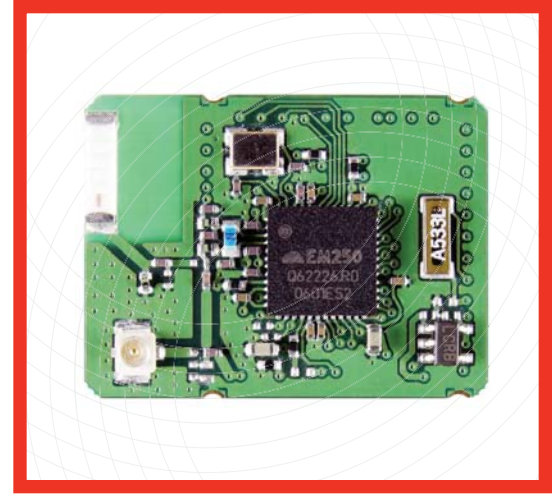


The PAN4570 is a short range, low power, 2.4 GHz ISM band transceiver using the Ember EM250 single chip solution for mesh networking. With IEEE 802.15.4 compliance, 16-bit ZAP2b micro-processor, on-board reference oscillators, and optimized RF front-end circuitry, the PAN4570 provides everything needed for a full mesh network solution. A reliable application programming interface and Ember's EmberZNet stack can easily create application profiles.



## Product Performance:

- 128k Flash And 5k SRAM Memory
- 3 Antenna Options: Plug, 50  $\Omega$  SMD Port Or Ceramic Antenna
- 16 Selectable Channels With 250 kbps In The 2.4 GHz Band
- 3 Different Power Modes For Increased Battery Life
- High Sensitivity Of -97 dBm Typical At A 1% Packet Error Rate
- +3 dBm Output Power (+5 dBm In Boost Mode)
- Low Supply Voltage: 2.1 V To 3.6 V, 3.0 V Typical
- Small Size: 20.0mm X 26.5mm X 3.0mm
- Onboard Low Power Regulator
- Operating Temperature Range: -40°C To +85°C
- Link Quality And Clear Channel Assessment Capability
- All Of The 17 GPIO Of EM250 Are Available At The Module Pads, Which Are Multiplexed To GPIO, UART, SPI, I<sup>2</sup>C Or Up To Four Analog Inputs To An ADC And Two Timer Waveform Outputs
- Critical Portions Of IEEE 802.15.4-2003 Plus A First-line Filter For Non-Intended Packets Are Realized In Hardware, Thus Reducing The Workload On The  $\mu$ c
- FCC Certified

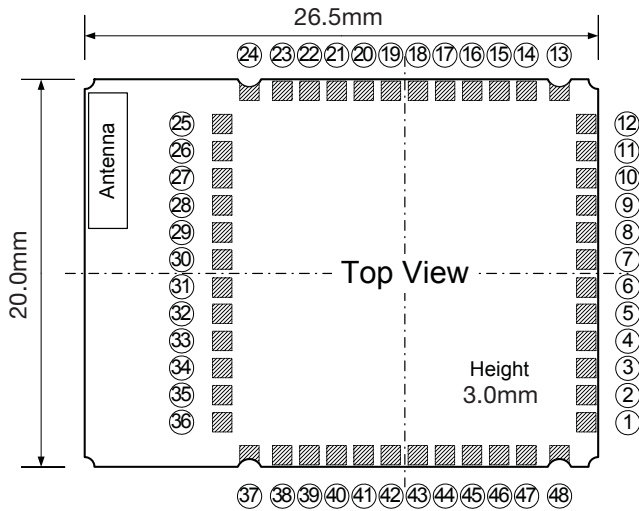
## Applications:

- 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
ENWC9A02A3E	PAN4570, Mesh Networking Module With Ceramic Antenna
ENWC9A03N2E	PAN4570, With U.FL Antenna Connector
ENWC9A04N4E	PAN4570, With RF Out On SMD Pads
EVAL_PAN4570	Evaluation Kit For The PAN4570 Module

## Dimensions & Pin Layout:



Pin No.	Pin Name	Pin No.	Pin Name
1	VBAT	27	SIF_MOSI
2	REG_out	28	SIF_LOADB
3	Reset	29	n.c.
4	OSC32A	30 to 37	GND
5	OSC32B	38	RF
6 to 12	GPIO 0 to 6	39, 48	GND
13,24	GND	40	VC1
14 to 23	GPIO 7 to 16	41 to 45	n.c.
25	SIF_CLK	46	Reg_EN
26	SIF_MISO	47	Reg_IN

**Note:**

Access to the programming interface pins 25, 26, 27, 28, 1, and 3 has to be provided on the application board.

## Technical Specifications:

Parameter	Value	Condition / Notes
Receiver Sensitivity	-96 dBm typ. - Normal -97 dBm typ. - Boost	For 1% packet error rate
Output Power	3 dBm 5 dBm	Normal Boost Mode On
Power Supply	2.1 V to 3.6 V	3.0 V typical
Error Vector Magnitude	15% Typical 35% Boost	Typical as defined by IEEE802.15.4-2003
Maximum Data Rate	250 kbps	Over The Air
Current Consumption		
Total Rx Current	35.5 mA typ.	@ max Tx power, boost mode off (on) max, with 32.768KHz osc running max, with internal RC osc running
Total TX Current	35.5 (41.5) mA typ.	
Deep Sleep Mode	1.5 $\mu$ A	
Deep Sleep Mode	1.0 $\mu$ A	
Operating Temperature Range	-40°C to +85°C	

**Notes:**

All parameters are valid for VDD = 3.0V and Tamb = 25°C.  
The data stated above is preliminary data.