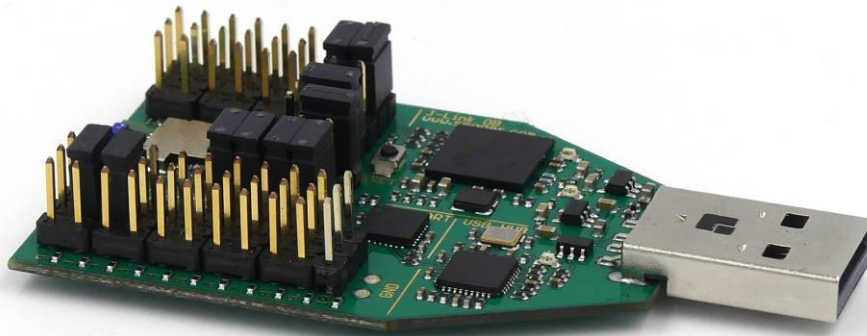


PAN1760A

Bluetooth Low Energy Module

Design Guide

Rev.1.2



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1 About This Document




1.1 Purpose and Audience

This Design Guide applies to the Bluetooth development platform PAN1760A USB. The intention is to enable our customers to easily integrate our module PAN1760A in their product. This guide describes the hardware and gives useful hints.

1.2 Revision History

Revision	Date	Modifications/Remarks
1.0	24.10.2017	1st version.
1.1	08.08.2018	Added information about GPIO functionality.
1.2	31.08.2018	Reference Design for Host- / Stand Alone Mode

1.3 Use of Symbols

Symbol	Description
	Note Indicates important information for the proper use of the product. Non-observance can lead to errors.
	Attention Indicates important notes that, if not observed, can put the product's functionality at risk.
	Tip Indicates useful information designed to facilitate working with the Module.
⇒ [chapter number] [chapter title]	Cross reference Indicates cross references within the document. Example: Description of the symbols used in this document ⇒ 1.3 Use of Symbols .
✓	Requirement Indicates a requirement that must be met before the corresponding tasks can be completed.
→	Result Indicates the result of a task or the result of a series of tasks.

1.4 Related Documents

[1] PAN1760A Software Guide

Please refer to the Panasonic website for more information as well as related documents

⇒ [5.2.2 Product Information](#).

2 Overview

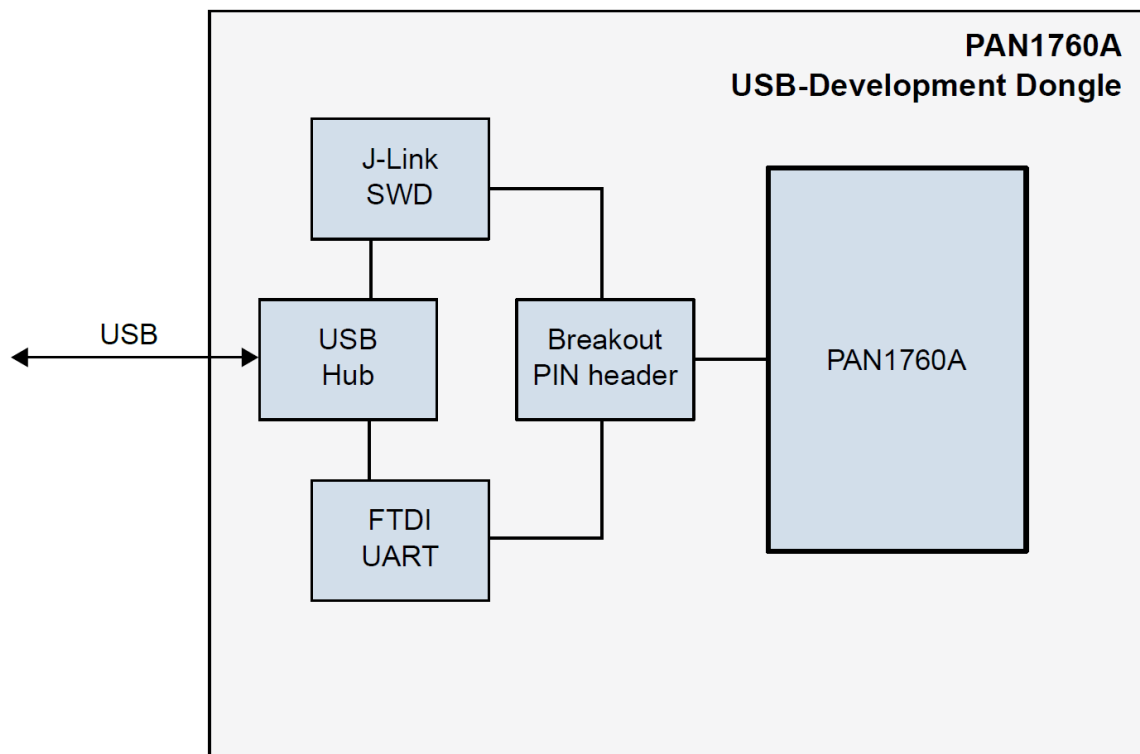
The PAN1760A USB is a development platform for the PAN1760A Bluetooth low energy module to implement Bluetooth functionality into various electronic devices.

This guide describes the hardware. For the software refer to the Software Guide.

Please refer to the Panasonic website for related documents ⇒ [5.2.2 Product Information](#).

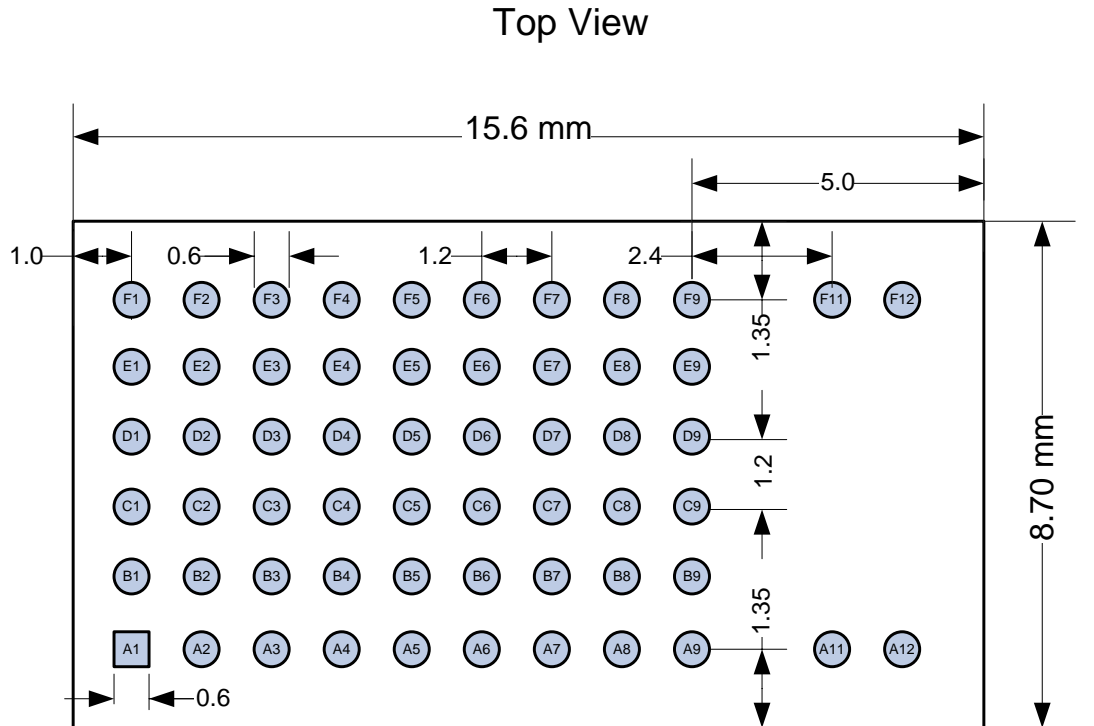
Further information on the variants and versions ⇒ [5.1 Ordering Information](#).

2.1 Block Diagram



2.2 Pin Configuration

Pin Assignment



Pin Functions

No	Pin Name	Pin Type	Description
A1	GND	Ground Pin	Connect to ground
A2	GPIO3	Digital I/O	
A3	RESET	Digital Input	Reset, active low
A4	NC	NC	Not connected
A5	VCC	Power	Analog/digital power supply connection
A6	VCC	Power	Analog/digital power supply connection
A7	GND	Ground Pin	Connect to ground
A8	NC	NC	Not connected
A9	GND	Ground Pin	Connect to ground
A11	GND	Ground Pin	Connect to ground
A12	GND	Ground Pin	Connect to ground
B1	GPIO9	Digital I/O	
B2	GPIO4	Digital I/O	

No	Pin Name	Pin Type	Description
B3	NC	NC	Not connected, leave open
B4	NC	NC	Not connected, leave open
B5	GPIO7/UART CTS	Digital I/O	UART CTS
B6	GPIO8/UART RTS	Digital I/O	UART RTS
B7	GPIO25	Digital I/O	
B8	NC	NC	Not connected, leave open
B9	NC	NC	Not connected, leave open
C1	NC	NC	Not connected, leave open
C2	NC	NC	Not connected, leave open
C3	GPIO10	Digital I/O	
C4	SWDIO	JTAG	
C5	SWDCLK	JTAG	
C6	GPIO1	Digital I/O	
C7	NC	NC	Not connected, leave open
C8	GND	Ground Pin	Connect to ground
C9	GND	Ground Pin	Connect to ground
D1	NC	NC	Not connected, leave open
D2	NC	NC	Not connected, leave open
D3	NC	NC	Not connected, leave open
D4	GPIO0/WakeUp0	Digital I/O	
D5	NC	NC	Not connected, leave open
D6	GPIO15/WakeUp1	Digital I/O	
D7	GND	Ground Pin	Connect to ground
D8	GND	Ground Pin	Connect to ground
D9	ANT	RF-Signal	Antenna pin (not connected for standard version)
E1	GPIO12/SDA	Digital I/O	I2C interface
E2	GPIO11/SCL	Digital I/O	I2C interface
E3	NC	NC	Not connected, leave open
E4	NC	NC	Not connected, leave open
E5	SLPXOIN	Digital Input	32 kHz clock input, leave open
E6	GPIO6/UARTRXD	Digital Input	UART RXD

No	Pin Name	Pin Type	Description
E7	NC	NC	Not connected, leave open
E8	GND	Ground Pin	Connect to ground
E9	GND	Ground Pin	Connect to ground
F1	GND	Ground Pin	Connect to ground
F2	NC	NC	Not connected, leave open
F3	NC	NC	Not connected, leave open
F4	NC	NC	Not connected, leave open
F5	GPIO14	Digital Input	
F6	GPIO2	Digital I/O	
F7	GPIO5/UARTTXD	Digital Output	UART TX
F8	GPIO13	Digital Output	
F9	GND	Ground Pin	Connect to ground
F11	GND	Ground Pin	Connect to ground
F12	GND	Ground Pin	Connect to ground

Minimal configuration

- VCC
- GND
- UART Rx, Tx, no flow control

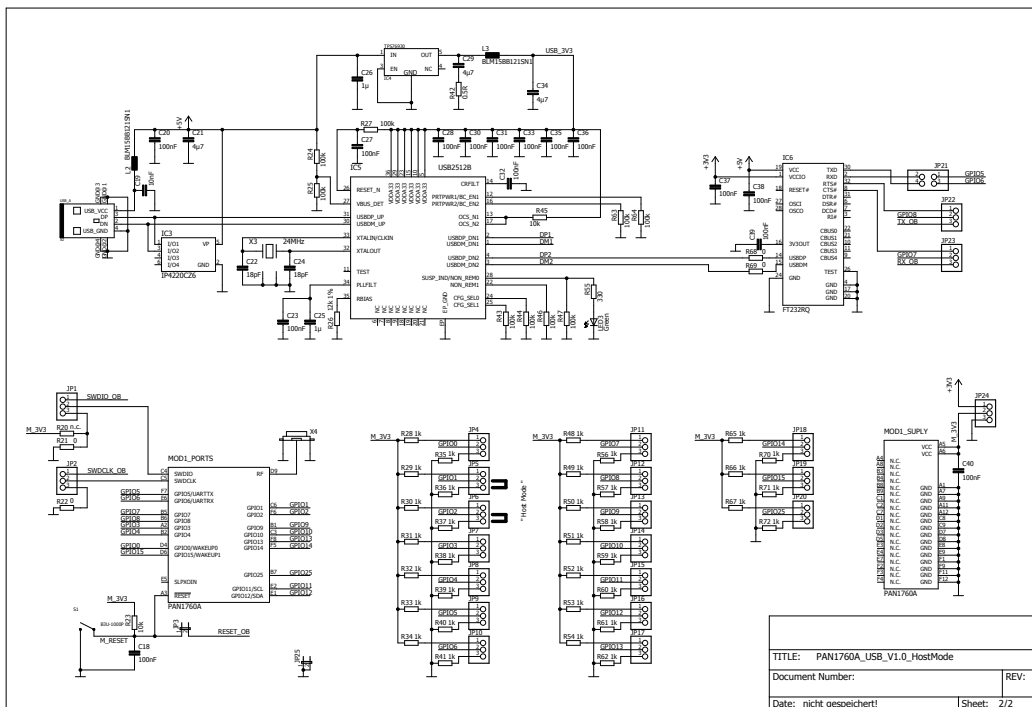
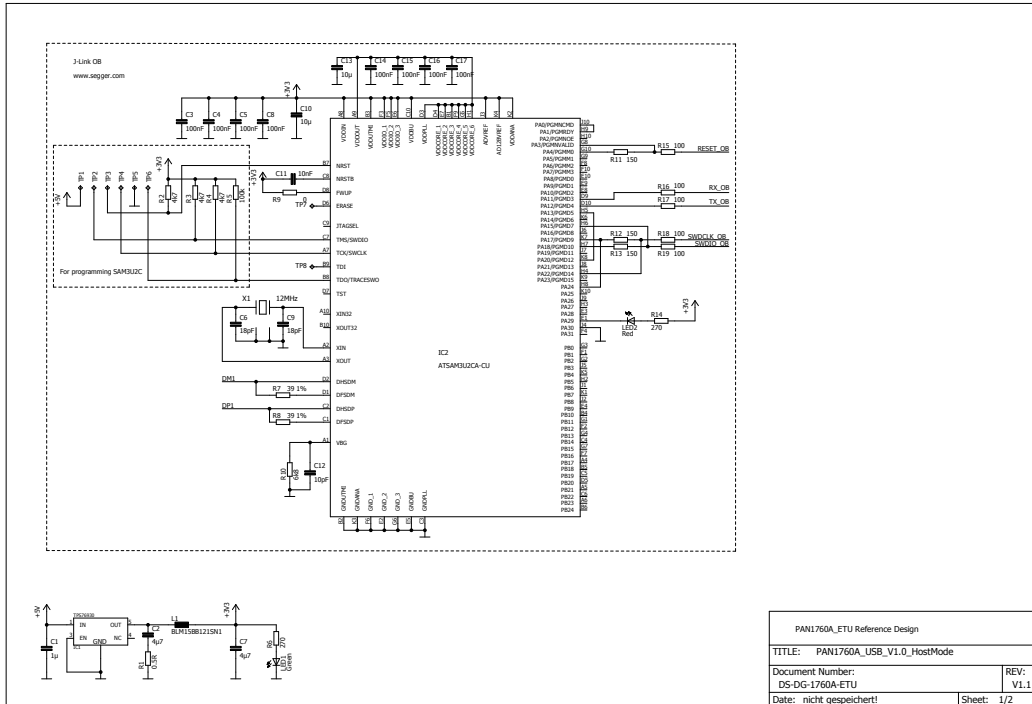
2.3 UART Interface

- Default baud rate: 115 200 bps
- Data format: 8N1, LSB first
- Rx, Tx, no flow control

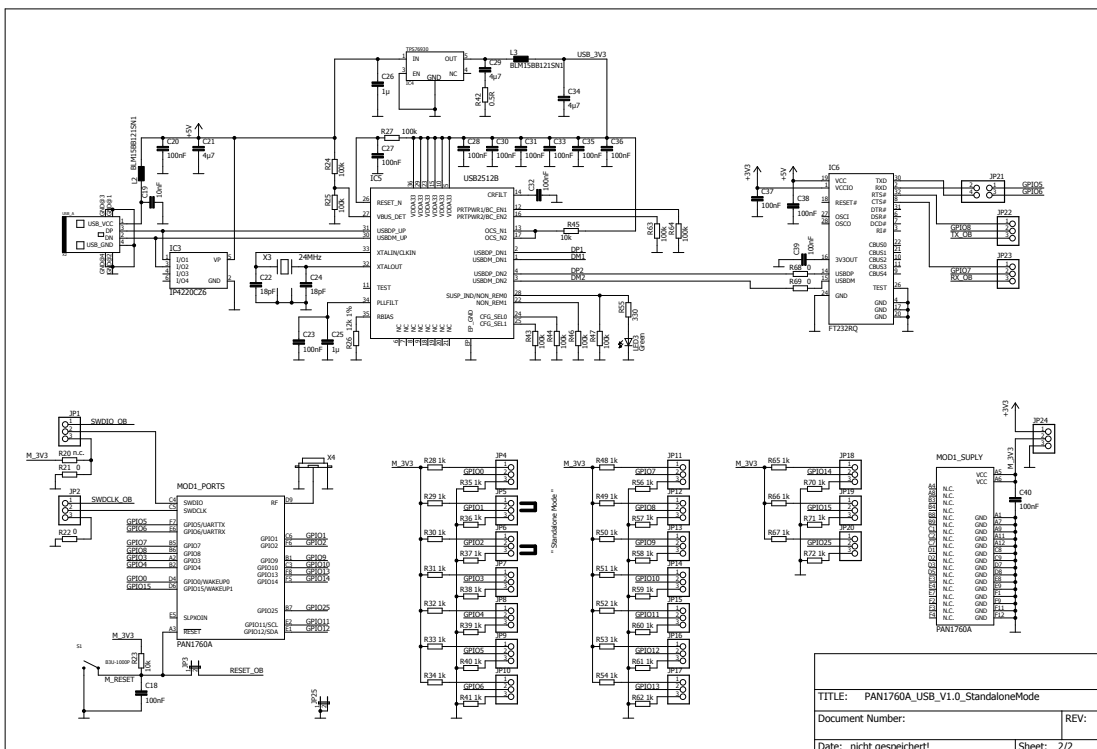
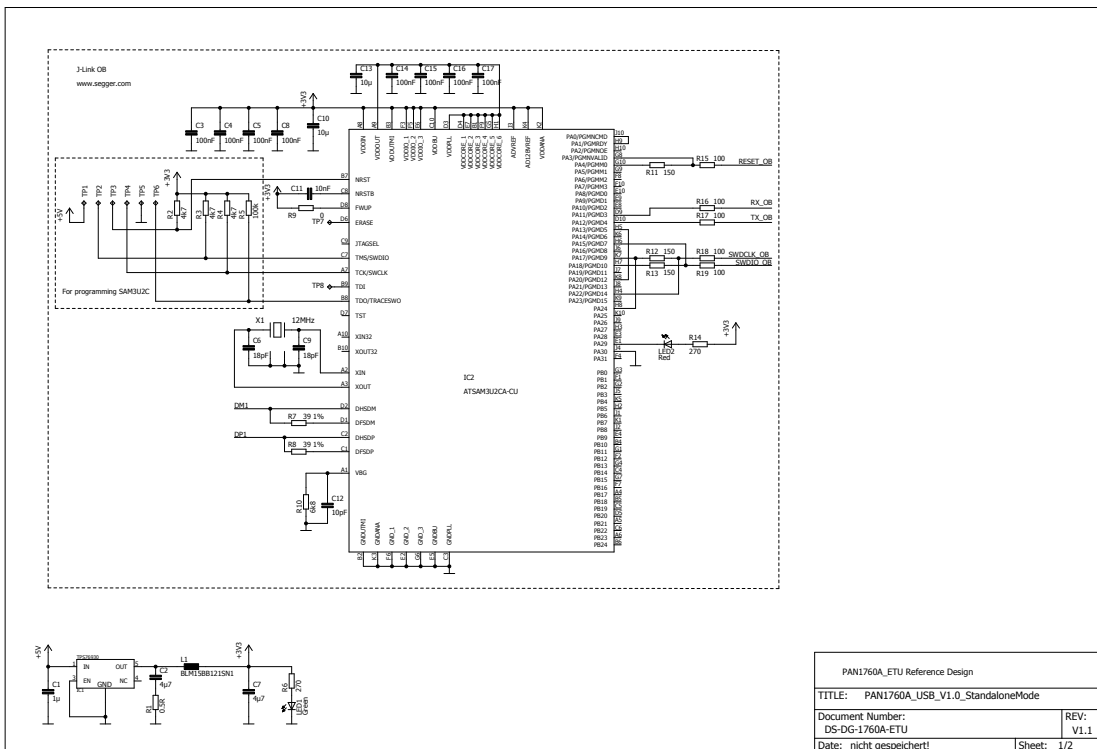
3 Reference Design

3.1 Schematic

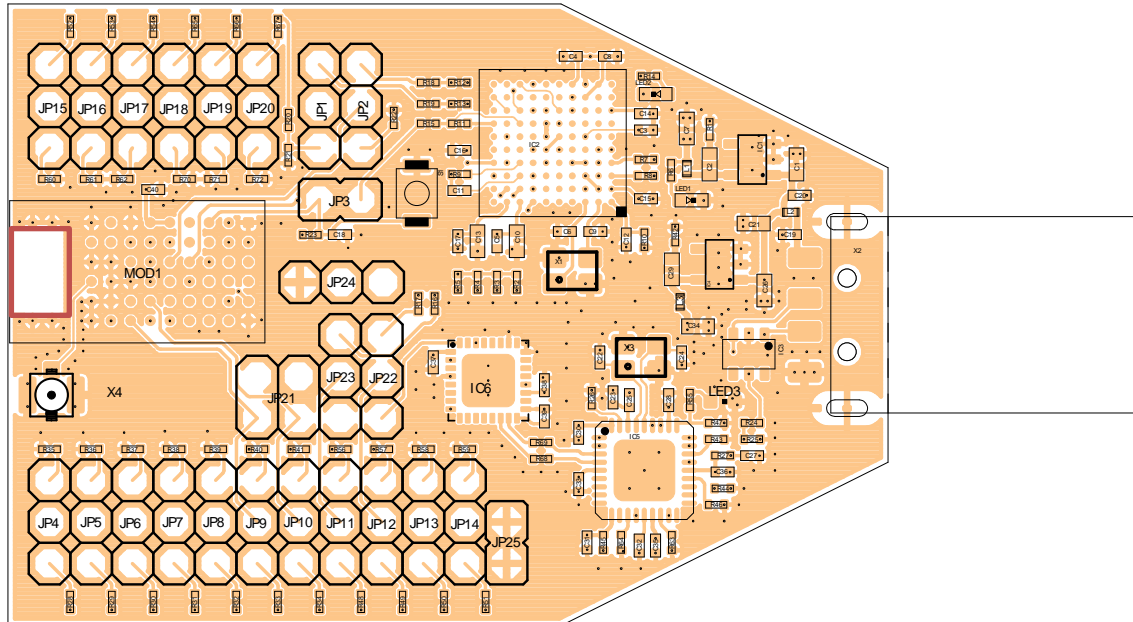
3.1.1 Host Mode



3.1.2 Stand Alone Mode



3.2 Placement Recommendations



The module shall be placed as close as possible to the edge of the application.

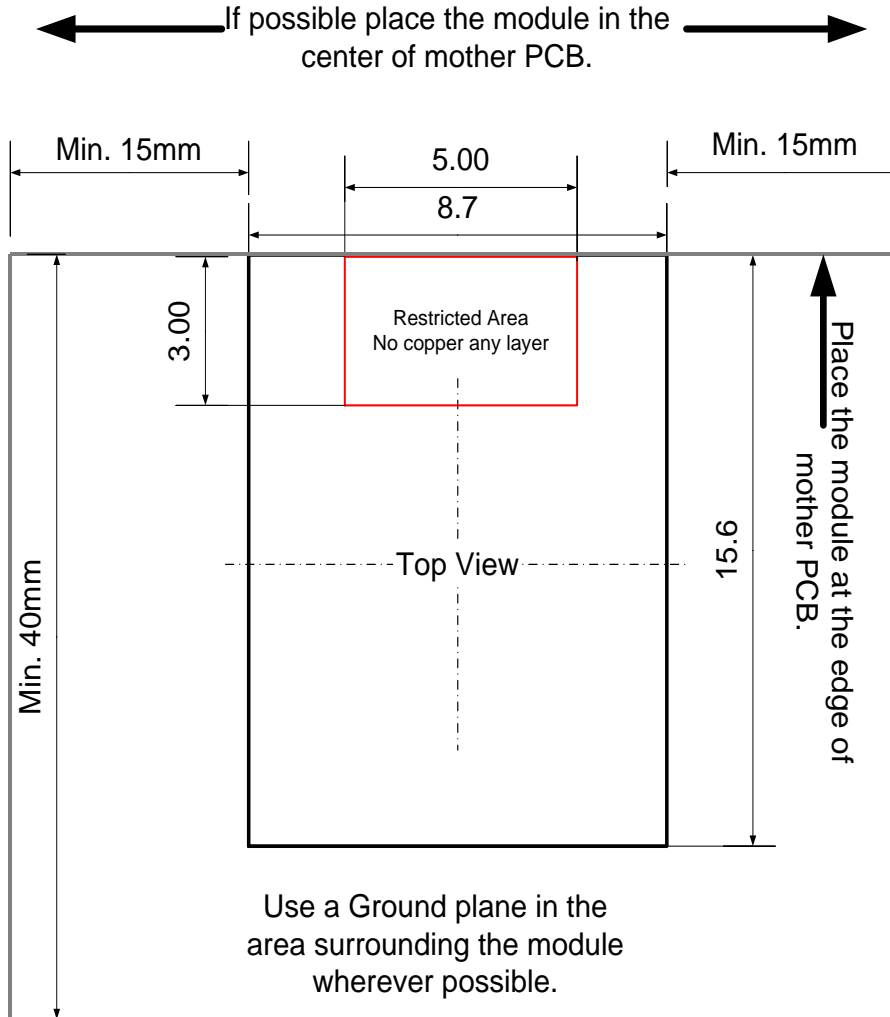
It is important to have the keep out area below the antenna.

Keep out area

To download the design files go to the download area on the product website.

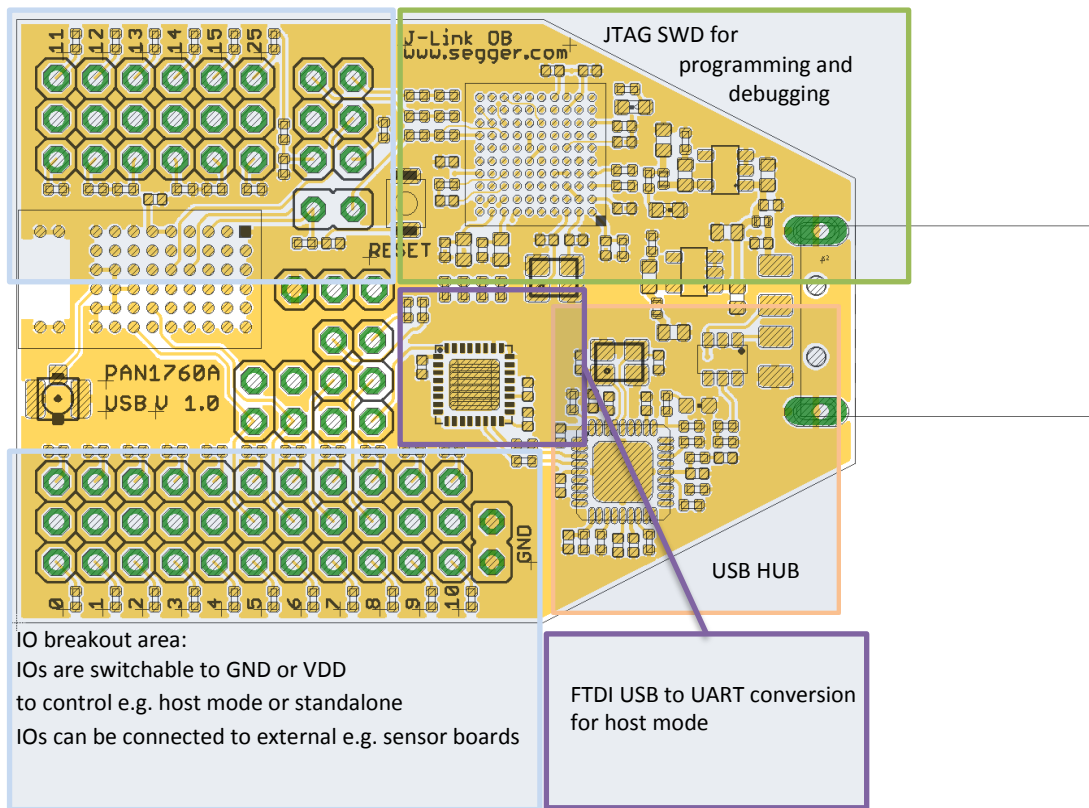
⇒ <http://pideu.panasonic.de/products/wireless-modules/bluetooth/PAN1760A-Bluetooth-Low-Energy-Module.html>

PAN1760A WITH ANTENNA PLACEMENT

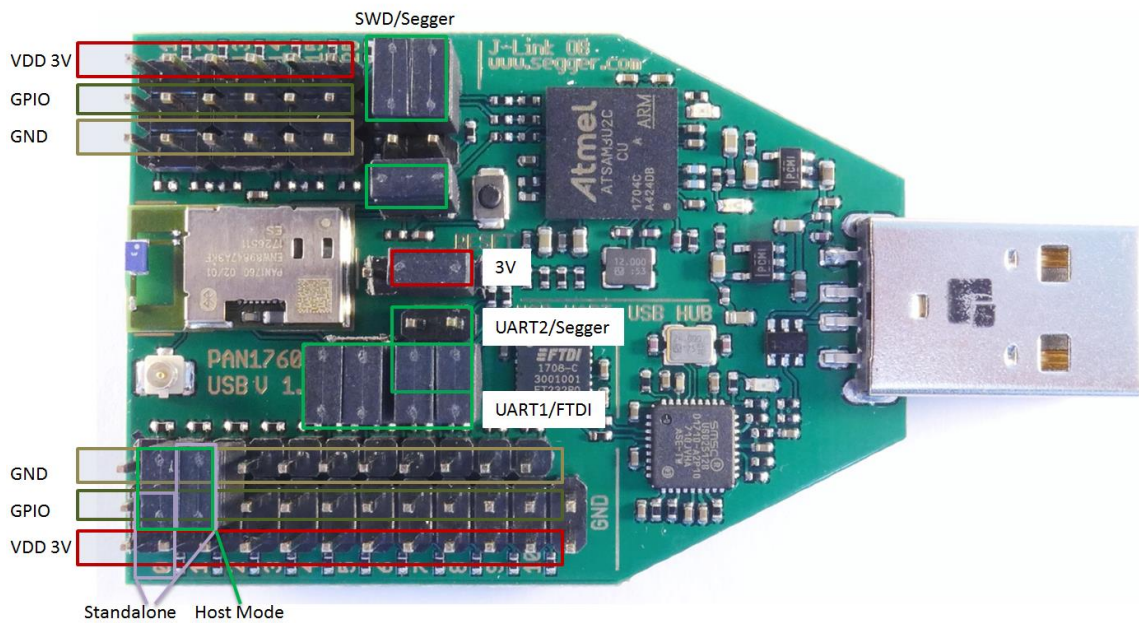


Dimensions are in mm.

3.3 Building Blocks



3.4 Configuration Settings



There are two different modes available.



After each different configuration the reset button needs to be pressed.

The 3V Jumper can be removed for current measurements.

4 Life Support Policy

This Panasonic Industrial Devices Europe GmbH product is not designed for use in life support appliances, devices, or systems where malfunction can reasonably be expected to result in a significant personal injury to the user, or as a critical component in any life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

Panasonic customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Panasonic Industrial Devices Europe GmbH for any damages resulting.

5 Appendix

5.1 Ordering Information

Variants and Versions

Order Number	Brand Name	Description	MOQ
ENW89847AZKF	PAN1760A-ETU	USB Evaluation Board	1
ENW89847AYKF	PAN1760A-EMK	2 USB Evaluation Boards	1

5.2 Contact Details

5.2.1 Contact Us

Please contact your local Panasonic Sales office for details on additional product options and services:

For Panasonic Sales assistance in the **EU**, visit

<https://eu.industrial.panasonic.com/about-us/contact-us>

Email: wireless@eu.panasonic.com

For Panasonic Sales assistance in **North America**, visit the Panasonic Sales & Support Tool to find assistance near you at

<https://na.industrial.panasonic.com/distributors>

Please visit the **Panasonic Wireless Technical Forum** to submit a question at

<https://forum.na.industrial.panasonic.com>

5.2.2 Product Information

Please refer to the Panasonic Wireless Connectivity website for further information on our products and related documents:

For complete Panasonic product details in the **EU**, visit

<http://pideu.panasonic.de/products/wireless-modules.html>

For complete Panasonic product details in **North America**, visit

<http://www.panasonic.com/rfmodules>