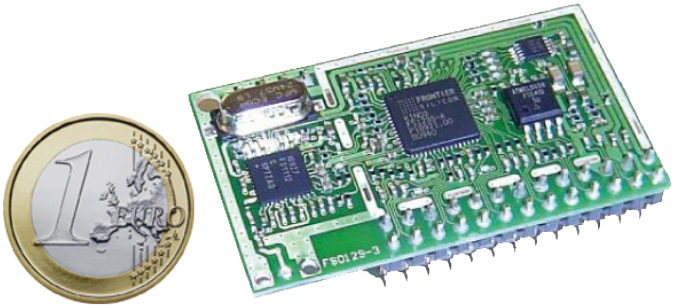
# VERONA FS2052

Low-power, low-cost DAB/DAB+/DMB-Radio/FM tuner module



VERONA MODULE - 48 X 28 MM

## APPLICATIONS

- **Entry level digital radio**
- **Portable (kitchen) radio**
- **Clock radio**

## OVERVIEW

The Verona FS2052 module is the latest in a new generation of digital audio products to use the new DAB/DAB+/DMB-Radio optimised Kino 3 baseband chip. Ideal for WorldDMB Profile 1 receivers, providing superior signal reception at low-power and at a price point suitable for entry level products.

Verona is designed for worldwide applications to enable production of high-performance dual-band DAB/DAB+/DMB-Radio/FM receivers at low-cost. Verona operates in master mode removing the need for any additional host processor and includes an optional USB device interface for firmware updates.

The module provides all interfaces necessary for a fully functional radio, needing only power supply, display, keypad, audio amplifier and speakers to complete a product.

## BENEFITS

- WorldDMB Profile 1 compliant delivering true economy of scale
- Software-upgradable from DAB to DAB+ and DMB-Radio
- Optional USB interface for field software updates
- The most cost-effective DAB/DAB+/DMB-Radio/FM solution available
- Best in class sensitivity ensuring good radio reception even in poor signal areas
- Requires no external RAM (which keeps the BOM cost low)

## KINO 3 BASEBAND PROCESSOR

The **Kino 3** FS1235 IC is an advanced programmable DAB/DAB+/DMB-Radio baseband receiver, incorporating a number of mixed signal system components as well as advanced peripherals previously only available as discrete additional components, providing significant space and power savings.

## BUILD OPTION

| PRODUCT CODE | DESCRIPTION |
|---|---|
| FS2052B | Band III/Software FM with RDS |

Further options are described in the Verona datasheet.


VERONA CAN DRIVE A STANDARD (2 X 16 CHR) DISPLAY

## KEY FEATURES

- WorldDMB Profile 1 compliant
- Ultra low-power DAB/DAB+/DMB-Radio/FM reception
- DAB (MPEG1) and DAB+/DMB-Radio (AAC+) decoding
- DAB/DAB+/DMB-Radio sensitivity to -97 dBm (typical)
- FM sensitivity to -106 dBm (typical)
- Decodes multiple audio services up to 384 kbps
- Temperature range:
  operation: -10 to +70°C
  storage: -40 to +85°C
- Memory:
  - Integrated RAM on Kino 3 baseband IC for DAB/DAB+/DMB-Radio
  - 4 Mbit flash
- On-board stereo DAC
- Optional full-speed USB 2.0 (12 Mbit/s) for software updates
- Combined antenna input for FM and Band III
- RoHS compliant
- Battery detection
- Display backlight control
- Multi-language support


KINO 3 ADVANCED BASEBAND CHIP



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Verona FS2052 Product Brief FSM 0003 4796 Rev 2

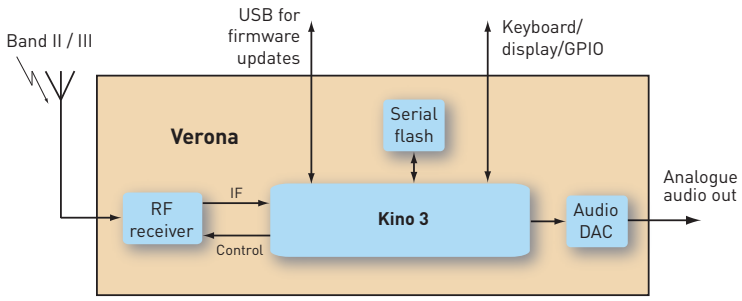
# VERONA FS2052

## Low-power, low-cost DAB/DAB+/DMB-Radio/FM tuner module

## DESCRIPTION

Verona provides a complete low-cost, low-power WorldDMB Profile 1 (DAB/DAB+/DMB-Radio) digital broadcast and FM tuner in a compact module.

The main components of the Verona module are shown in the diagram opposite. These are the RF front-end, Kino 3 baseband processor, flash and audio DAC.




VERONA BLOCK DIAGRAM

### Software

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

Full suite of customisable application software which includes:

- Software FM-RDS
- Clock with multiple alarms/timers
- Presets
- Battery detect
- Support for 1 rotary encoder and 2-line display
- Optional USB field upgrade available

## DEVELOPMENT PLATFORM

For evaluation and development, the Venus production-ready platform for digital radio enables manufacturers to quickly develop differentiated end-products.

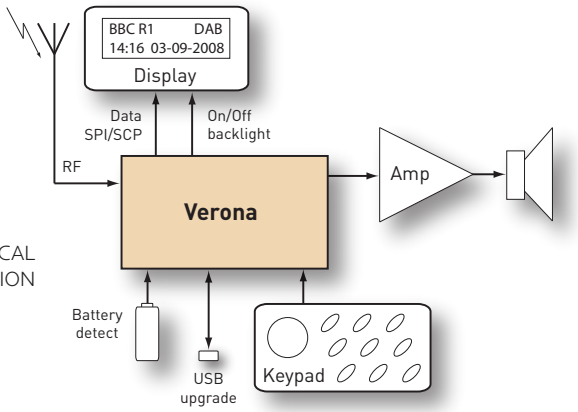
## STANDARDS AND CERTIFICATION

Verona and Venus have been designed to exceed the WorldDMB Profile 1 specification for basic digital radio, interoperable throughout Europe and beyond. As well as working with the standards shown, suitable end-products based on this platform should be able to obtain certification for various other industry standards. For more information, contact Frontier Silicon.

## SPECIFICATION

| | | |
|---|---|---|
| Supply voltages | | 3.3 V (baseband I/O and RF)<br>1.2 V (baseband core) |
| Power consumption | | 227 mW (DAB)<br>245 mW (DAB+)<br>317 mW (FM-RDS) |
| DAB/DAB+/DMB-Radio | Sensitivity | -97 dB (typ) |
| | ACR | 40 dB (typ) |
| | FOS | 55 dB (typ) |
| FM | Sensitivity (@ 40 dB SNR) | -106 dB (typ) |
| | Stereo separation | 42 dB (typ) |


VERONA MOUNTED ON THE VENUS REFERENCE PLATFORM




VERONA IN A TYPICAL EXAMPLE APPLICATION