

General Description

The MxL542C is a low-power single-chip satellite receiver IC, featuring two XL-band Full-Spectrum Capture[®] (FSC[®]) tuners and four demodulators that are compliant with DVB-S and DVB-S2, and DIRECTV legacy standards.

The MxL542C receives signals from the two independent XL-band differential RF inputs, each from 250 MHz to 2350 MHz with a capture bandwidth of 2.1 GHz, and demodulates four satellite channels to produce four independent serial TS outputs. All four TS outputs support two-wire or three-wire modes.

The MxL542C communicates with satellite LNBs through on-chip DiSEqC and FSK modems.

All major functions are incorporated onto the device, including LNAs, RF splitter, channel filters, AGC, adaptive equalizers, PLLs, crystal load capacitors, and demodulators. The MxL542C enables simple, compact board designs with low-power consumption and reduced BOM costs.

The MxL542C integrates an RF splitter that can be used in conjunction with an MxL582 device to enable a cost-effective implementation of a 12-channel solution. The

MxL542C is controlled via an I²C interface, and operates using 1.8V and 1.1V core supplies and an I/O supply of 3.3V. The MxL542C is available in a small 10 mm x 10 mm footprint 72-pin QFN package.

Applications

- STBs
- Residential gateways
- SAT>IP multi-switch
- IP-LNB

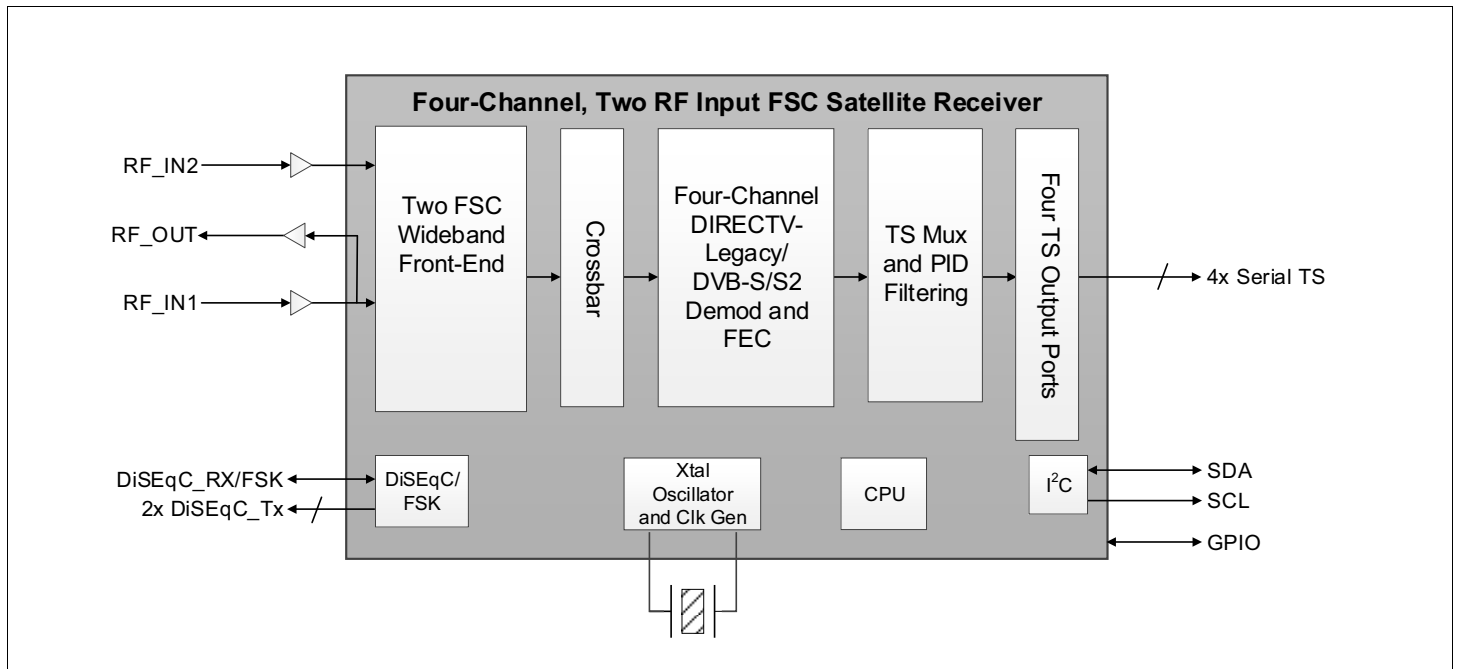
Features

- Ultra low power
- Symbol rates of:
 - 1 MSps to 45 MSps in DVB-S and DVB-S2 modes
 - 20 MSps to 30 MSps in DIRECTV legacy mode
- DIRECTV full transponder loading compliant
- Broadcast wake-up
- Conversion from DIRECTV legacy packets to standard DVB-S/DVB-S2 TS packets
- Single-channel or network tuner mode
- Integrated LNAs
- Differential RF inputs and RF splitter outputs
- Channel spectrum analysis data available through I²C
- On-chip programmable crystal load capacitors to reduce external components
- Coexistence with MoCA, WiFi and LTE
- Automatic channel acquisition
- Auto-detection and auto-correction of spectral inversion
- Four serial TS output ports, configurable in two-wire or three-wire modes and a parallel TS output port
- PID filtering and output TS multiplexing with 2:1 or 4:1 ratio in serial TS mode
- PID filtering and output TS multiplexing with two, four, or up to eight TS output ports
- Two DiSEqC LNB control interfaces and an FSK modem
- EN50494:2007 and EN50607:2013 standards, and SWM single-cable LNB distribution
- I²C compatible interface

Supported Standards

- DVB-S
- DVB-S2
- DIRECTV legacy standard

Block Diagram



Ordering Information

Ordering Part Number	Ordering Part Number	Package	Dimensions	Shipping
MxL542C	MxL542C-AK-T	SAWN QFN72	10 mm x 10 mm x 0.85 mm	Trays
MxL542C	MxL542C-AK-R	SAWN QFN72	10 mm x 10 mm x 0.85 mm	Tape and Reel



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