ADVANCE PRODUCT SUMMARY

SKY77321: PA Module for Tri-Band EGSM / GPRS

Applications

- Tri-band cellular handsets encompassing
  - Class 4 EGSM900
  - Class 1 DCS1800 PCS1900
  - GPRS (up to Class 12) multislot operation

Features

- High efficiency
  - EGSM900 53%
  - DCS1800 47%
  - PCS1900 47%
- Input/output matching
  - 50 Ω internal
- Small outline
  - 6 mm x 6 mm
- Low profile
  - 1.2 mm maximum
- Low APC current
  - 10 µA typical
- Gold plated, lead-free contacts

The SKY77321 Power Amplifier Module (PAM) is designed in a compact form factor for tri-band cellular handsets comprising EGSM900, DCS1800, and PCS1900 operation. It also supports Class 12 General Packet Radio Service (GPRS) multislot operation.

The PAM consists of an EGSM900 PA block, a DCS1800/PCS1900 PA block, impedance-matching circuitry for 50 Ω input and output, and bias control circuitry. Two separate Heterojunction Bipolar Transistor (HBT) PA blocks are fabricated on a single Gallium Arsenide (GaAs) die. One PA block operates in the EGSM900 band and the other PA block supports both the DCS1800 and the PCS1900 bands. Optimized for Li-Ion battery operation, both PA blocks share common power supply pins to distribute current. A custom CMOS integrated circuit provides the internal interface circuitry, including a current amplifier that minimizes the required power control current (I_{APC}) to 10 µA, typical. The GaAs die, the Silicon (Si) die, and passive comments are mounted on a multi-layer laminate substrate. The assembly is encapsulated with plastic overmold.

The RF input and output ports are internally matched to 50 Ω to reduce the number of external components for a tri-band design. Extremely low leakage current (2 µA, typical) of the dual PA module maximizes handset standby time. The SKY77321 also contains band-select switching circuitry to select EGSM (logic 0) and DCS/PCS (logic 1) as determined from the Band Select (BS) signal. In the block diagram shown below, the BS pin selects the PA output (DCS/PCS OUT or EGSM OUT) while the Analog Power Control (APC) controls the level of output power.

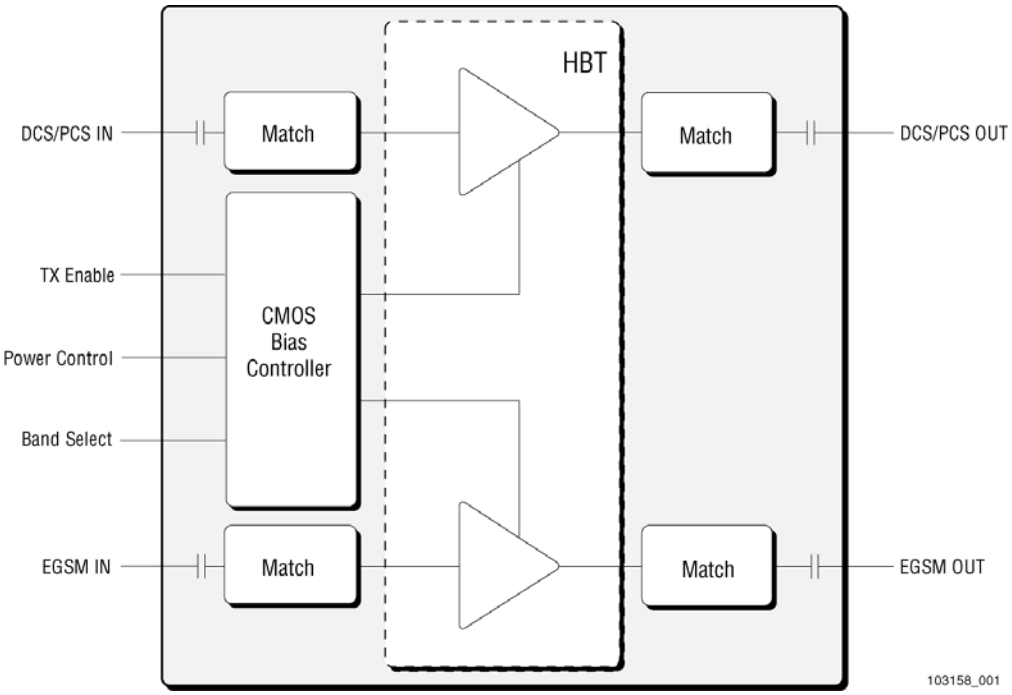

Figure 1. Functional Block Diagram

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