AMB9626

Compact Radio Module – High Performance

915 MHz Band

- OEM radio module for 915 MHz frequencies
- Compact dimensions: 17 x 27 x 4 mm
- Integrated AMBER RF stack with extensive functions
- Flexible addressing with up to 255 nodes in 255 networks
- FHSS conforming to FCC 15.247
- Available on Tape & Reel for SMT assembly
- Also available as wireless USB adapter (AMB9665)
- 15dBm output power
- Supports Star and Peer-to-peer topologies

Range of Application
- Data collection
- Monitoring
- Remote control
- Sensor networks

The AMB9626 is a compact, low-cost and low power radio data transmission module for wireless half-duplex communication. The integrated microprocessor controls data communication, handling packet and checksum generation, addressing, monitoring of channel access and re-transmission of lost 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 address switching. It also implements asynchronous frequency hopping techniques in order to comply with FCC 15.247. An opportunity to assess the quality of the radio link is also provided by using the measured field strength (RSSI value).

The graphical user interface of the freely available Windows application “AMBER-ACC” makes it easy to set operating parameters. A USB stick version is available to easily connect the AMB9626 to a PC system.

The AMB9626 is an SMT device and is suitable for automatic component assembly. It can also be delivered in tape and reel packaging.

The AMB9626 is connected to a host system via the UART interface with data rates of up to 19200 kBaud. Other pins are used for data flow control and to switch between operating modes.

Using appropriate firmware, the module is also suitable for autonomously recording digital or analogue signals. The receiving module is scanning all available channels for active transmitters while the transmitter is randomly selecting a transmission channel for each frame. With the channel scanning a latency is introduced which has to be taken into account regarding the duty-cycle of the system.

The main focus of the AMB9626 is spontaneous data transmission with limited amount of data and a duty-cycle of 10% or less.

The AMB9626 implements a low power operating mode where μC and UART are disabled to have a current below 3 μA.
Specifications

Performance
- RF data rate: 38.4 kbps
- UART data rate: Typ. 9600 Baud, max. 19200 Baud
- Output power: Up to +15 dBm
- RF sensitivity: Typ. -99 dBm
- Range*: Up to 700m

General
- Power supply: 2.0 - 3.6 V
- Power consumption:
  - Tx: typ. 53 mA @ 15dB / Rx: 30 mA
  - Low Power: typ. 3 µA (RTC on, RAM retention)

Dimensions
- 17 x 27 x 4 mm
- Operating temperature: -40 to +85 °C
- Weight: Approx. 3 g
- Antenna: External antenna port (50 Ohm)

RF
- Channel Spacing: 500 kHz
- Frequency range: 902.000 to 928.00 MHz
- Modulation: 2-GFSK with frequency hopping

Compliance
- FCC 15.247

* Range stated assumes line-of-sight. Actual range may vary depending on antenna choice, board design and environment.

** 38.4 kbps, 6 dB reduced due to receiving threshold for frequency hopping mechanism.

Dimensions and Pin Assignment

<table>
<thead>
<tr>
<th>No.</th>
<th>Pad Name</th>
<th>I/O</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ANTEenna</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>2.23</td>
<td>GND</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>VCC</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>UTXD</td>
<td>O</td>
<td>UART transmit</td>
</tr>
<tr>
<td>5</td>
<td>URXD</td>
<td>I</td>
<td>UART receive</td>
</tr>
<tr>
<td>6</td>
<td>/RTS</td>
<td></td>
<td>UART Flow control</td>
</tr>
<tr>
<td>7</td>
<td>/CTS</td>
<td>I</td>
<td>UART Flow control</td>
</tr>
<tr>
<td>8</td>
<td>/DATA_INDICATE</td>
<td></td>
<td>Signals incoming data</td>
</tr>
<tr>
<td>11</td>
<td>/DATA_REQUEST</td>
<td>I</td>
<td>Triggers packet transmission</td>
</tr>
<tr>
<td>14</td>
<td>TRX_DISABLE</td>
<td>I</td>
<td>Selection of low-power mode</td>
</tr>
<tr>
<td>15</td>
<td>/CONFIG</td>
<td>I</td>
<td>Switches to command mode</td>
</tr>
<tr>
<td>19</td>
<td>/RESET</td>
<td>I</td>
<td>Reset</td>
</tr>
<tr>
<td>20</td>
<td>RX_INDICATE</td>
<td>O</td>
<td>Signals radio reception</td>
</tr>
<tr>
<td>21</td>
<td>TX_INDICATE</td>
<td>O</td>
<td>Signals radio transmission</td>
</tr>
<tr>
<td>All other</td>
<td></td>
<td></td>
<td>Reserved</td>
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Ordering Information

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<thead>
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<th>Description</th>
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<tbody>
<tr>
<td>AMB9626-TR</td>
<td>Radio module 915 MHz, Tape and Reel</td>
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<tr>
<td>AMB9665</td>
<td>Radio module 915 MHz</td>
</tr>
<tr>
<td>AMB8626</td>
<td>Radio module 868 MHz</td>
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www.amber-wireless.com