

ANS6201 - Power Line Communication for Smart Grid Applications - AFE

General description

SmartHomeLink is a low cost, low power PLC (Power Line Communication) technology developed by AnSem for smart grid and smart home applications.

ANS6201 is a single chip Analog Front End (AFE) that integrates a PLC transceiver together with a power measurement unit and digital control.

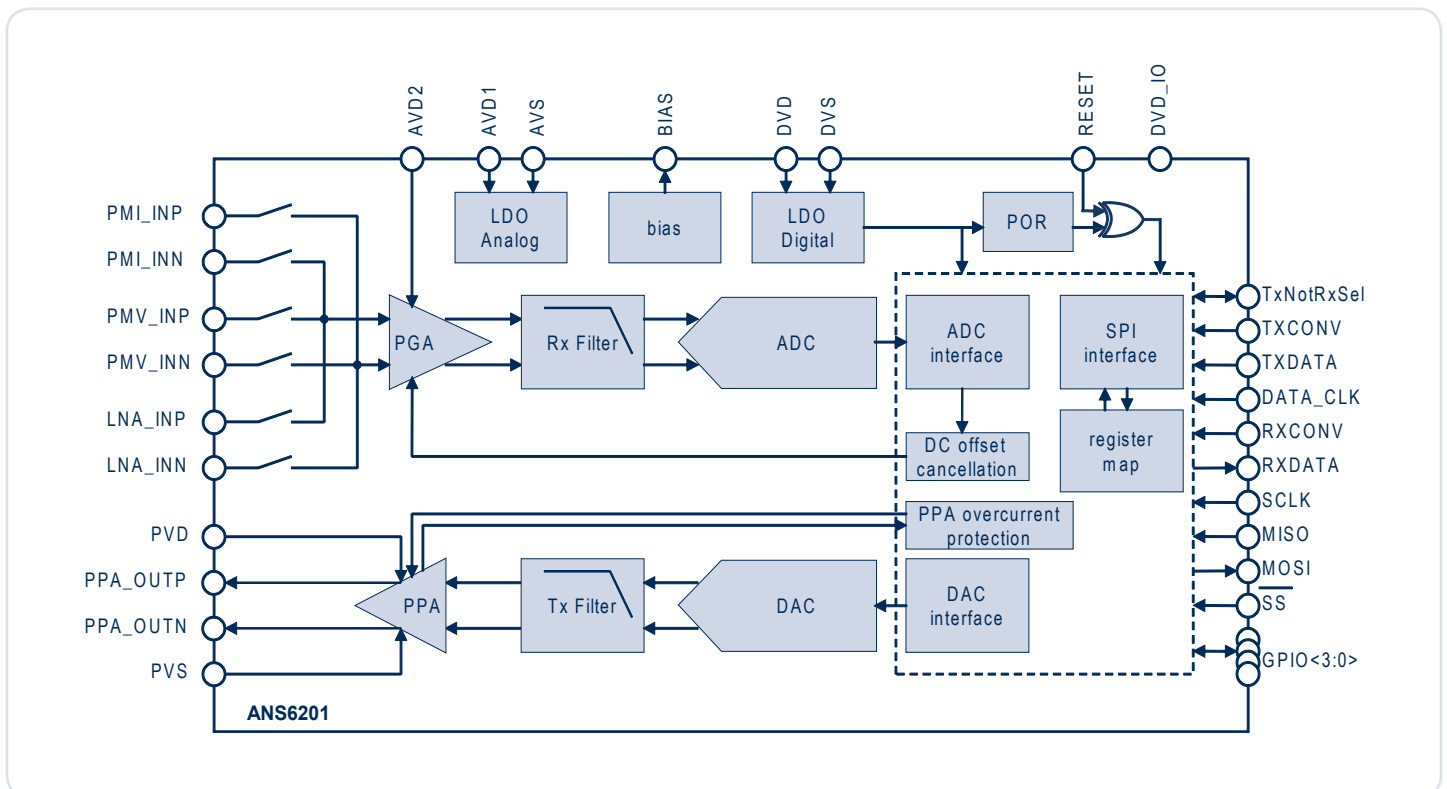
ANS6201 uses a "Software Defined" technology making it flexible to communicate under different protocols and with different modulation techniques.

The "Software Defined" chip-technology assures a robust communication at the highest speed and lowest power consumption in function of the demanding power line condition.

The ANS6201 AFE is developed to obtain a high flexibility to operate in different frequency bands and under variable power line conditions

The ANS6201 is developed for integration in industrial and residential devices.

The ANS6201 can be controlled by an external DSP or microcontroller.



Applications

- Smart grid: automatic reading of smart meters
- Management of decentralized electricity production, storage and consumption
- Smart home: energy monitoring and control per appliance/device
- Demand response: intelligent scheduling to avoid peak electricity demand

Specifications

- ◆ Analog Front End for PLC (QFN32)
- ◆ 0.18 μm TSMC CMOS technology
- ◆ Programmable AFE building blocks for robust communication and low power consumption
- ◆ Frequency band: 9 to 500 kHz
- ◆ Programmable band width: CENELEC A-D, ARIB, FCC
- ◆ On-chip programmable TX/RX filters for frequency band adaption
- ◆ Programmable cut-off frequency Low Pass Filter: 100 kHz to 1 MHz
- ◆ Supports OFDM (BPSK, QPSK and 8PSK) and S-FSK
- ◆ Compliant with ITU G.9901, IEEE P1901.2, Prime, G3, ... protocols
- ◆ High signal sensitivity: 11 μVrms (typical)
- ◆ Receiver gain: -24 to 42 dB
- ◆ Dynamic range up to 125 dB for BPSK in CENELEC-A
- ◆ High data speed under robust mode (BPSK): 45 kbps for CENELEC-A
- ◆ Low power consumption: 20 mW (RX)
- ◆ 12 bit ADC sample speed configurable up to 2 MSps
- ◆ DC offset calibration
- ◆ 12 bit DAC sample speed configurable up to 2 MSps
- ◆ PPA with maximum output swing of 6 V_{ptp}
- ◆ Large output swing with output power up to 134 dB μV (with ext. PA)
- ◆ PPA with over current protection at 600 mA
- ◆ Programmable PPA gain: -9 to 15.5 dB
- ◆ Complies with standards EN50065, FCC part 15
- ◆ Single power supply: 3.3V
- ◆ Integrated 1-phase power measurement with 5% accuracy
- ◆ Serial interface (SPI™) to control AFE
- ◆ High speed data interface to digital modem

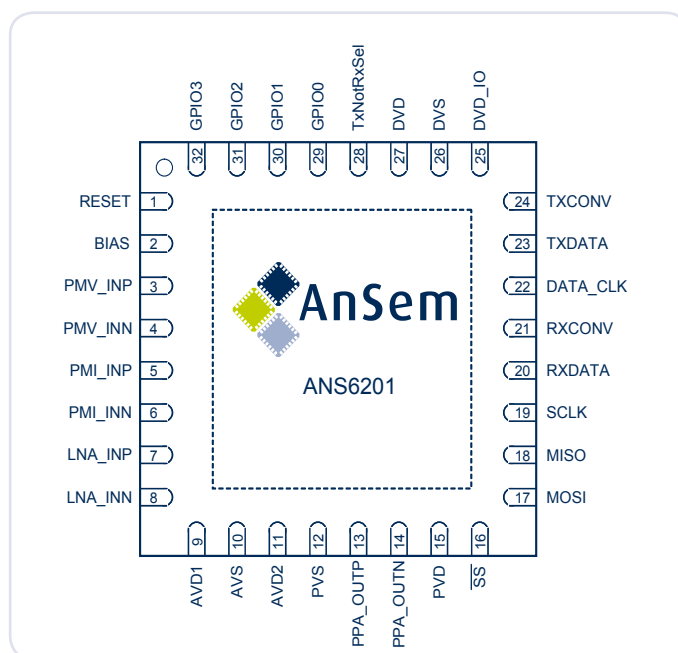
About AnSem

AnSem is Europe's leading fabless analog ASIC design service company, designing and delivering state-of-the-art analog, RF and mixed-signal integrated circuits to customers worldwide. Founded in 1998 and based in Leuven, Belgium, AnSem specializes in the development of advanced integrated circuits for wired and wireless data transmission, data acquisition, ultra low power and high voltage applications. AnSem is ISO 9001 certified and is a proven and solid development partner for ambitious and visionary customers, reaching for leadership in global markets.

Further information

For further information about this product, please contact us at smarthomelink@ansem.com.

Pin description & pin list



Pin No.	Pin Name	Description
1	RESET	Chip reset (active high)
2	BIAS	Biasing current, 100 μA nominal, through external resistor
3,4	PMV_INP, PMV_INN	Analog voltage measurement
5,6	PMI_INP, PMI_INN	Analog current measurement
7,8	LNA_INP, LNA_INN	Differential input signal
9,11	AVD1, AVD2	Analog 3.3V supply
10	AVS	Analog ground
12	PVS	Analog ground pre-power amplifier
13,14	PPA_OUTP, PPA_OUTN	Differential output pre-power amplifier
15	PVD	Analog 3.3V supply pre-power amplifier
16	$\overline{\text{SS}}$	SPI slave select
17	MOSI	SPI master-out, slave in
18	MISO	SPI master-in, slave-out
19	SCLK	Clock SPI
20	RXDATA	Output Rx data
21	RX CONV	Tx data conversion
22	DATA_CLK	Clock data
23	TXDATA	Input Tx data
24	TXCONV	Tx data conversion
25,27	DVD_IO, DVD	Digital 3.3V supply
26	DVS	Digital ground
28	TxNotRxSel	Chip selection Tx or Rx mode
29,32	GPIO[0:3]	General purpose IO signals