PRODUCT SUMMARY

SKY77526 TX Front-End Module for Quad-Band GSM / EDGE

Applications

- Quad-band cellular handsets:

  GMSK Modulation
  - Class 4 GSM850/900
  - Class 1 DCS1800/ PCS1900
  - Class 12 GPRS multi-slot operation

  EDGE modulation
  - Class E2 GSM850/900
  - Class E2 DCS1800/ PCS1900

Features

- High efficiency:
  - GSM850 41%
  - GSM900 43%
  - DCS 38%
  - PCS 40%
- Low loss PHEMT RF antenna switch
- Detector output – Linear dB/V
- Closed loop GMSK mode power control
- Small outline 8 x 8 mm
- Low profile 1.2 mm
- Gold-plated, lead-free contacts
- Low VRAMP current

NEW Skyworks offers lead (Pb)-free, RoHS (European Parliament for the Restriction of Hazardous Substances) -compliant packaging.

Description

The SKY77526 TX Front End Module (FEM) is designed in a compact form factor for quad-band cellular handsets comprising GSM850/900, DCS1800, PCS1900, supporting GMSK and linear EDGE modulation. Class 12 General Packet Radio Service (GPRS) multi-slot operation is also supported.

The module consists of a GSM850/900 PA block and a DCS1800/PCS1900 PA block, impedance-matching circuitry for 50 Ω input and output impedances, a multifunction power amplifier control (MFC) block, low pass harmonic rejection filters, and an SP6T Antenna T/R switch.

Two separate Heterojunction Bipolar Transistor (HBT) PA blocks are fabricated onto an InGaP die; one supports the GSM850/900 bands, the other supports the DCS1800 and PCS1900 bands. The InGaP PA die, the silicon MFC die, PHEMT switch die, and the passive components are mounted on a multi-layer laminate substrate. The assembly is encapsulated with plastic overmold.

Band select (BS1 and BS2) circuitry is used to select the desired TX and RX frequency bands. MODE circuitry selects GMSK modulation (logic 1) or EDGE modulation (logic 0). VRAMP controls the output power for GMSK modulation and provides bias optimization for EDGE modulation depending on the state of MODE control.

The integrated Multi-Function Control (MFC) provides closed loop power control in GMSK mode, reducing sensitivity to antenna load, input drive, temperature, power supply, and process variation. In EDGE mode, the MFC configures the PA for fixed gain and provides the ability to optimize the PA bias operation at different power levels.

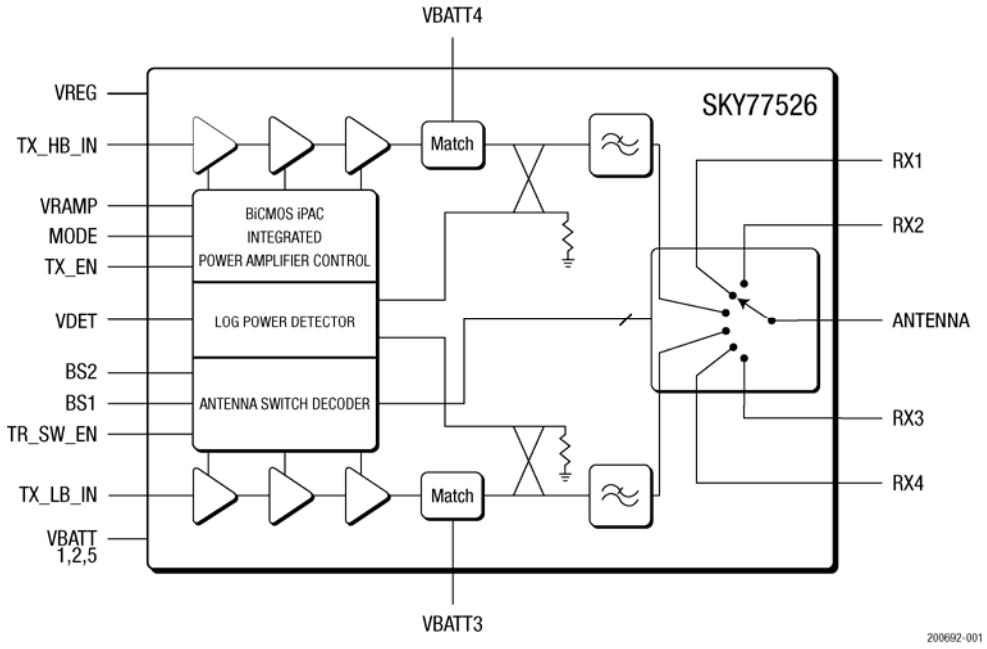

Figure 1. SKY77526 Functional Block Diagram