MICA2 OEM EDITION

OEM MESH NETWORK RADIO MODULE

- OEM Module for Battery-Powered Mesh Network Sensor Nodes

- Postage Stamp Form Factor

- IEEE 868/916 MHz Multi-Channel Radio Transceiver for up to 38.4 kbps Data Rate

- XMesh™ Mesh Networking Protocols

- Analog and Digital I/O Interface for Easy Sensor Integration

Applications

- Battery-Powered Wireless Mesh Networking Devices

- Industrial, Structural and Security Monitoring

- Environmental, Physical, Health Maintenance

- Asset and Location Tracking

Actual Size

MICA2 OEM EDITION

MEMSIC's MICA2 OEM Edition, the MPR600, provides users with high-level functional integration designed to optimize the addition of wireless mesh networking technology to a wide variety of both new and existing custom sensing applications. Powerful new design features include:

- Optimized processor/radio module integration based on MEMSIC's extensive Mote development and deployment.

- Flexible onboard hardware interface for both standard and custom sensing devices.

- Comprehensive software support, including sensor board drivers and algorithms via MEMSIC's industry-leading XMesh™ software technology.

The MICA2 OEM Edition is the functional equivalent of MEMSIC's popular MPR400 MICA2 Mote in a postage stamp form factor. This inherent design continuity makes the MICA2 OEM Edition an ideal solution for next-generation mesh networking products and designs.

By utilizing open-platform, standards-based interfaces the MPR600 offers

users an attractive value proposition consisting of easily differentiated, low-power radio modules that can be rapidly designed and built.

Processor and Radio Platform

- 868/916 MHz, a globally compatible ISM band
- Frequency tunable radio with multiple channels
- 38.4 kbps high data rate radio
- 64-pin package designed for easy sensor integration including light, temperature, RH, barometric pressure, acoustic, magnetic, acceleration/seismic, etc.
- Reference Board Design/Gerbers for simplified OEM design integration

Software support

- Optimized, industry proven, XMesh™ networking stack for low-power, self-forming, high reliability wireless networks
- Open, standards-based interfaces for integration and customization of sensor node applications
- Optional ZigBee protocol support
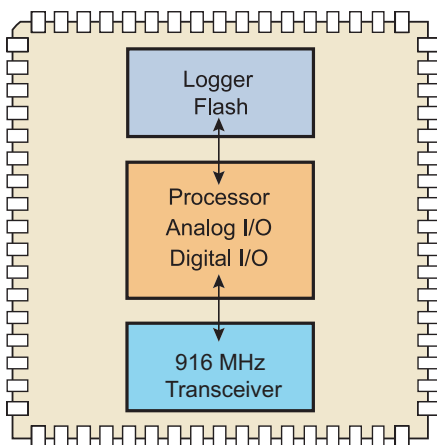
MPR600CA Block Diagram

Processor/Radio Module	MPR600CA	Remarks
Processor Performance		
Program Flash Memory	128K bytes	
Measurement Serial Flash	512K bytes	>100,000 measurements
Configuration EEPROM	4 K bytes	
Serial Communications	UART	0-3V transmission levels
Analog to Digital Converter	10 bit ADC	8 channels, 0-3V input
Other Interfaces	Digital I/O,I2C,SPI	
Current Draw	8 mA	Active mode
	< 15 µA	Sleep mode
RF Transceiver		
Center Frequency	916 MHz	ISM band, programmable in 1 MHz steps
Transmit (TX) Data Rate	38.4 KBaud	
RF power	-20 dBm (min), +5 dBm (typ)	
Receive Sensitivity	-98 dBm (min)	
Current Draw	27 mA	Transmit with maximum power
	10 mA	Receive mode
	<1 µA	Sleep mode
Electromechanical		
External Power	2.1V - 3.6V	
Size (in)	0.95 x 0.95	LCC68
(mm)	24.13 x 24.13	
Weight (oz)	0.11	
(gms)	3	

Specifications subject to change without notice

OEM Development Kit

For prototyping and development, MEMSIC provides MoteWorks™, a
fully integrated software platform and a complete OEM development kit,
consisting of pre-programmed OEM Edition Reference Designs, OEM Edition
Modules, sensor/data acquisition boards and an Ethernet base station. The
MoteWorks™ software platform is optimized for low-power battery-operated
networks providing an end-to-end platform across all tiers of wireless sensor
networking applications. Custom development tools are also available. See
the MoteWorks™ brochure for more details.
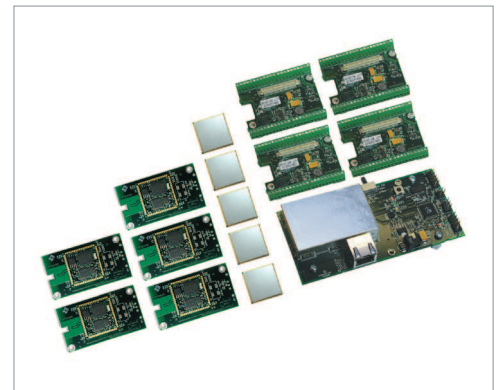
MoteWorks™ OEM Development Kit

Ordering Information

Model	Description
MPR600CA	868/916 MHz MICA2 OEM Edition Module
MOTE-KIT600CA	868/916 MHz OEM Development Kit (5x MPR600CA, 5x MPR600 Reference Design, 4x MDA300CA, 1x MDA100CB, 1x MIB600CA, 1x Debug Pod)
MoteWorks	Standard Edition Software Platform
MoteWorks Enterprise	Premium Edition Software Platform with Source