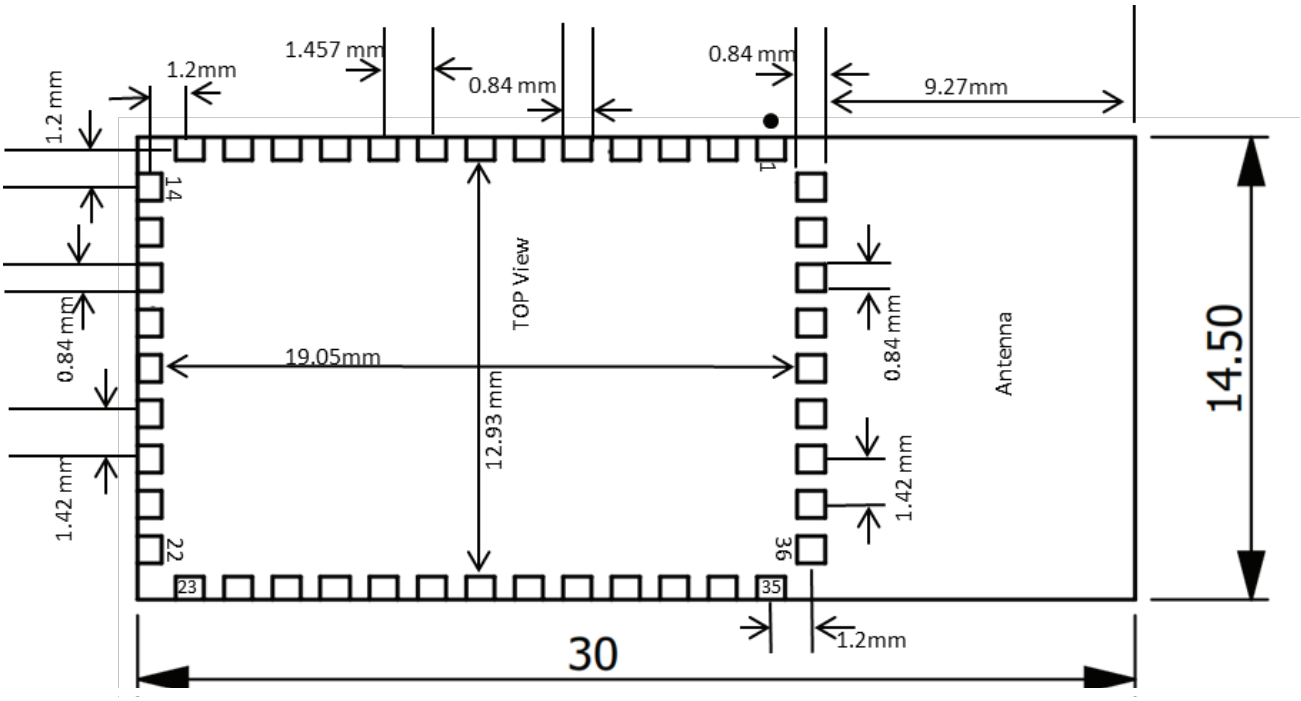
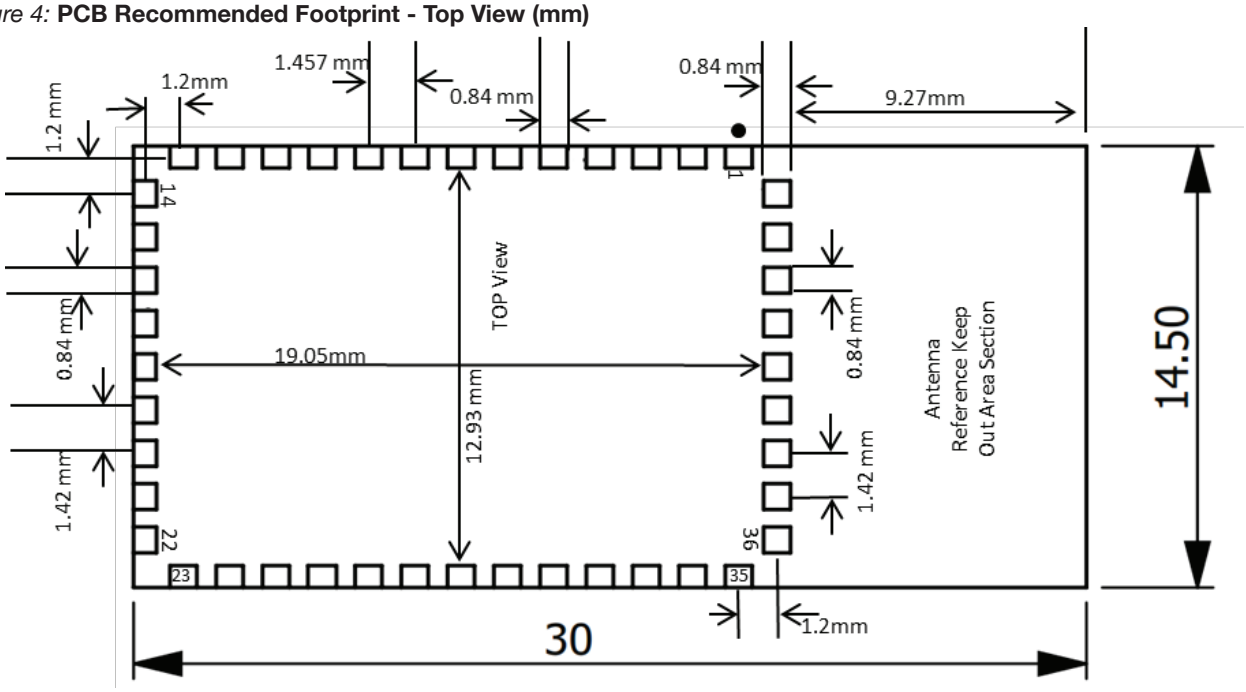


Figure 4: **PCB Recommended Footprint - Top View (mm)**



External Antenna Connections

The NBWIFIIN-SOM-UFLIR module is designed for use with an external antenna via a connection using the U.FL connector.

Table 1: **On-Board Antenna Connector**

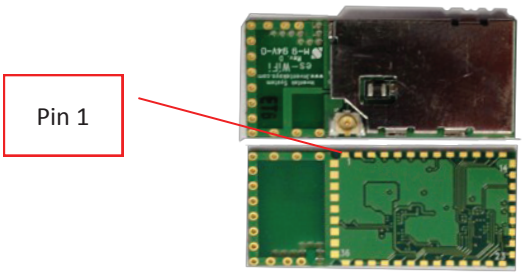
Item	Description
Connector	U.FL series
Manufacturer	I-PEX Co., Ltd.
Part No.	20279-001E-01
Height	1.25 mm
Width	2 mm
DC	3.0 – 5.0 V

Environmental Specifications

Note 1: The module supports a functional operating range of -40°C to +85°C. However the optimal RF performance specified in this data sheet is only guaranteed for temperatures from -10°C to +65°C

Item	Description
Operating temperature range	-40° C to +85° C
Storage temperature range	-40° C to +85° C
Humidity	95% max non-condensing

Pin 1 location and Front and Back



Part Numbers

802.11b/g/n Wireless SOM (Internal Antenna Installed)
Part Number: NBWIFIIN-SOM-PCBIR
This is the 44-pin LGA SOM version

802.11b/g/n Wireless SOM (External Antenna Ready)
Part Number: NBWIFIIN-SOM-UFLIR
This is the 44-pin LGA SOM version

802.11b/g/n Wireless Development Kit (Internal Antenna Installed)
Part Number: NNDK-NBWIFIIN-PCB-KIT
Kit includes a wifi development board. A compatible NetBurner network development kit is required to use this product.

802.11b/g/n Wireless Development Kit (External Antenna Included)
Part Number: NNDK-NBWIFIIN-UFL-KIT
Kit includes a wifi development board. A compatible NetBurner network development kit is required to use this product.

Ordering Information

E-mail: sales@netburner.com
Online Store: www.Netburner.com
Telephone: 1-800-695-6828