FRONTIER SILICON

VENICE 7A FS2027A
Low-power DAB/DAB+/DMB-Radio tuner module

VENICE 7A MODULE - 52.5 X 40 MM

APPLICATIONS

- **In-vehicle aftermarket digital radios/infotainment systems**
- **In-vehicle digital radio adapters**

OVERVIEW

Venice 7A is an optimised version of the world's best selling DAB/DAB+/DMB-Radio module, Venice 7, conditioned expressly for aftermarket automotive applications. Venice 7A is designed for worldwide applications, enabling the production of high performance aftermarket dual-band DAB/DAB+/DMB-Radio capable car radio/infotainment systems at low cost. It operates in slave mode under the control of an external microcontroller.

Venice 7A combines the hardware and software features of Venice 7 with automotive-specific enhancements including an extended operational temperature range, extra-rugged mechanical construction, a nickel silver screen can, horizontal or vertical mounting, and the option of Frontier Silicon's automotive-targeted software AUTODAB 1.0.

BUILD OPTIONS

PRODUCT CODE		DESCRIPTION
FS2029-	B	Band III/Software FM with RDS
	D	Band III/L Band/Software FM with RDS

Further options are described in the Venice 9 datasheet.

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.

KINO 3 ADVANCED BASEBAND CHIP

FEATURES

- WorldDMB Profile 1 compliant
- Ultra low-power DAB/DAB+/DMB-Radio reception
- DAB (MPEG1) and DAB+/DMB-Radio (AAC+) decoding
- DAB/DAB+/DMB-Radio sensitivity to -100 dBm (typical)
- Ultra low-power baseband reception
- Decodes multiple audio services up to 384 Kbit/s
- Temperature range:
  - Operation: -20 to +70°C
  - Storage: -40 to +85°C
- Memory:
  - Integrated RAM on Kino 3 baseband IC for DAB/DAB+/DMB-Radio
  - Flash options - 4 or 8 Mbit
- On-board stereo DAC
- I^2S bus for optional external DAC or codec
- S/PDIF interface
- Serial control interfaces
- Antenna input for Band III
- RoHS compliant
- Extra-rugged mechanical construction to meet automotive standards for shock, bump, swept sine vibration, random vibration and drop.
- Nickel silver screen can for optimum corrosion resistance
- Suitability for horizontal and vertical mounting
- Choice of software: DAB 4.1 or AUTODAB 1.0

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Venice 7A FS2027A Product Brief FSM-0007-6907 Rev 2

VENICE 7A FS2027A
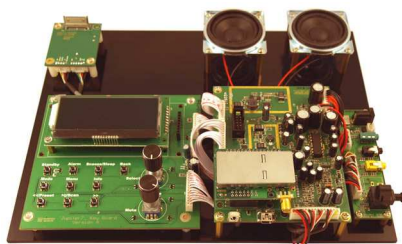## Low-power DAB/DAB+/DMB-Radio tuner module

DESCRIPTION

Venice 7A provides a complete low-cost, low-power WorldDMB Profile 1 (DAB/DAB+/DMB-Radio) digital broadcast tuner in a compact module.

The main components of the Venice 7A module are shown in the diagram opposite. These are the RF front-end, Kino 3 baseband processor, Flash and audio DAC. Hardware interfaces include serial ports (SPI, SCB and UART) for connection to a controlling CPU. Analogue (line-level) and digital (S/PDIF and I^{2}S) outputs are available.

DEVELOPMENT PLATFORM

For evaluation and development, the Jupiter 7 production-ready platform for digital radio enables manufacturers to quickly develop differentiated end-products.

JUPITER 7 REFERENCE PLATFORM
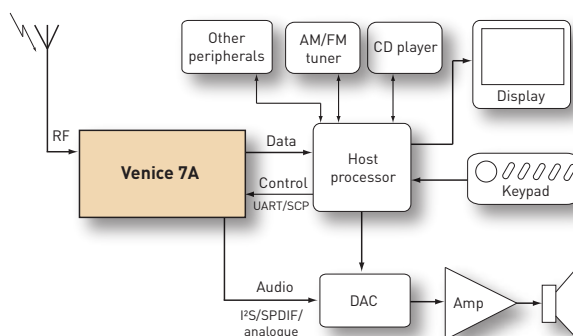(SLAVE MODE CONFIGURATION)

SOFTWARE

Software is configured to customer requirements and pre-installed in the module's Flash memory. Software builds are available for the module to be used as a slave under control of a host microcontroller.

Two software options are available:

- DAB 4.1 (core DAB/DAB+/DMB-R functionality, plus auto Flash memory lifetime enhancement)
- AUTODAB 1.0 (DAB 4.1 feature set plus optimised mobile performance, audio concealment, DAB Announcements, host side service linking)
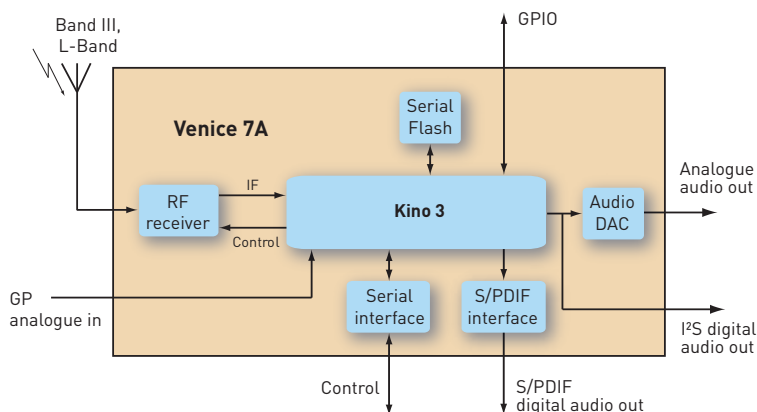
SPECIFICATION

Supply voltages		3.3 V (baseband I/O and RF)
		1.2 V (baseband core)
Power consumption		227 mW (DAB)
		245 mW (DAB+)
DAB/DAB+/DMB-Radio	Sensitivity	-99 dBm (typ)
	ACR	30 dB (typ)
	FOS	60 dB (typ)

VENICE 7A IN AN EXAMPLE IMPLEMENTATION

STANDARDS AND CERTIFICATION

Venice 7A and Jupiter 7 have been designed to exceed the WorldDMB Profile 1 specification for basic digital radio, interoperable throughout Europe and beyond, and also operate seamlessly with the rest of the digital audio world. 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.

INTERNAL BLOCK DIAGRAM

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