

MxL241SF

Digital Cable Silicon Tuner + QAM Demodulator SoC

MxL241SF is a highly integrated, monolithic, low power silicon tuner plus QAM demodulator System on Chip (SoC) targeting digital cable broadcast standards (DVB-C, J.83 Annexes A, B, & C, DOCSIS 2.0 & 3.0). Based on MaxLinear's superior silicon tuner in pure digital CMOS technology and a proven QAM demodulator, MxL241SF delivers exceptional performance, lowest power consumption, the smallest footprint and the lowest total solution cost.

MxL241SF also greatly simplifies RF frontend designs with its RF input and MPEG transport stream (TS) output, eliminating the need to deal with the interface design and optimization headaches associated with using separate tuner and demodulator ICs (i.e., automatic gain control (AGC) and intermediate frequency (IF)).

Consuming three to five times less power than typical stand-alone tuners, the MxL241SF is uniquely suited for power sensitive applications, space constrained solutions and multi-frontend designs. This power savings enables tremendous design freedom in dissipation of heat and allows for form factors previously considered impossible.

The cost advantages of standard digital CMOS and unparalleled integration of the tuning and demodulation functions enable MxL241SF to be the most competitive solution in any digital TV market. All broadband input signal filtering, channel selection filtering, and demodulation functionality have been completely integrated, reducing the external bill of materials (BOM) to a small number of standard value discrete components. SAW filters or any other external filters are not required for any application. The RF input is a single-ended 75Ω interface requiring no external transformers.

MxL241SF utilizes an API based SW architecture, reducing the programming of the device to a few simple commands and eliminating the need for complicated register calls. Additionally, MxL241SF requires no complicated spur avoidance algorithms commonly needed by other solutions. This SW simplicity enables quick and easy implementation of the driver source code on any SW platform.

MxL241SF is available in a 6x6mm QFN 40 package. Complete reference designs are available for a variety of applications and standards from MaxLinear as well as from MaxLinear's partners.

Supporting information is available upon request, including reference schematics, 2 and 4 layer PCB layouts, detailed bill of materials (BOM), HW and SW design guides, source code and standard specific performance test reports.



Applications

- Set-Top Boxes
- Residential Gateways
- Digital Televisions
- DOCSIS Cable Modems & EMTAs
- Tuner Modules

Features

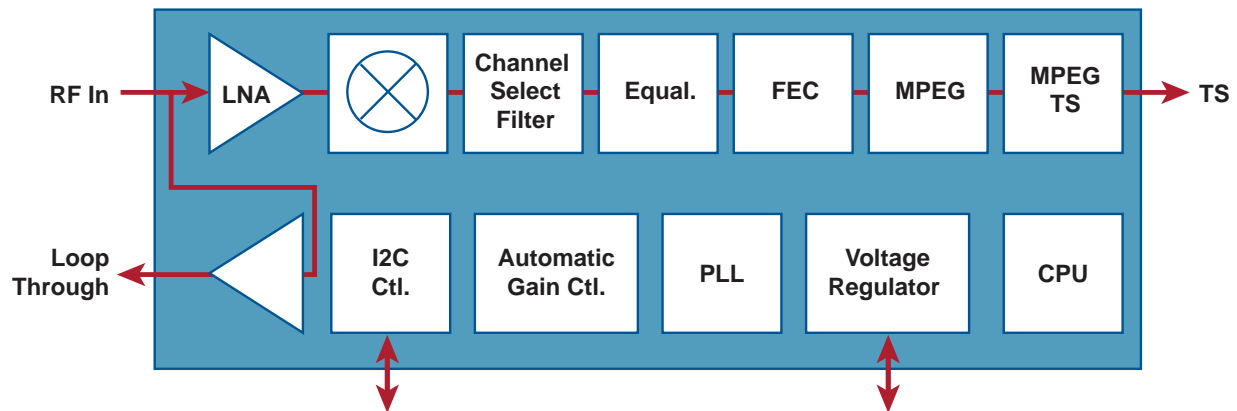
- 44MHz to 1002MHz tuning range
- Serial & Parallel MPEG TS output
- Programmable channel filter BW of 6 & 8MHz
- Reference clock output for crystal sharing
- MPEG clock output for TS synchronization
- CRX/DRX OOB output
- I2C compatible interface
- API based SW interface
- QFN 40 Package, 6x6mm

Benefits

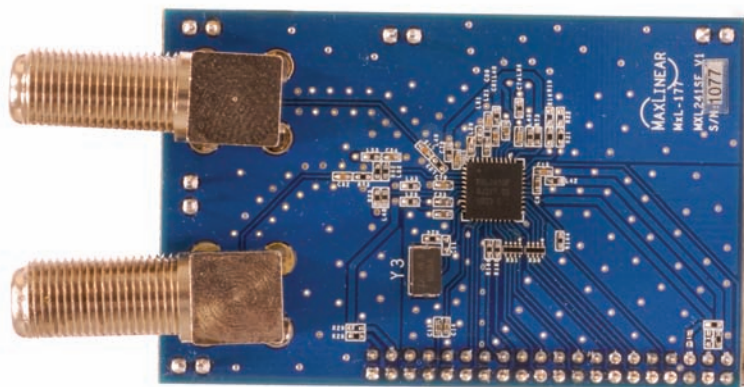
- Ultra Low Power – 450mW
- No external SAW filters
- Low BOM cost
- Reference clock output
- MPEG clock output
- Highly accurate input power level reporting

MxL241SF Digital Cable Silicon Tuner + QAM Demodulator

Block Diagram



Evaluation Board



Ordering Information

| Product | Part Number | Description |
|----------|-------------|---|
| MxL241SF | MxL241SF | Digital Cable Silicon Tuner + QAM Demodulator |



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Envisioning, Empowering, Excelling