

PM4381 Analog Front End for ADSL2+

Preliminary
Product Brief

PRODUCT OVERVIEW

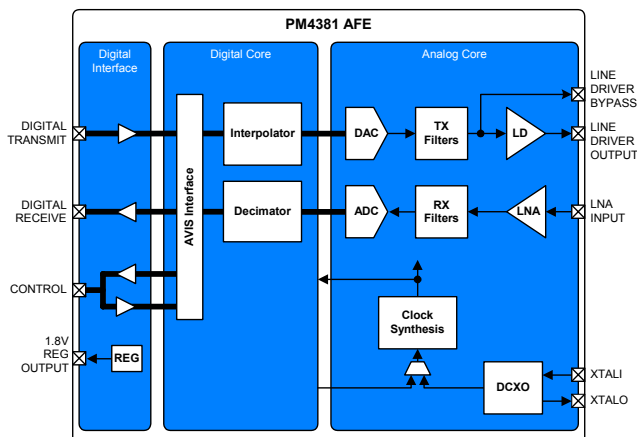
The PM4381 Analog Front End (AFE) is a highly integrated solution for Customer Premises Equipment (CPE) ranging from standalone modems to Residential Gateways. The PM4381 AFE is suitable for ADSL2+ CPE, and is fully backwards compatible with ADSL2 and ADSL interface technologies.

The PM4381 AFE achieves industry-leading performance giving DSL service providers the ability to offer faster broadband connections over farther distances. The high degree of integration allows DSL box vendors to build CPE products with lower BOM cost, and in more attractive, smaller form factors.

The PM4381 integrates a high performance 5V line driver and offers extremely low distortion and noise in both transmit and receive paths. The low noise and distortion, combined with high-resolution data converters and integrated programmable receive equalizer and filters, reduce the need for complex and costly external filters to achieve optimum rate/reach performance. In addition, the device integrates a 16-bit digitally controlled crystal oscillator (DCXO), and an optional 1.8V regulator that allows the PM4381 to be used in a system that only provides 3.3V and 5V.

The PM4381 AFE implements PMC-Sierra's AVIS (ADSL2+/VDSL2 Interface Specification) digital interface, which allows flexible connection to a variety of Discrete Multitone (DMT) processors, including PMC-Sierra's MSP7120 ADSL2+ Residential Gateway (RG) SoC.

BLOCK DIAGRAM



BENEFITS

- Enables industry-leading rate versus reach performance
- Full backwards compatibility to ADSL2 and ADSL
- High integration, eliminating the need for a discrete line driver and external power supply and clock components, thereby reducing BOM costs and real estate.
- AVIS flexible digital interface reduces pin-count and provides compatibility with a wide range of ADSL DMT processors, including PMC-Sierra's MSP7120 ADSL2+ RG SoC.

PRODUCT HIGHLIGHTS

INTEGRATED FUNCTIONS

- 5V Line Driver delivers +14.5 dBm to the line
- Ultra Low-Noise Amplifier (LNA) and receive chain realize input-referred noise of -150 dBm/Hz
- 16-bit DAC and 16-bit ADC
- Receive bandpass, equalization, and anti-alias filters
- Transmit path gain control (24 dB range)
- Receive path gain control (54 dB range)
- DCXO and PLL clock synthesizer
- Reference frequency and voltage generation
- Linear regulator (1.8V) for digital circuitry (optional)

ANALOG/DIGITAL BANDWIDTH

- AVIS 16-bit interface supports 16-bit transfers over nibble-wide bus at speeds of 8.832 MSamples/s
- Transmit path signal bandwidth of 26 kHz to 276 kHz
- Receive signal bandwidth of 138 kHz to 2.208 MHz

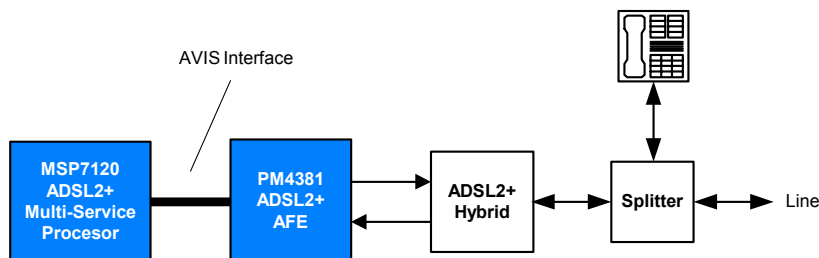
PACKAGE

- 56-pin MFL/QFN EPAD (8 x 8 mm)

APPLICATIONS

- ADSL2+ CPE Residential Gateway
- ADSL2+ Integrated Access Devices
- ADSL2+ modem equipment (internal or external)

ADSL2+ RESIDENTIAL GATEWAY



FURTHER RESOURCES

DIGITAL HOME AND BUSINESS SOLUTIONS

www.pmc-sierra.com/digital-home

RESIDENTIAL GATEWAY FAMILY SOLUTIONS

www.pmc-sierra.com/residential-gateway

TECHNICAL DOCUMENTATION

www.pmc-sierra.com/products/DocFind.html

Corporate Head Office:
PMC-Sierra, Inc.
Mission Towers One
3975 Freedom Circle
Santa Clara, CA, 95054, U.S.A.
Tel: 1.408.239.8000
Fax: 1.408.492.1157

Operations Head Office:
PMC-Sierra, Inc.
100-2700 Production Way
Burnaby, BC V5A 4X1 Canada
Tel: 1.604.415.6000
Fax: 1.604.415.6200

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