



NXP integrated Ku-band downconverters TFF101xHN

Industry's lowest power integrated Ku-band downconverters

These Universal DVB-S compliant Ku-band downconverters consume about 50% less current (52 mA) than other integrated solutions. Additionally they are fully integrated (PLL synthesizer/mixer/IF gain block) and RF tested – which results in significantly decreased manufacturing time. Stability of the local oscillator is guaranteed, which improves overall system reliability over temperature and time, and eliminates the need for manual alignment in production.

Key features

- ▶ Ultra-low current consumption ($I_{CC} = 52 \text{ mA}$)
- ▶ Small PCB footprint
 - DHVQFN16 package (2.5 x 3.5 x 0.85 mm)
 - Only 7 external components
 - No inductors necessary
- ▶ Single supply domain of 5 V \pm 10%
- ▶ Only one low-cost crystal (25 MHz)
- ▶ High $P_{o(1dB)}$ and high linearity
 - $P_{o(1dB)} = 6 \text{ dBm}$
 - $IP3_o = 15 \text{ dBm}$
- ▶ Multiple gain types
 - TFF1014HN = 36 dB
 - TFF1015HN = 39 dB
 - TFF1017HN = 42 dB
 - TFF1018HN = 45 dB
- ▶ Flat gain over frequency (<2 dBpp)
- ▶ Input and output matched
- ▶ Low phase noise (1.5° RMS typ)
- ▶ Integration bandwidth from 10 kHz to 13 MHz

Key benefits

- ▶ Fully RF tested device reduces manufacturing
- ▶ Consumes about 50% less current than other integrated solutions
- ▶ High integration simplifies design-in
- ▶ Stable LO over temperature and time improves reliability
- ▶ Multiple gain variants improve flexibility on different platforms
- ▶ Flexible design-in with Universal DVB-S (Intelsat and Astra) compliance

Applications

- ▶ DBS systems
- ▶ Universal single and twin LNB segments

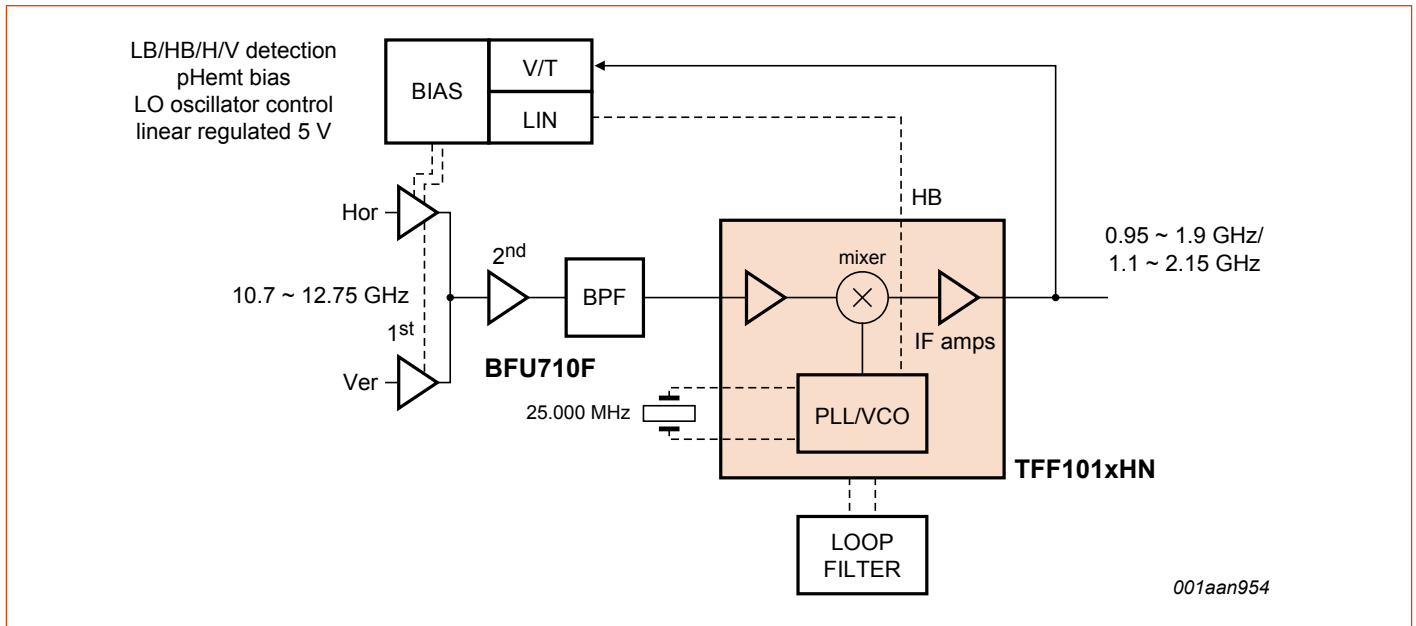
Designed for downlink signal reception for TV satellite dishes, NXP's new family of DVB-S compliant downconverters consume 50% less current (52 mA) than other integrated solutions, significantly increasing the lifetime of the LNB and improving its reliability.







The TFF101xHN family offers simplicity and integration in a leadless 16-pin package with a conversion gain ranging from 37 to 45 dB. They also offer integrated phase noise of 1.5° RMS and a low noise figure of 7 dB. Additionally, this high level of integration guarantees the stability of the local oscillator (LO), which improves overall system reliability by eliminating LO drift over lifetime due to temperature changes.

For satellite LNB makers, assembly is also made easy due to the high integration level of functionality and minimum requirement for external components. The TFF101xHN family comes in four fully RF-tested versions with pre-set LO frequencies, which significantly reduces the need for manual adjustments on the production line, thereby speeding up the manufacturing process and time to market, as well as lowering operating costs.

Fully integrated mixer/oscillator/downconverter



Satellite LNB RF ICs

Type	Package	Input freq range	V_{cc}	I	G_{conv}	NF	OIP3	LO Freq	Integrated Phase noise density (degrees RMS)
			(V)	(mA)	(dB)	(dB)	(dB)	(GHz)	
 TFF1014HN	SOT763-1	10.7 - 12.75	5	52	36	7	14	9.75 / 10.6	1.5
 TFF1015HN	SOT763-1	10.7 - 12.75	5	52	39	7	15	9.75 / 10.6	1.5
 TFF1017HN	SOT763-1	10.7 - 12.75	5	52	42	7	15	9.75 / 10.6	1.5
 TFF1018HN	SOT763-1	10.7 - 12.75	5	52	45	7	15	9.75 / 10.6	1.5

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