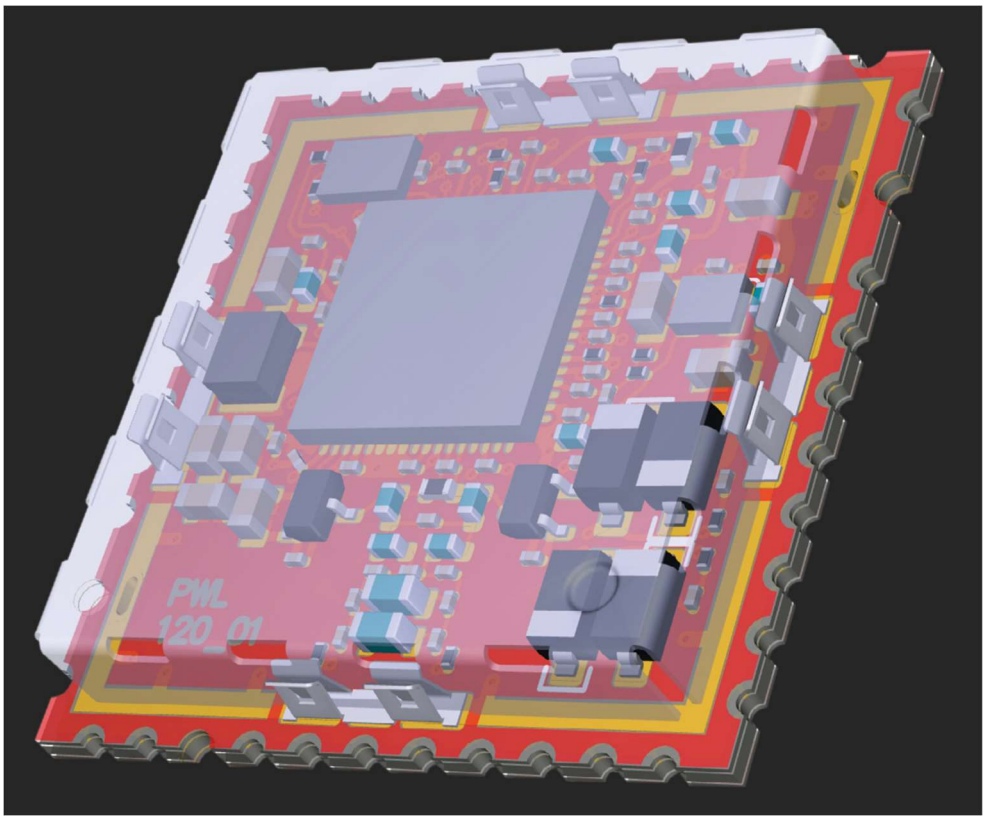
CODICO

Devices

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.

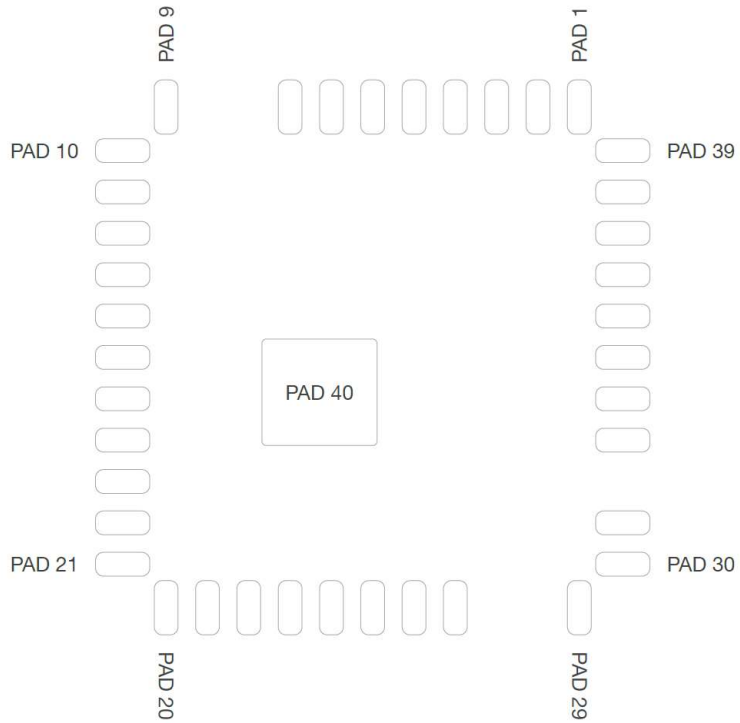
Features

- 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

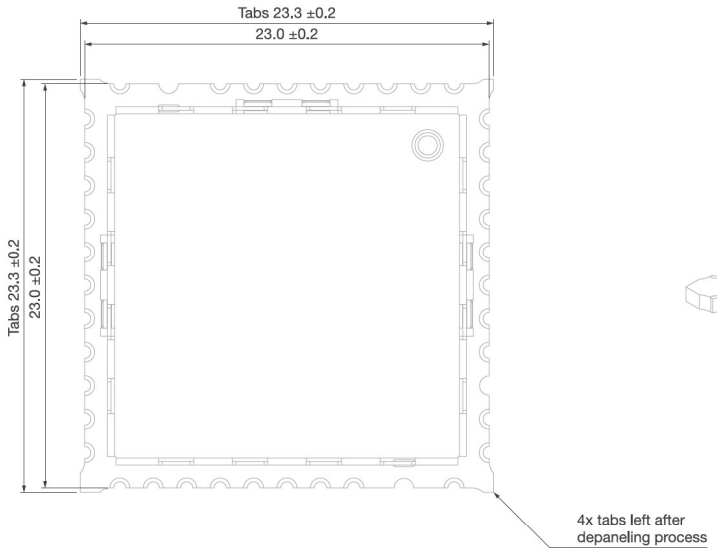
Module Pin description

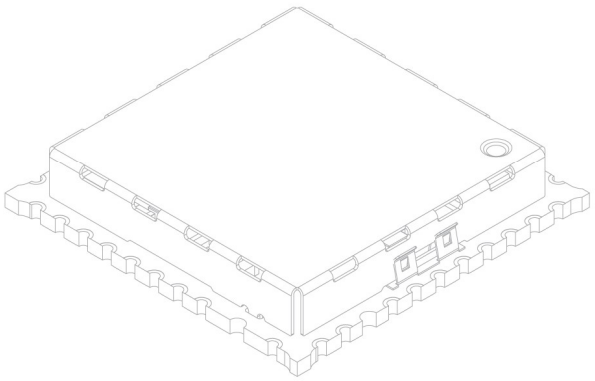
Pin number		Type	Description
PAD 1	GND	-	Ground connection
PAD 2	GND	-	Ground connection
PAD 3	GND	-	Ground connection
PAD 4	ZC_IN	I	Zero-cross detector input
PAD 5	GND	-	Ground connection
PAD 6	GND	-	Ground connection
PAD 7	GND	-	Ground connection
PAD 8	VCC	-	3.3V power supply
PAD 9	EPHY_VDD_2P0	-	2.0 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

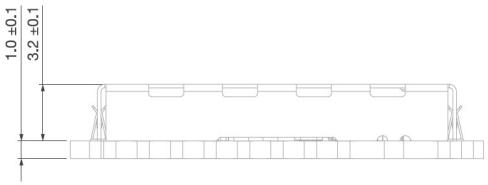
Module Pinout



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)