# PAN4555

SNAP®

The PAN4555 module is a short range, low power, 2.4 GHz ISM band transceiver. It includes a complete 802.15.4 physical layer (PHY) modem. It is designed for the IEEE 802.15.4 wireless standard and microcontroller (MCU). The module also has a reference oscillator which provides a cost effective solution for short-range data links and networks. Several firmware options are available, modules can be configured from simple point-to-point proprietary devices to complex mesh networks. Optional Synapse SNAP firmware provides a highly flexible, industry leading solution for mesh networking with a complete network development environment. This module complies with EN300328, FCC CFR Part 15 and ARIB STD-T66 standards.
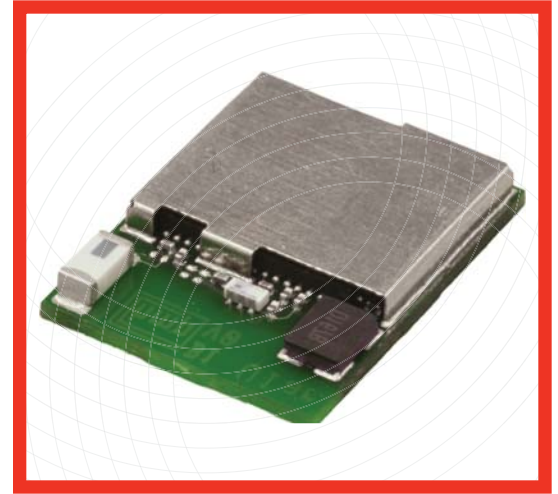
Product Performance:

- Very Small Size: 12.2mm X 16.4mm X 2.2mm (200mm^2)
- 2 Antenna Options: Single Port 50Ω Or Ceramic Antenna
- 16 Selectable Channels With 250 Kbps In The 2.4 GHz Band
- Low Power Modes For Increased Battery Life
- High Sensitivity Of -92 dBm Typical At 1% Packet Error Rate
- 0 dBm Typical Output Power Programmable Over A 30 dB Range
- Low Supply Voltage: 2.0 V To 3.4 V, 2.7 V Typical
- Operating Temperature Range: -40°C To +85°C
- Link Quality And Clear Channel Assessment Capability
- 60k Flash And 4k RAM Memory
- 4 Channel A/d Converter With 10 Bit Adc For Fast And Easy Conversion From Analog Inputs (Temperature, Pressure And Fluid Levels) To Digital Values.
- 3 Channel 16 Bit Timer/Pulse Width Modulation (Tpm) Outputs
- BDM Port For Direct Download Programming
- In Total 20 Digital I/O Lines With Programmable Pull-ups And Few With High-current Driver
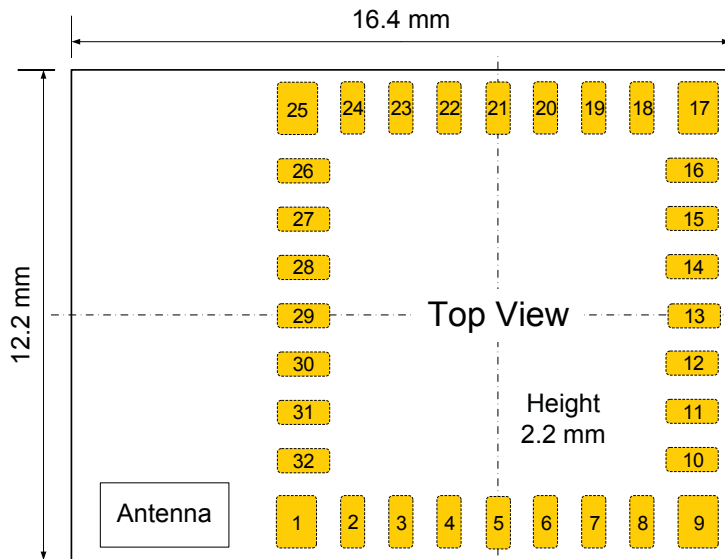- FCC, IC, & ETSI Approved

Applications:

- Remote Control And Wire Replacement In Industrial Systems Such As Wireless Sensor Networks
- Factory / Home Automation And Motor / Lighting Control
- Inventory Management And RFID Tagging
- Automated Meter Reading
- Monitoring (Environmental, Patient or Fitness)

Part Numbers:

Part Number	Description
ENWC9A08A3EF	Ceramic Antenna
ENWC9A09N4EF	RF Out On SMD Pads
ENWC9A08A2EF	Ceramic Antenna, AT Command Set, coordinator
ENWC9A09C2EF	RF Out on SMD Pads, AT Command Set, coordinator
ENWC9A08A2EF	Ceramic Antenna, AT Command Set, Node
ENWC9A09C2EF	RF Out on SMD Pads AT Command Set
ENWC9A08A4EF	Ceramic Antenna, SNAP
ENWC9A09C4EF	RF Out on SMD Pads, SNAP
EVAL_PAN4555	Evaluation Kit For The PAN4555 Module

Dimensions & Pin Layout:

16.4 mm

12.2 mm

25 24 23 22 21 20 19 18 17

26   16
27   15
28   14
29   Top View   13
30   12
31   Height 2.2 mm   11
32   10

Antenna

1 2 3 4 5 6 7 8 9

Pin No.	Pin Name	Pin No.	Pin Name
1, 9, 17, 25, 31	GND	18	PTC5
		19	PTC3
2 to 4	PTB0 to 2	20	PTC2
5	PTB7	21 to 22	PTE0 to 1
6	VREFH	23	VDDA
7	PTA7	24	V$_{CC}$
8	PTA5	26	V$_{CC}$
10	PTA6	27	RESET
11	PTG0/BKGD	28	PTD6
12 to 13	PTG1 to 2	29	PTD4
14	CLKO	30	PTD2
15 to 16	PTC0 to 1	32	EXTANT

Note: The pin names of the module and the internal MC13213 are equivalent.

Technical Specifications:

Parameter	Value	Condition / Notes
Receiver Sensitivity	-92 dBm typical	For 1% packet error rate
Output Power	0 dBm	Maximum
Power Supply	2.0 V to 3.4 V	Single supply, 2.7 V typical
Power Control Range	30 dB	
Maximum Data Rate	250 kbps	Over The Air
Current Consumption 　Receive Mode 　Transmit Mode 　Idle Mode 　Doze Mode 　Hibernate Mode 　Off Mode	 37 mA typ. 30 mA typ. 500 μA typ. 35 μA typ. 1 μA typ. <1 μA typ.	 Output power nominal value No CLKO
Operating Temperature Range	-40°C to +85°C	

Notes:
All parameters sre valid for Vdd = 2.7V And Tamb = 25°C.
Freescale's MC13213 is used in the module. SMAC, MAC Or Freescale Bee-stack.
Mode definitions and transition times for saving battery life can be seen in the data sheet MC1321X.
The derivative MC13212 and MC13211 are available on request.