

## NXP silicon tuner TDA18252HN

# Easy and cost effective digital cable STB solution

Are you faced with the challenge of supporting high-performance emerging applications while still requiring analog loop-through capabilities for major markets like India and China? NXP Semiconductors' 3<sup>rd</sup> generation, fully integrated silicon tuner TDA18252HN helps you create high-performance, low-cost digital cable set-top box solutions for all markets.

### Key benefits

- ▶ Lowers system cost by eliminating costly components such as low noise amplifiers and SAW filters
- ▶ Fully meets SARFT requirements
- ▶ Supports single tuner receiver boxes and enables DVR configuration
- ▶ Supports other world standards including SCTE-40, J-QAM and NORDIG
- ▶ Easy on-board integration
- ▶ Reduced external component count
- ▶ Smallest system PCB footprint, enabling further size reduction of application board
- ▶ Offers optimized front end solution with TDA10024HN (latest NXP QAM demodulator)

### Key features

- ▶ Multi-standard digital cable reception
- ▶ Low power consumption (< 800 mW)
- ▶ Frequency coverage up to 1002 MHz

- ▶ Fully integrated IF selectivity, eliminating the need for external SAW filters
- ▶ Fully integrated oscillators with no external components
- ▶ On-chip loopthrough with analog capability
- ▶ Input signal strength indicator and die temperature sensor (via I<sup>2</sup>C-bus)
- ▶ Device standby modes to further reduce power consumption
- ▶ Single 3.3 V power supply

### Key applications

- ▶ DVB-C and digital cable set-top box applications

Dedicated to digital cable set-top box applications in fast growing Asian markets like China and India, our highly integrated silicon tuner TDA18252HN helps you reduce your total application bill-of-materials. Simplifying your system design, the IC incorporates the tuning function along with the IF selectivity - eliminating the need for discrete image-rejection, RF and IF SAW filters.



The received signal spectrum is down-converted and filtered to low-IF signal. This directly feeds the QAM demodulator, without needing conventional high cost external filtering. The TDA18252HN provides a low IF frequency of 4 MHz from a 6 MHz bandwidth, 4.5 MHz from a 7 MHz bandwidth and 5 MHz from an 8 MHz bandwidth.

Working with a single 16 MHz crystal, the IC's buffered clock output can provide the system clock for other tuners and for channel decoders. The TDA18252HN also includes an integrated analog loop-through function.

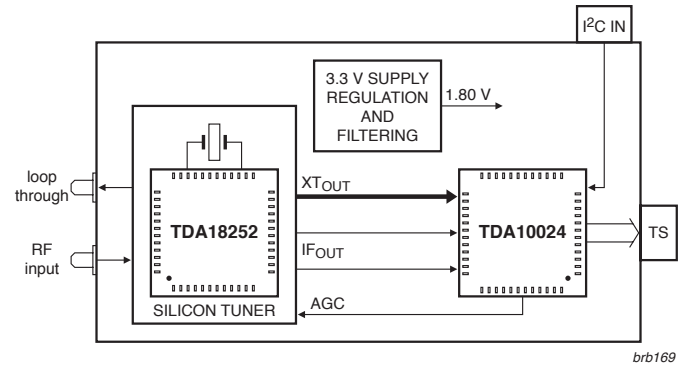
NXP offers a number of complete reference designs based on the TDA18252HN, further reducing your time and effort when developing new set-top box solutions.

**Key parameters**

Parameter	Value (typical)
Frequency range	41 – 1002 MHz
Noise figure	7 dB
Phase noise	-85 dBc @ 10 kHz
Power dissipation	800 mW
CSO/CTB	57/63 dBc
Image rejection	60 dBc
Low leakage	8 dB $\mu$ V

**Front-end OM3853C/C1 reference design**

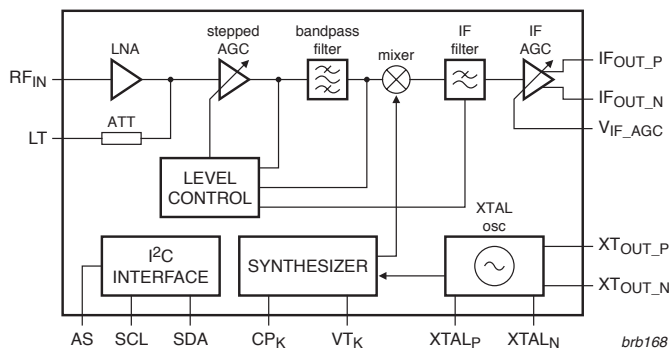
NXP's OM3853/C1 single channel digital cable front-end reference design helps cable STB makers in China develop straightforward and cost effective receivers. Along with our TDA18252HN – incorporating low-profile shielding for EMI protection – it also features the QAM demodulator TDA10024HN. The TDA10024HN controls the tuner gain by delivering the AGC control voltage. For the QAM demodulator, an on-board 1.80 V supply voltage is available.



**1/2 NIM OM3865C/C1 reference design**

Our OM3865/C1 lets you quickly evaluate the TDA18252HN in your existing STB platforms. It is pin-to-pin compatible with conventional can tuners currently used in the Chinese market.

**TDA18252 block diagram**



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