

# PMB 6277

SMARTi PM2



SMARTi PM2 (PMB 6277) is a low-cost, highly integrated quad-band single chip GSM/GPRS/EDGE CMOS transceiver for GSM850/GSM900/GSM1800/GSM1900 voice and high performance data transfer applications.

BASED ON THE SMARTi PM industry leading EDGE CMOS transceiver, the SMARTi PM2 is designed for low power consumption and high integration. Featuring a digital interface fully compatible with the DigRF V1.12 standard, the SMARTi PM2 integrates all the analogue blocs of the RF solution, thus interfacing with fully digital base band components.

SMARTi PM2 FEATURES a Zero IF direct conversion receiver and a quad-band polar modulator transmit path for EDGE with integrated PGA functionality. Further on it comprises a completely integrated digital  $\Sigma\Delta$ -synthesizer with HSCSD and GPRS/EDGE capability, a digitally controlled reference oscillator with three outputs and a fully integrated quad-band RF oscillator (VCO). Power amplifier ramping and control functions, front-end switch control signals complete the SMARTi PM2. The complete radio is digitally controlled by an embedded micro-controller through the DigRF interface of the SMARTi PM2, thus ensuring optimal control of the radio by fully digital Base Band solutions.

THE OPTIMIZED architecture of the SMARTi PM2 ensures an easy-to-use EDGE solution enabling a very size-effective RF engine implementation.

## Applications

- GSM/EDGE single, dual, triple, and quad-band terminals
- Data transfer applications
- PCMCIA GSM/EDGE applications

## Features

- Receiver
  - Direct conversion receiver architecture
  - Four integrated LNAs
  - Fully integrated channel filter
  - Highly linear RF quadrature demodulator
  - Automatic DC offset compensation
  - Low power budget

- Transmitter
  - Digital Sigma-Delta modulator for GMSK
  - Polar modulator architecture for 8PSK
  - No delay adjustment necessary
  - Integrated ramping generator
  - Digital PA bias control interface for efficiency enhancement of EDGE PAs
  - Integrated power control loop for accurate output power level control supports linear and non-linear (dual-mode) PAs
  - Direct control operation of dual-mode EDGE PAs for low power mobiles
  - Single-ended 50  $\Omega$  outputs
  - Low power budget
- RF-synthesizer
  - Sigma-Delta synthesizer for multislots operation
  - Supports GPRS/EGPRS class 1 to 12 / type 1
  - Fast lock-in times
  - Integrated loop filter
- RF oscillator
  - Fully integrated, low noise RF VCO for quad-band operation
- Reference oscillator
  - Digitally controlled crystal oscillator core with highly linear tuning characteristic
  - AFC DAC for controlling an external VCTCXO module
  - Three single-ended 26 MHz reference clock outputs
- Baseband interface
  - DigRF v1.12 interface supporting Tx stream and Tx block mode
- Front-end module interface
  - 4 digital PA control lines
  - 4 antenna switch control lines
- Measurement interface
  - Two single ended voltage inputs for measurement of crystal and PA temperature
  - Current or voltage provided
  - Read out possibility to baseband via register fetch

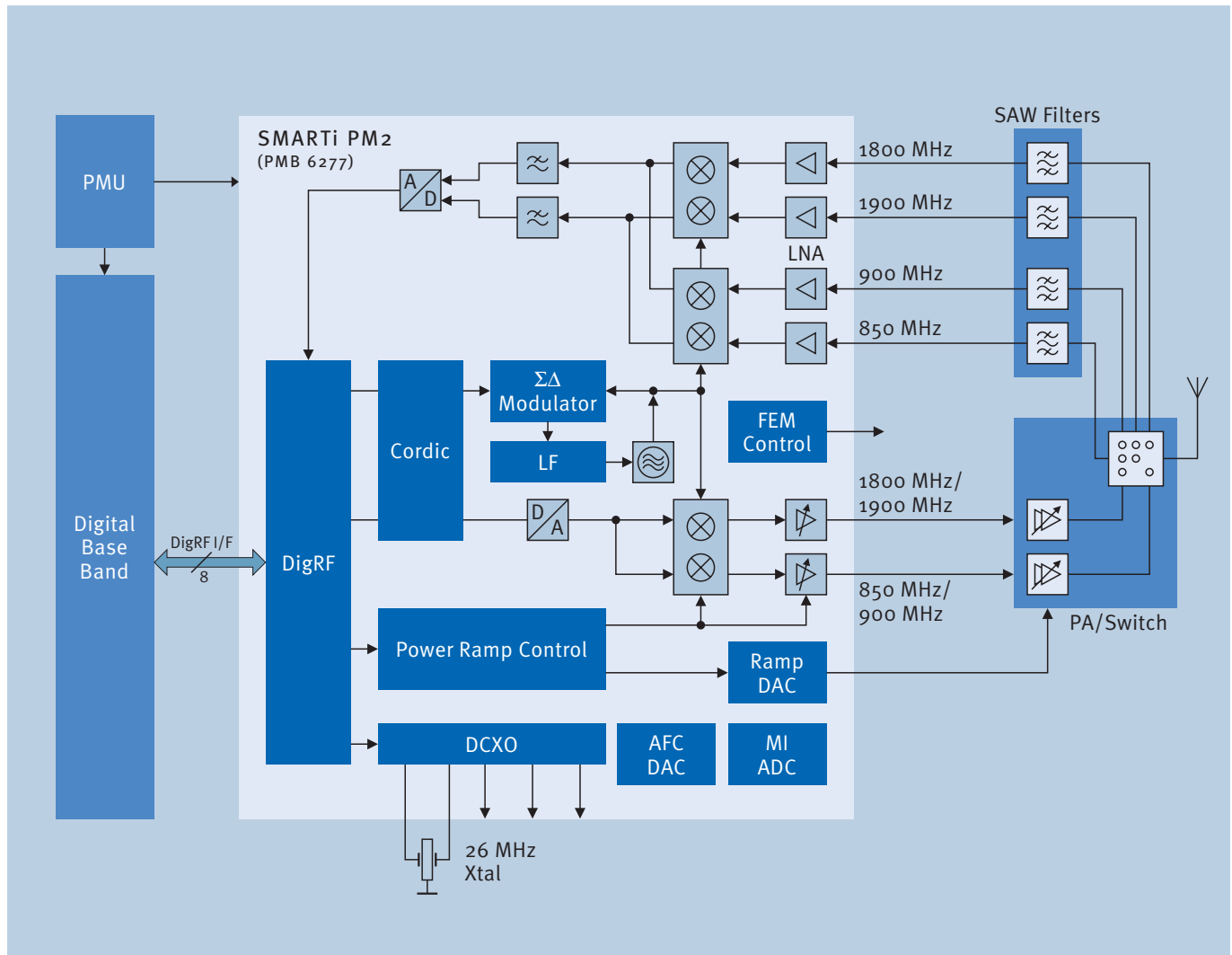
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## Infinion GSM/EDGE Quad-Band RF Solution Using SMARTi PM2 (PMB 6277)



### Technology

- Infineon's 0.13  $\mu\text{m}$  RF-CMOS process
- Single supply voltage from 2.7 V ... 3.0 V
- Operating temperature range -30°C to 85°C
- PG-WFSGA-81 green package (5 x 5 mm<sup>2</sup>)

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