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# Compact Low-Cost Radio Module

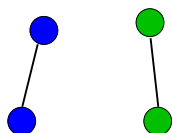
2.4 GHz ISM Band

## Key Features

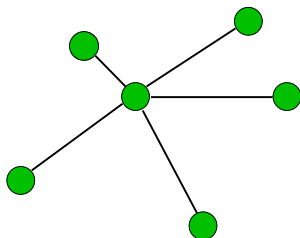
- Low-cost OEM radio module in 2.4 GHz ISM band
- Compact dimensions: 16 x 27.5 x 3.8 mm
- Supports low-power applications
- Integrated software stack with extensive functions
- Flexible addressing with up to 255 nodes in 255 networks
- Complies with requirements in EU RED 2014/53/EU
- Integrated ceramic antenna, optional: RF pin or U.FL connector
- U.FL connector variant includes a bandpass filter for better selectivity



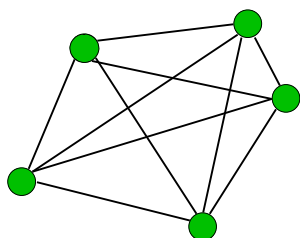
## Network Topologies



Point-to-point



Point-to-Multipoint



Peer-to-Peer

## Description

The AMB2524 is a compact and low-cost radio data transmission module for wireless half-duplex communication. The integrated microprocessor controls data communication, handling packet and checksum formation, addressing, monitoring of channel access and resending unreceived packets. The host system does not have to perform any radio-specific tasks.

The module can be configured in many ways and supports data transfer with fast channel and address switching. Measured field strength (RSSI value) offers the option of enhancing quality of the radio link.

The GUI for the freely available Windows application AMBER-ACC makes it easy to set operating parameters.

The AMB2524 is constructed on an SMD design and suitable for automatic component mounting. It can also be delivered in tape and reel packaging.

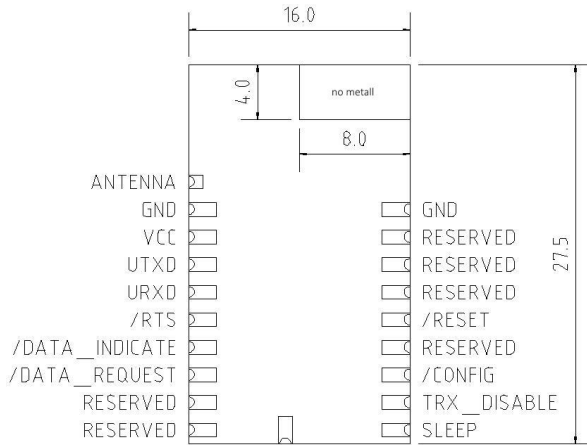
## Interfaces

The AMB2524 is connected to a host system via the UART interface with bit rates of up to 115.2 kbaud. Other pins can be used for data flow control and to switch between operating modes. An SPI interface can be implemented upon request (separate firmware). Using appropriate firmware, the module is also suitable for autonomously recording digital or analogue signals.

## Range of Application

Data collection, monitoring, remote control and sensor networks. Its compact dimensions and low power consumption make the radio module ideal for battery-powered devices.

**Dimensions**



Measuring Unit: mm, height = 3.8mm

**Pin Assignment**

Pad Name	Description
VCC	Positive supply voltage
GND	Negative supply voltage
ANTENNA	Antenna connection (optional)
UTXD, URXD	UART transmit , UART receive
/RTS	Ready to send/receive
/DATA_INDICATE	Signals incoming data
/DATA_REQUEST	Starts transmitting
SLEEP, TRX_DISABLE	Selection of low-power mode
/CONFIG	Change into command-mode
/RESET*	Reset-Input

**Specifications**

Performance	Range*	up to 100 m (integrated antenna) up to 150 m (external antenna)
	RF data rate	up to 500 kbps
	Interface data rate	up to 115.2 kBaud (UART)
	Output power	typ. -6 dBm e.i.r.p (-2 dBm @ 50 Ω)
	RF sensitivity	up to -98 dBm (-102 dBm @ 50 Ω) @ 2.4 kBaud
General	Power supply	2.7 – 3.6 V
	Power consumption	TX: typ. 25 mA RX: typ. 21 mA Low Power: typ. 6 µA
	Dimensions	16.0 x 27.5 x 3.8 mm
	Operating temperature	-30 to +85 °C
	Weight	< 2 g
	Antenna	integrated ceramic antenna RF pin or U.FL connector (optional)
RF technology	Addressing	up to 255 nodes on 255 networks
	Frequency range	2400.0 – 2483.5 MHz
	Channel spacing	500 kHz
	Modulation	2-FSK, MSK
	Supported topologies	Point-to-Point, Point-to-Multipoint, Peer-to-Peer
Conformity	Europe	EN 300440, EN 301489, EN 60950, EN 62479

\* Range stated is calculated assuming line-of-sight. Actual range will vary based upon specific board integration, antenna selection, and environment.

**Ordering information**

Item no.	Description
AMB2524	2.4 GHz RF module with integrated ceramic antenna
AMB2524-1	2.4 GHz RF module with RF pin
AMB2524-2	2.4 GHz RF module with U.FL connector and Bandpass-Filter



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