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)
- 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 I2C-bus)
- Device standby modes to further reduce power consumption
- Single 3.3 V power supply

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value (typical)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency range</td>
<td>41 – 1002 MHz</td>
</tr>
<tr>
<td>Noise figure</td>
<td>7 dB</td>
</tr>
<tr>
<td>Phase noise</td>
<td>-85 dBc @ 10 kHz</td>
</tr>
<tr>
<td>Power dissipation</td>
<td>800 mW</td>
</tr>
<tr>
<td>CSO/CTB</td>
<td>57/63 dBc</td>
</tr>
<tr>
<td>Image rejection</td>
<td>60 dBc</td>
</tr>
<tr>
<td>Low leakage</td>
<td>8 dBµV</td>
</tr>
</tbody>
</table>

### TDA18252 block diagram

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### 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.

### 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.