PRODUCT SUMMARY

SKY77432 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
  - Class 12 multi-slot EGPRS
- Multi-band 3G handsets
  - WCDMA/HSDPA/HSUPA-modulated handsets for bands I, II, III, IV, V, VIII

Features

- Load Insensitive Power Amplifier (LIPA®) balance architecture for all modes
- True multi-mode architecture: common GSM and WCDMA paths
- 4.6 V Buck-Boost DC/DC converter compatibility/power-control

2.5G features:

- EGPRS Class 12 multi-slot operation
- 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, III, IV, V, and VIII
- Linear PA with bias optimization and Buck DC/DC converter compatibility to optimize for best efficiency/ linearity trade-off
- Small, low profile package
  - 6 mm x 8 mm x 1.1 mm
  - 30-pad configuration
- MSL3 260 °C per JEDEC J-STD-020 SMT package

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 SKY77432 is a true multi-mode, multi-band Power Amplifier Module (PAM). The device is intended to support 2.5G and 3G handsets and operates efficiently in GSM, EGPRS, EDGE and WCDMA modes.

The SKY77432 consists of separate high-band and low-band GaAs HBT PA blocks, with matching circuitry for 100 Ω differential input and 50 Ω single-ended output impedances. A custom CMOS integrated circuit provides mode-specific bias to the GaAs PA die based on the control logic shown in Table 1.

The module supports a direct power control. Power control and GSM power ramps are controlled by the Vcc supply only.

The amplifier has two modes: Linear mode used for WCDMA and EDGE transmission, and high efficiency mode for GSM–GMSK transmission. Mode is controlled by the logic level control named Mode. The operating frequency band is selected with the logic level control Band. Bias and control circuits are supplied from V_{REG} and V_{BAT} voltages. The PA is put in to sleep mode by setting Ibias to 0 µA.

2.5G:

The SKY77432 supports the GSM850, EGSM900, DCS1800, and PCS1900 bands. The device also supports 2.5G Class 12 Enhanced General Packet Radio Service (EGPRS) multi-slot operation and EDGE linear modulation.

3G:

This Load Insensitive Power Amplifier (LIPA®) helps 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, III, IV, V and VIII.

RF input (differential 100 Ω) and output ports (50 Ω) are internally matched to reduce the number of required external components. Extremely low leakage current maximizes handset standby time.

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

The device is mounted in a 30-pad, 6 mm x 8 mm x 1.1 mm Multi Chip Module (MCM), Surface-Mounted Technology (SMT) package, which allows for a highly manufacturable low-cost solution. A block diagram of the SKY77432 is shown in Figure 1.

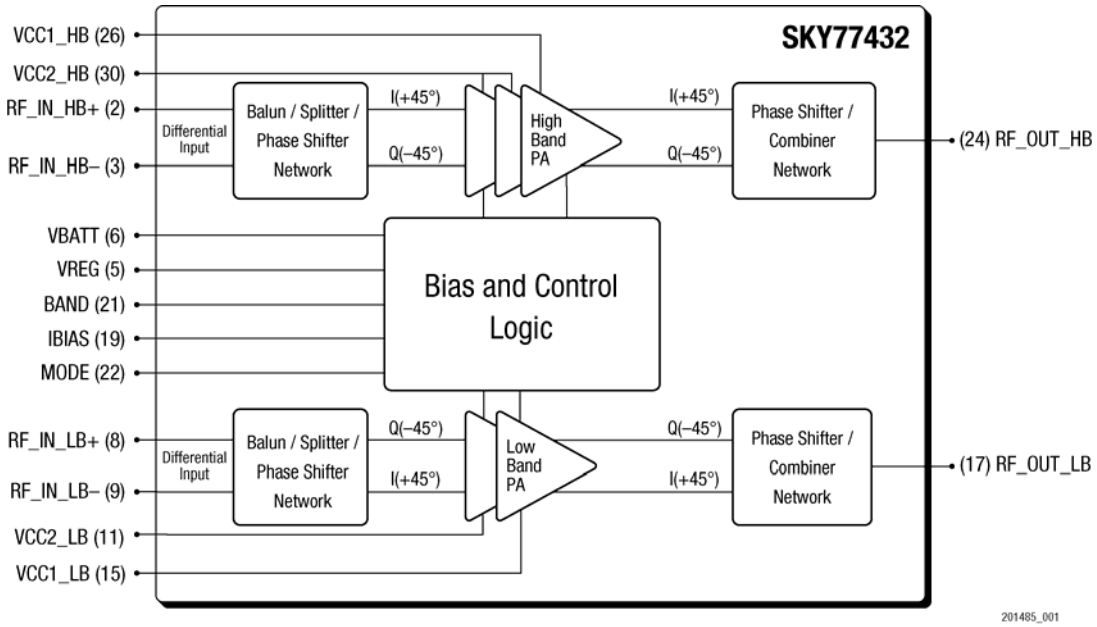

Figure 1. SKY77432 Functional Block Diagram

Ordering Information

Model Number	Manufacturing Part Number	Product Revision	Package	Operating Temperature
SKY77432	SKY77432-31	-31	MCM 8 mm x 6 mm x 1.1 mm	–15 °C to +85 °C

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