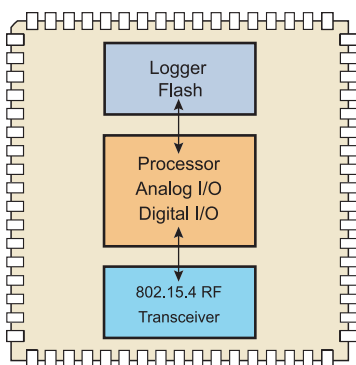# MICAz OEM EDITION

OEM MESH NETWORK RADIO MODULE

- OEM Module for Battery-Powered Mesh Network Sensor Nodes

- Postage Stamp Form Factor

- IEEE 802.15.4, 2.4 GHz Radio for up to 250 kbps Data Rate

- XMesh™ Mesh Networking Protocols

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

Applications

- Battery-Powered Wireless Mesh Networking Devices

- 802.15.4 Compliant Wireless Mesh Networking Nodes

- Industrial, Structural and Security Monitoring

- Environmental, Physical, Health Maintenance

- Asset Management

Actual Size

MICAz OEM EDITION

MEMSIC's MICAz OEM Edition module, the MPR2600, 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 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 MICAz OEM Edition is the functional equivalent of MEMSIC's popular MPR2400 MICAz Mote in a postage stamp form factor. This inherent design continuity makes the MICAz OEM Edition an ideal solution for next-generation mesh networking products and designs. The MICAz OEM Edition is offered in a 68-pin LCC form factor for high-volume surface-mount integration.

By utilizing open-platform, standards based interfaces the OEM Module offers users an attractive value proposition consisting of easily differentiated, low-power 2.4 GHz IEEE 802.15.4 compliant radio modules that can be rapidly designed and built.

Processor and Radio Platform

- IEEE 802.15.4 compliant/ZigBee capable RF transceiver
- 2.4 GHz globally compatible ISM band
- Direct sequence spread spectrum radio for RF interference resistance and inherent data security
- 250 kbps high data rate radio.
- 68-pin package designed for easy sensor integration including light, temperature, RH, barometric pressure, acoustic, magnetic, acceleration/seismic, etc.

Software support

- Optimized, industry proven, XMesh™ networking stack for low-power, self-forming, high reliability wireless networks
- Open interfaces for integration and customization of sensor node

MPR2600CA Block Diagram

Processor/Radio Module	MPR2600CA	Remarks
Processor Performance		
Program Flash Memory	128K bytes	
Measurement Serial Flash	512K bytes	>100,000 measurements
Configuration EEPROM	4K bytes	
RAM	4K 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		
Frequency Band[1]	2400 MHz to 2483.5 MHz	ISM band
Transmit (TX) Data Rate	250 kbps	
RF Power	3 dBm (max), 0 dBm (typ)	
Receive Sensitivity	-90 dBm (min), -94 dBm (typ)	
Adjacent Channel Rejection	45 dB	+ 5 MHz channel spacing
	30 dB	- 5 MHz channel spacing
Current Draw	19.7 mA	Receive mode
	11 mA TX, -10 dBm	
	14 mA TX, -5 dBm	
	17.4 mA TX, 0 dBm	
	1 µA	Sleep mode, voltage regulator off
Electromechanical		
External Power	2.4V - 3.6V	
Size (in)	0.95 x 0.95	LCC68
(mm)	24.13 x 24.13	

Notes

[1]5 MHz steps for compliance with IEEE 802.15.4/D18-2003.
Specifications subject to change without notice

OEM Design Kit

For prototyping and development, MEMSIC provides MoteWorks™, a fully integrated software platform and a complete OEM Design 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.

OEM Design Kit

Ordering Information

Model	Description
MPR2600CA	2.4 GHz MICAz OEM Edition Module
WSN-OEM2400CA	2.4 GHz MICAz OEM Design Kit