PRODUCT SUMMARY

SKY77604 Multi-Mode / Multi-Band Power Amplifier Module for Next Generation GGE and HSPA Handsets

Applications

- Quad-band cellular handsets:
  - Class 4 GSM850/EGSM900
  - Class 1 DCS1800/PCS1900
  - Class E2 GSM850/EGSM900/ DCS1800/PCS1900
  - Class 12 multi-slot EGPRS
- Multi-band 3G handsets
- WCDMA/HSDPA/HSUPA-modulated handsets – Bands I, II, V, VIII

Features

- Hybrid architecture: separate GSM and WCDMA paths
- Separate single-ended GSM and WCDMA outputs, combined single-ended GSM and WCDMA inputs, all AC-coupled
- Multiplexed voltage detector for GMSK, EDGE modes; coupler output for 3G bands provided to transceiver for power control
- Fully programmable serial bus interface
- Final VCC stage for 2.5G/3G can attach to battery or buck DC/DC
- Driver stage for 3G can attach to battery or buck DC/DC
- 2.5G features:
  - EGPRS Class 12 multi-slot operation
  - Linear power detector
  - Linear PA with bias optimization for efficiency/linearity trade-off in 8-PSK mode
- 3G features:
  - WCDMA mode supports output power and bandwidth for bands I, II, V, VIII
  - Coupler output
  - Linear balanced with bias optimization and low/high mode gain switch for best efficiency/linearity trade-off
- Small, low profile package:
  - 6 mm x 8 mm x 0.9 mm
  - 34-pin configuration

NEW Skyworks Green™ products are RoHS (Restriction of Hazardous Substances)-compliant, conform to the EIA/EICTA/JEITA Joint Industry Guide (JIG) Level A guidelines, are halogen free according to IEC-61249-2-21, and contain < 1,000 ppm antimony trioxide in polymeric materials.

Description

Skyworks SKY77604 is a hybrid multi-mode, multi-band Power Amplifier Module (PAM) that supports 2.5G and 3G handsets, and operates efficiently in GSM, EGPRS, EDGE WCDMA modes.

The PAM consists of a GSM800/EGSM900 PA block, a DCS1800/PCS1900 PA block, separate WCDMA blocks for low and high bands, RF input / output ports internally matched to 50 Ω to reduce the number of external components, and a Multi-Function Control (MFC) block. A custom BiCMOS integrated circuit provides the internal MFC interface and operation. Extremely low leakage current maximizes handset standby time.

2.5G: The SKY77604 supports the GSM850, EGSM900, DCS1800, and PCS1900 bands. The PAM also supports 2.5G Class 12 Enhanced General Packet Radio Service (EGPRS) multi-slot operation and EDGE linear modulation.

3G: The SKY77604 uses Load Insensitive Power Amplifier (LIPA®) circuitry to support WCDMA, High-Speed Downlink Packet Access (HSDPA), and High-Speed Uplink Packet Access (HSUPA) modulation at a high antenna Voltage Standing-Wave Ratio (VSWR). This functionality covers multiple bands for 3GPP including bands I, II, V, VIII.

The module is fully programmable through a Serial Peripheral Interface (SPI).

The InGaP die, the silicon die, and passive components are mounted on a multi-layer laminate substrate. The assembly is encapsulated with plastic overmold.

The SKY77604 is encapsulated in a 6 mm x 8 mm, 34-pad MCM, Surface-Mounted Technology (SMT) package, which allows for a highly manufacturable, low-cost solution. A functional block diagram is shown in Figure 1.

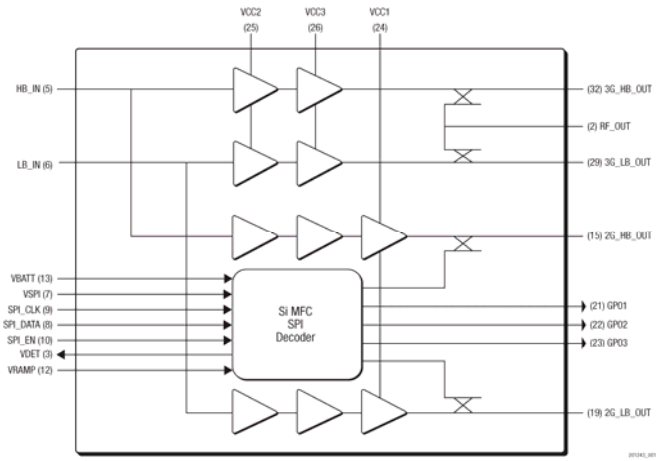

Figure 1. SKY77604 Functional Block Diagram

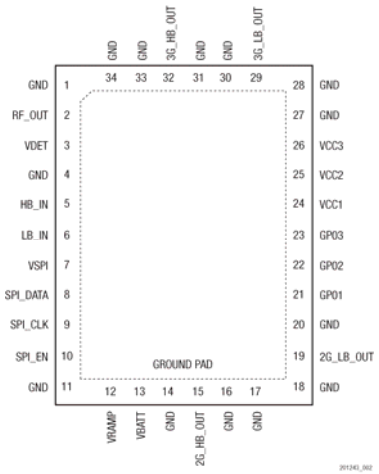

Figure 2.SKY77604 Pad Configuration