

## General Description

The MxL868 is a low-power, single-chip Full-Spectrum Capture® (FSC®) satellite digital ODU IC, that features eight half L-band inputs (seven 950 MHz–1450 MHz and one 1650 MHz–2150 MHz) for an LNBF application. The MxL868 can also be configured for four low half band inputs (950 MHz–1450 MHz) and four high half band inputs (1650 MHz–2150 MHz), with an external diplexer for an MDU application. In each configuration, the MxL868 supports three IF output ports that are configurable as dual-band or triple-band translate modes, or the DCS mode. The MxL868 integrates a host CPU microcontroller, FSK modems and controllers, DiSEqC controllers, and a digital crossbar to support BT and DCS functionality.

All major functions are incorporated onto the device, which includes broadband input and output filters, LNAs, channel filters, AGC, and PLL. With its high level of integration and low power consumption, the MxL868 enables a true single-chip satellite ODU solution for band translation, high-density DCS LNBS, and MDU switches that require compact board design and low BOM.

The MxL868 operates using 1.8V and 1.1V dual supplies.

The MxL868 is available in a small 10 mm x 10 mm<sup>2</sup> footprint, 88-pin QFN package.

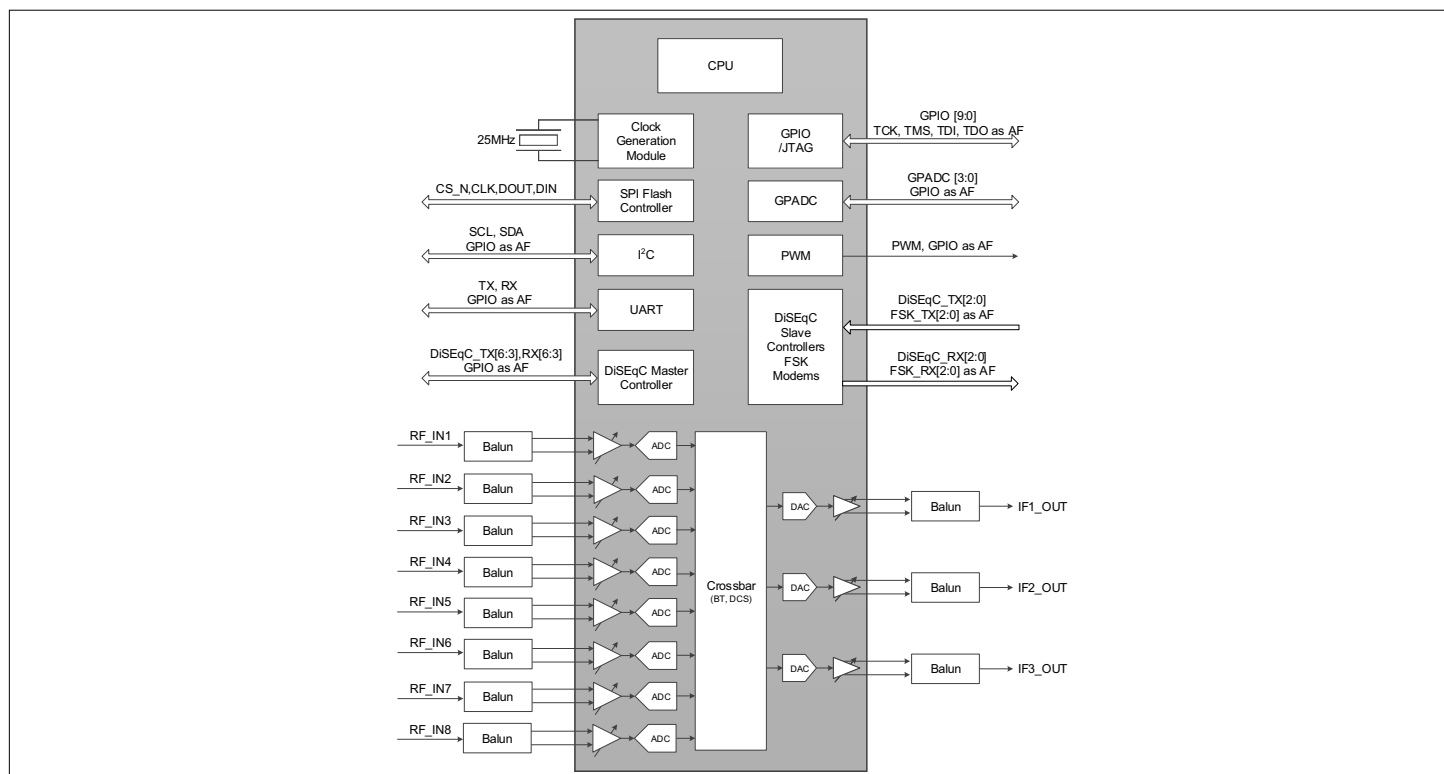
## Applications

- DBS LNBF—Band translation and high-density DCS LNBS
- DBS MDU—Band translation and high-density DCS MDU switches

## Features

- Low power:
  - Less than 3.82W typical case, with all RF inputs and two IF outputs active
  - Power scales with the number of active inputs and outputs
- Configurable dual/triple band-translate or DCS modes
- Fully-integrated host CPU microcontroller, FSK modems, and DiSEqC 2.x controllers:
  - Four master and three slave modes DiSEqC interface controllers
  - Three FSK modems
  - External PMU interfaces
- Architecture:
  - FSC half L-band digital cross-bar and band/channel selection
  - Differential RF inputs/IF outputs
- Two input modes:
  - LNBF (seven 950 MHz–1450 MHz, and one 1650 MHz–2150 MHz)
  - MDU (four 950 MHz–1450 MHz, and four 1650 MHz–2150 MHz)
- Three IF outputs, each with a configurable on/off state for power saving purposes:
  - Dual BT: 950 MHz–1450 MHz, 1650 MHz–2150 MHz
  - Triple BT: 950 MHz–1450 MHz, 1650 MHz–2150 MHz, 2500 MHz–3000 MHz
  - DCS 1: 950 MHz–1450 MHz or 1650 MHz–2150 MHz
  - DCS 2: 950 MHz–1450 MHz and 1650 MHz–2150 MHz
  - DCS 3: 950 MHz–2150 MHz
  - DCS 4: 250 MHz–750 MHz
  - Up to 12 dB tilt compensation
- Programmable channel grid—50 MHz–70 MHz in 5 MHz steps
- Ability to provide channel spectrum analysis data through the FSK/DiSEqC
- Built-in temperature sensor
- Access to all on-chip functions using an API for firmware development
- Integrated 32-bit RISC CPU and its subsystems:
  - 200 MHz maximum frequency
  - Watchdog timer
- Built-in memories:
  - IRAM
  - DRAM ROM
- Peripheral interfaces:
  - SPI
  - I<sup>2</sup>C
  - UART
  - JTAG
  - GPIOs
  - GPADCs
  - PWM

## Block Diagram



## Ordering Information

Marketing Part Number	Ordering Part Number	Package	Dimensions	Shipping
MxL868	MxL868-AL-T	SAWN QFN88	10 x 10 x 0.85 mm <sup>3</sup>	Tray
MxL868	MxL868-AL-R	SAWN QFN88	10 x 10 x 0.85 mm <sup>3</sup>	Tape and Reel



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