



**THE DATASHEET OF  
SKY77528-51**



**PRODUCT SUMMARY**

# SKY77528 Tx Front-End Module for Quad-Band GSM / EDGE

## Applications

- Quad-band, cellular handsets:
  - Class 4 GSM850/EGSM900
  - Class 1 DCS1800/PCS1900
  - Class E2 GSM850/EGSM900
  - Class E2 DCS1800/PCS1900
  - Class 12 EGPRS multi-slot operation

## Features

- High efficiency:
  - GSM850, 45% (peak)
  - EGSM900, 45% (peak)
  - DCS1800, 40% (peak)
  - PCS1900, 40% (peak)
- Low-loss PHEMT RF antenna switch
- Detector output: linear dB/V
- Closed loop GMSK mode power control
- Low VRAMP current
- Low VBATT detection
- Integrated temperature sensor
- Small Package
  - 8 mm x 6 mm
- Low Profile
  - 1.1 mm Max.

## Description

The SKY77528 is a transmit Front-End Module (FEM) designed for quad-band Global System for Mobile Communications (GSM), General Packet Radio Service (GPRS), and Enhanced Data Rate for GSM Evolution (EDGE) handsets and modules.

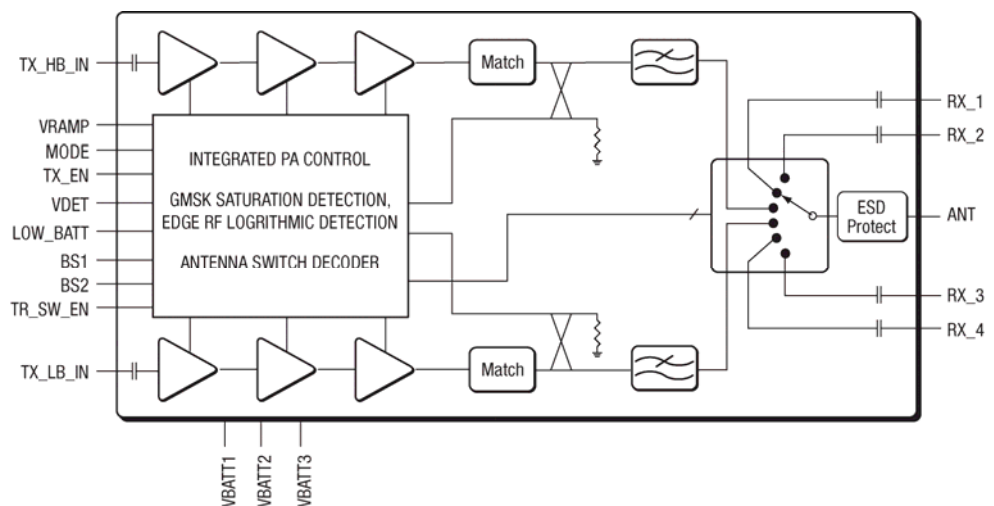
The SKY77528 consists of a GSM850/EGSM900 PA block and a DCS1800/PCS1900 PA block, impedance-matching circuitry for 50 Ω inputs and outputs, a multi-function PA control block, low-pass harmonic rejection filter, and a transmit/receive antenna switch.

Two Heterojunction Bipolar Transistor (HBT) PA blocks are fabricated onto an Indium Gallium Phosphide (InGaP) die; one block supports the GSM850 and EGSM900 bands, the other supports the DCS1800 and PCS1900 bands. The InGaP die, the Silicon (Si) die, the PHEMT die, and the passive components are mounted on a multi-layer laminate substrate. The entire assembly is encapsulated with plastic overmold.

Pad signals BS1 and BS2 select the GSM/EGSM or DCS/PCS frequency bands. The TX\_EN pad signal selects transmit or receive mode of the respective RF switch. MODE pad circuitry selects GMSK modulation or EDGE modulation. The VRAMP pad controls the output power for GMSK modulation and provides bias optimization for EDGE modulation depending on the state of the MODE pad.

An integrated Multi-Function Control (MFC) circuit 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. The VDET pad is used to detect saturation conditions in GMSK mode (which automatically reduces the VRAMP output) and for power control in EDGE mode.

The functional block diagram for the 34-pad Multi-Chip Module (MCM) package is shown in Figure 1.



**Figure 1. SKY77528 Functional Block Diagram**

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## Ordering Information

Model Number	Manufacturing Part Number	Product Revision	Package	Operating Temperature
SKY77528	SKY77528		MCM 8 x 6 x 1.1 mm Max.	-25 °C to 85 °C

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