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' 3rd 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^{2}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.

founded by Philips

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 dBµV
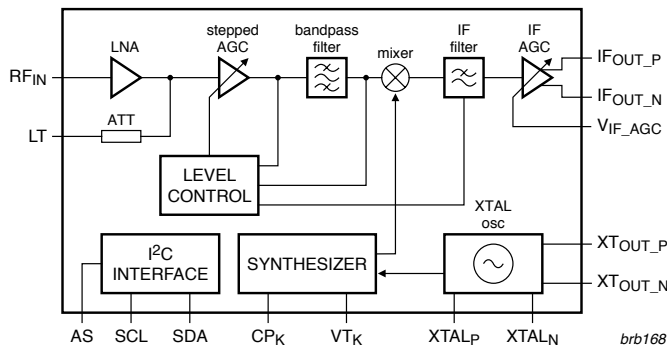
Front-end OM3853C/C1 reference design

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 1.8 V supply voltage is available.

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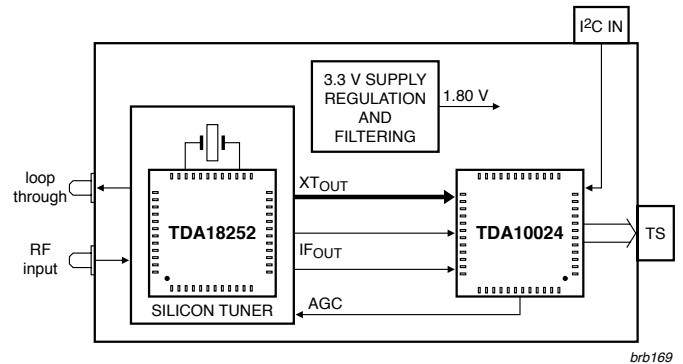
½ NIM OM3865C/C1 reference design

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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