

SIENA MODULE
21MM X 21MM

OVERVIEW

Siena is Frontier Silicon's reduced form factor module based on the highly integrated Kino 4-Lite digital radio System on a Chip (SoC).

With no bulky connector (the module is soldered directly to the application PCB) Siena is the world's smallest DAB/DAB+/FM radio module. Designed to provide digital radio functionality to customer products, Siena offers a high-performance, low-cost solution to a wide range of digital audio products. Siena can be incorporated in to customer audio systems acting as a slave digital radio system for host MCUs or as the master processor in an entry price point product.

In addition to enabling reduced system cost, Siena introduces a host of state-of-the-art technologies to optimise power consumption, RF and audio performance to provide a market leading end-user experience.

CONNECTIVITY

- UART/SCB (I2C compatible) control interface
- On-chip audio DAC with analogue output
- Digital audio output – I2S (slave mode only)
- SCB (I2C compatible) interface
- Keypad and rotary encoder support
- Configurable general purpose I/O (GPIO)
- Multi-purpose ADCs and PDM/PWM out

APPLICATIONS

- DAB/DAB+/FM digital radios
- Digital Audio systems

KEY FEATURES

- Single 3.3V supply option
- Customisable feature-set via the latest DAB SDK
- Innovative system for minimising self-interference
- Sensitivity optimised antenna configurations
- Band II/III
- DAB/DAB+ sensitivity to -100 dBm (typical)
- FM sensitivity to -108 dBm (typical)
- Power consumption typical 110mW (DAB)
- On-chip stereo DAC
- Digital audio output (I2S) slave mode only
- Option for fully digital signal path with internal EQ
- Dot Matrix compatible display driver
- Memory:
 - Integrated for DAB/DAB+/FM
 - Built-in flash - size dependent on application
- Temperature range:
 - Operation: 0 to +70°C
 - Storage: -40 to +85°C

SIENA FS2415

DAB/DAB+/FM digital radio module for Digital Tick compliant audio devices

DESCRIPTION

Siena provides a complete flexible, low-power digital radio system, in a compact module, incorporating digital/analogue radio capability.

The diagrams opposite show typical applications of a Siena module.

SOFTWARE

Software is configured to customer requirements and pre-installed in the module's flash memory.

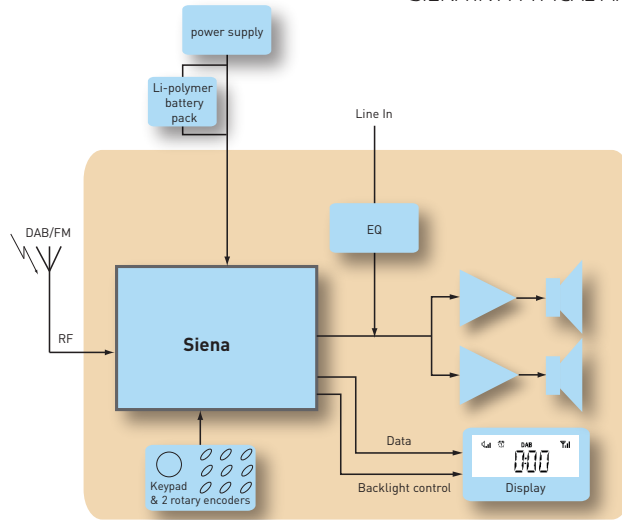
Full suite of customisable application software which includes:

- Support for a variety of User Interfaces, including 1-line or 2-line displays.
- Clock with multiple alarms/timers
- Presets
- Support for up to 16 keys

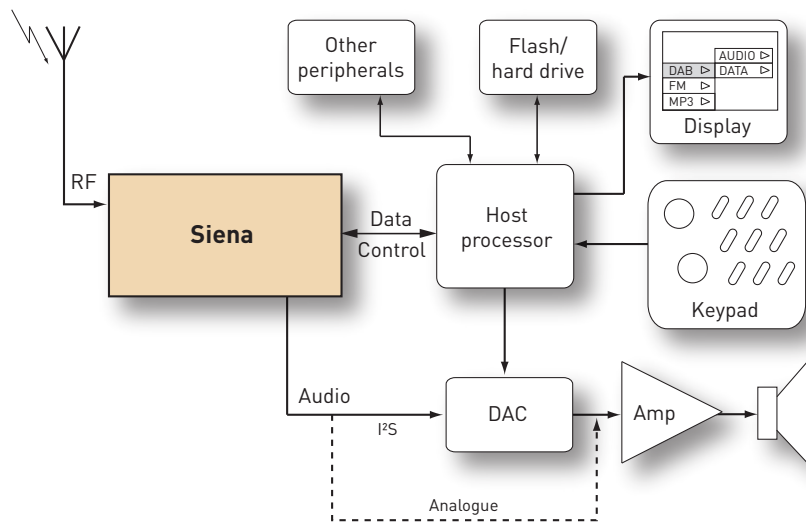
STANDARDS

Siena is precertified for digital tick compliance, significantly reducing the testing requirements for end products based on this module.

SIENA IN A TYPICAL MASTER APPLICATION



SIENA IN A TYPICAL SLAVE APPLICATION



SPECIFICATION

Supply voltage options		3.3V, 1.8V and 1.1V external supply 3.3V only external supply (default)
Power consumption <i>(dependent on implemented supply voltage option)</i>		110-300 mW (DAB/DAB+) 115-299 mW (FM-RDS)
DAB/DAB ⁺	Sensitivity	-100 dBm (typ)
FM	Sensitivity (@ 40 dB SNR)	-108 dBm (typ)

