802.15.4-Modem PAN4561
ETU - Version

Panasonic Electronic Devices Europe GmbH

WIRELESS MODULES

OUTLINES

The PAN4561ETU is an excellent choice for development environments and production projects where a connector or through hole technology is required. You may remember this unique part by its suffix, "ETU" which is short for "Easy-To-Use". This module is based on Panasonic's PAN4561 extended range RF module and features two, single row, 2mm, header connectors on the bottom side of the module.

PAN4561 module, which is a long range, low power, 2.4 GHz ISM band transceiver which includes a complete 802.15.4 physical layer (PHY) modem, designed for the IEEE 802.15.4 wireless standard and a appropriate microcontroller (MCU).

The RF frontend consists of a power amplifier (PA) and a low-noise amplifier (LNA) for extended range. This module complies with EN300328, FCC CFR Part 15 and ARIB STD-T66.

KEY FEATURES

- size (44.5mm x 39.5mm x 11.3mm)
- interfaces to Panasonic SNAP development kits
- antenna options: SMA port 50Ω, ceramic antenna or plug
- High sensitivity of -105 dBm typ. at 1% Packet Error Rate
- 20 dBm typ. output power
- Low supply voltage (2.7 V to 3.3 V, 3.0 V typ.)
- Operating temperature range -40°C to +85°C
- 60k Flash and 4k RAM memory
- two UARTs and one I^2C bus
- 8 channel A/D converter with 10 Bit
- In total 33 digital I/O lines

SOFTWARE OPTIONS

- E-Senza Technologies GmbH and Synapse Wireless Inc.

APPLICATIONS

- Remote control and wire replacement in industrial systems
   such as wireless sensor networks
- Factory / home automation and motor / lighting control
- Inventory management and RF ID tagging and AMR
- Monitoring (environmental, patient or fitness)

4561ETU-100-101 Rev. B

Panasonic ideas for life

CONTACT

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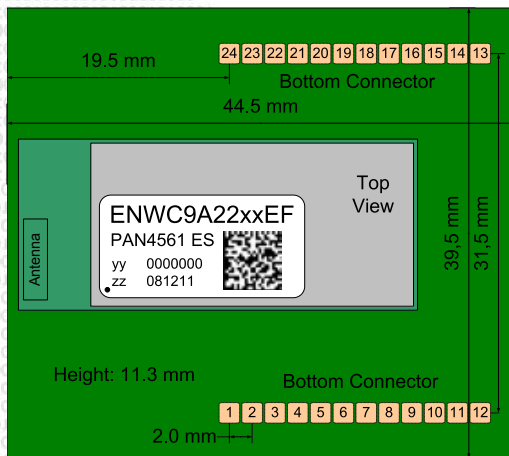High Frequency Products Business Group

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DIMENSIONS

19.5 mm

24 23 22 21 20 19 18 17 16 15 14 13

Bottom Connector

44.5 mm

Antenna

Top View

ENWC9A22xxEF
PAN4561 ES
yy   0000000
zz   081211

39.5 mm   31.5 mm

Height: 11.3 mm

Bottom Connector

1 2 3 4 5 6 7 8 9 10 11 12

2.0 mm

Pin no.	Pin name	Pin no.	Pin name
1	GND	13	AD1P7
2	TPM1CH2	14	XTAL
3	SCL1	15	EXTAL
4	SDA1	16	TPM2CH3
5	RXD1	17	TPM2CH1
6	TXD1	18	AD1P2
7	PTC5	19	AD1P1
8	KBI1P5	20	AD1P0
9	RXD2	21	VCC
10	TXD2	22	BKGND
11	KBI1P6	23	/RESET
12	KBI1P7	24	GND

Note:
Module pin names and the internal MC1321x pin names correspond to one another.
The PAN4561ETU is compatible to Panasonic SNAP and most Synapse Wireless Inc. development kits.

TECHNICAL CHARACTERISTICS

Parameter	Value	Condition / Note
Receiver Sensitivity	-105 dBm typ.	for 1% packet error rate
Output Power	20 dBm	typical
Power Supply	2.7 V to 3.3 V	single supply, 3.0 V typ.
Power Control Range	30 dB	
Maximum Data Rate	250kbps	over the air
Current Consumption receive mode transmit mode idle mode standby mode sleep mode off mode	53 mA typ. 210 mA typ. 1.6 mA typ. 36.3 µA typ. 2,2 µA typ. 0,55 µA typ.	@output power max no CLKO
Operating Temperature Range	-40°C to +85°C	

Notes:
All parameters are valid for V_{cc} = 3.0V and Tamb = 25°C.
Freescale's MC13213 is included in the module and Mode Definitions and Transition Times for saving battery life.
Also the derivative MC13212 and MC13211 as well a pin compatible non-PA/LNA version (PAN4560) are available.