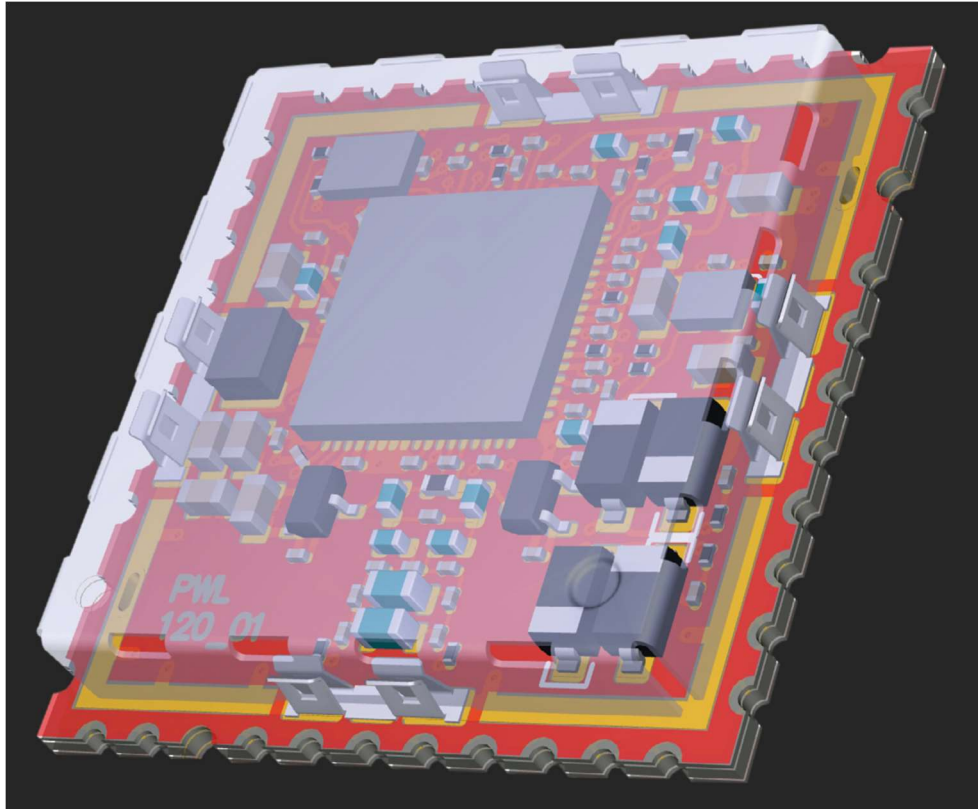


RED-BEET-E/-P/-H 2.0 Product Brief



RED-BEET-X 2.0 is a universal powerline communication module based on Qualcomm's latest PLC-Chip - the QCA7006AQ - which provides SPI and Ethernet interfaces to the user to allow for higher HomePlug AV (HPAV) data rate connectivity applications separate from HomePlug Green PHY (HPGP) communication.

It provides best in class Analog Front End noise performance, thermal management with max. operating temperature of +105°C (ambient) and high quality by doing Automated Optical Inspection during manufacturing.

There are 3 different versions of the module available and despite primary focus on eMobility (EVSE and PEV) and MegaWatt Charging it also perfectly fits for smart grid, smart meter, IoT and other long-range communication applications.

All components on the module are AEC-Q100/200 Automotive qualified making it suitable even for high-end automotive applications.

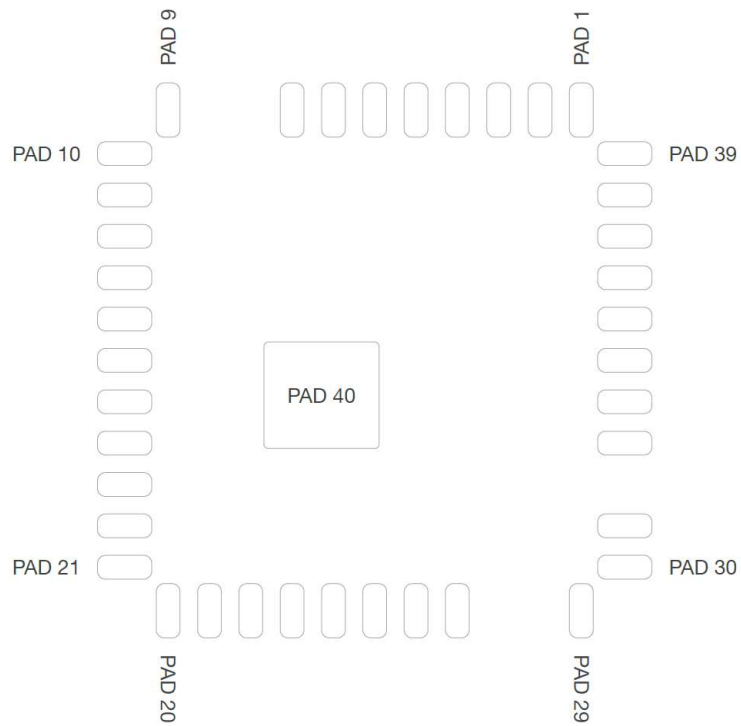
Features

- Based on Qualcomm QCA7006AQ all-in-one, automotive-grade HPGP/HPAV PLC chip
- Compliant with ISO 15118-3, HPGP and HPAV standards
- Fully interoperable with IEEE 1901 specifications products
- Based on OFDM (Orthogonal Frequency Division Multiplexing) with 1.8 MHz to 30 MHz spectrum (2 MHz to 28 MHz on radiating wires and in eMobility)
- Extended PHY rate 9.8 Mbps via HPGP (QPSK) and 200 Mbps via HPAV (16, 64, 256, 1024 QAM).
- Host interfaces SPI slave, Ethernet with embedded 10/100 Ethernet PHY, UART
- Extended operating temperature range -40°C up to +105°C (ambient)
- Automotive Grade components used on module
- Serial Flash on module with latest HPAV/HPGP Firmware and configuration file (PIB)
- Available configurations EVSE, PEV and IoT/Home Control;
- Single power supply 3.3V DC with on-chip integrated power management unit
- Power consumption appr. 1W (SPI) / 1,2W (Ethernet) (both at +25° C)
- -95 dBm Analog Front End noise performance
- Line Impedance matching with 100 Ohm for MegaWatt Charging
- 23.3 x 23.3 mm, 40-Pin package
- Castellated vias for enabling of AOI on host PCB, improved mechanical stability, simplified testing
- Optical Inspection to enhance product quality
- Long term availability

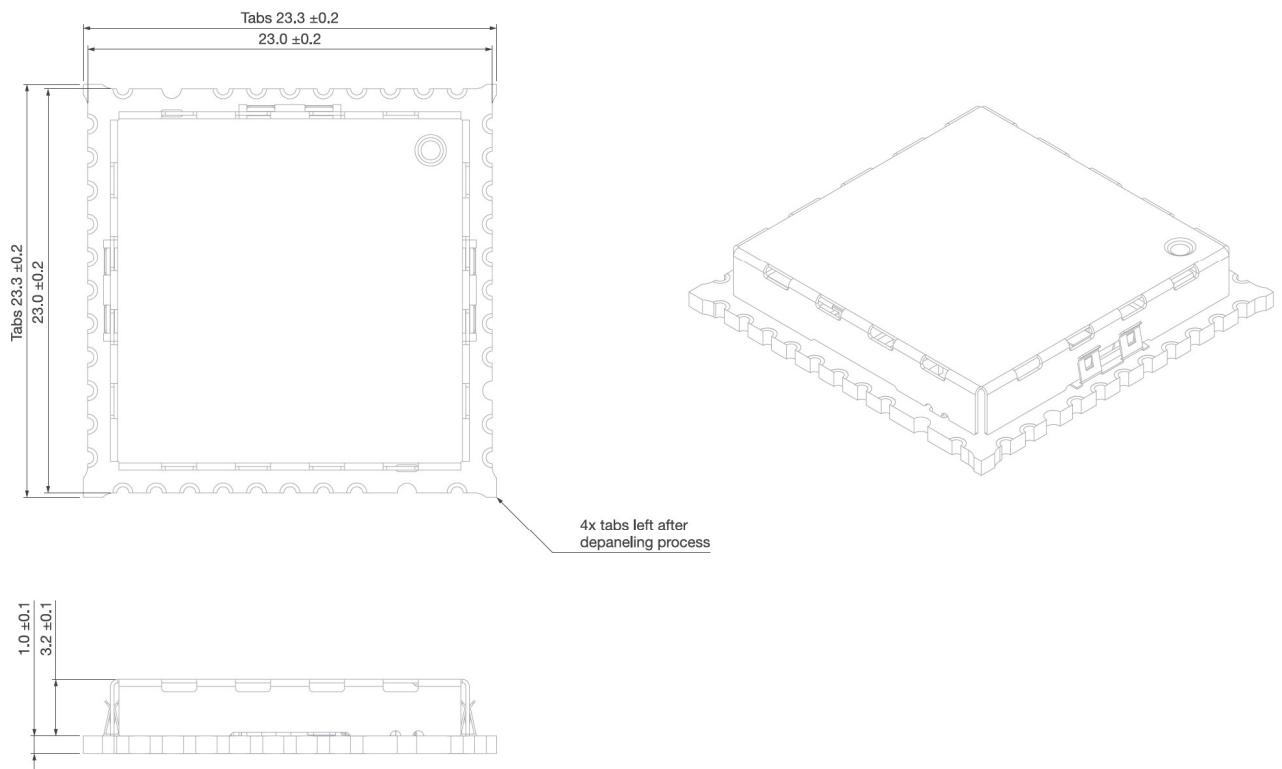
Module Pin description

| Pin number | | Type | Description |
|------------|--------------|------|---|
| PAD 1 | GND | - | Ground connection |
| PAD 2 | GND | - | Ground connection |
| PAD 3 | GND | - | Ground connection |
| PAD 4 | ZC_IN | I | Zero-cross detector input |
| PAD 5 | GND | - | Ground connection |
| PAD 6 | GND | - | Ground connection |
| PAD 7 | GND | - | Ground connection |
| PAD 8 | VCC | - | 3.3V power supply |
| PAD 9 | EPHY_VDD_2P0 | - | 2.0 V Embedded Ethernet PHY |
| PAD 10 | GND | - | Ground connection |
| PAD 11 | EPHY_TX_N | O | Embedded Ethernet PHY Tx differential pair Negative |
| PAD 12 | EPHY_TX_P | O | Embedded Ethernet PHY Tx differential pair Positive |
| PAD 13 | EPHY_RX_N | I | Embedded Ethernet PHY Rx differential pair Negative |
| PAD 14 | EPHY_RX_P | I | Embedded Ethernet PHY Rx differential pair Positive |
| PAD 15 | GND | - | Ground connection |
| PAD 16 | GPIO_0 | I/O | Sets mode at power on, then becomes I/O |
| PAD 17 | GPIO_1 | I/O | Sets mode at power on, then becomes I/O |
| PAD 18 | GPIO_2 | I/O | Sets mode at power on, then becomes I/O |
| PAD 19 | GPIO_3 | I/O | No function at Boot, User I/O after Boot |
| PAD 20 | RESETN | I | Reset (active low) |
| PAD 21 | GND | - | Ground connection |
| PAD 22 | GND | - | Ground connection |
| PAD 23 | SERIAL_IO_4 | I | SPI MOSI |
| PAD 24 | SERIAL_IO_3 | O | SPI MISO |
| PAD 25 | SERIAL_IO_2 | I | SPI CS |
| PAD 26 | SERIAL_IO_1 | I | SPI CLK |
| PAD 27 | SERIAL_IO_0 | O | SPI INT |
| PAD 28 | GND | - | Ground connection |
| PAD 29 | GND | - | Ground connection |
| PAD 30 | GND | - | Ground connection |
| PAD 31 | GND | - | Ground connection |
| PAD 32 | GND | - | Ground connection |
| PAD 33 | RXN | I | Powerline receive input negative |
| PAD 34 | RXP | I | Powerline receive input positive |
| PAD 35 | GND | - | Ground connection |
| PAD 36 | TXN | O | Powerline transmit output negative |
| PAD 37 | TXP | O | Powerline transmit output positive |
| PAD 38 | GND | - | Ground connection |
| PAD 39 | GND | - | Ground connection |
| PAD 40 | GND | - | Thermal Pad, Ground connection |

Module Pinout



Module Dimensions



Order Information

| Part number | Description |
|------------------------|--|
| RED-BEET-H 2.0 #317988 | RED beet rev.2.0 module for home control |
| RED-BEET-E 2.0 #317986 | RED beet rev.2.0 module for EVSE (Electric vehicle supply equipment) |
| RED-BEET-P 2.0 #317987 | RED beet rev.2.0 module for PEV (Plug-in electric vehicle) |