SKY77603 Multimode Multiband Power Amplifier Module

Applications

- Quad-band cellular handsets:
  - Class 4 GSM850 / EGSM900
  - Class 1 DCS1800 / PCS1900
  - Class E2 GSM850 / EGSM900 / DCS1800 / PCS1900
  - Class 12 multi-slot EGPRS
- Multiband 3G / LTE handsets
- WCDMA / LTE Bands:
  - 1, 2, 3, 4, 5, 6, 8, 9, 10, 19, 20

Features

- Hybrid PA architecture
  - combined 2G / 3G / 4G input: one low band, one high band
- Internal switches configure outputs
  - single-ended 2G outputs
  - hexaband 3G / 4G outputs
  - external VDAC available for multi-satellite LTE PAs
- Design optimized for use with DC/DC converter in 2.5G / 3G/ 4G modes.
  - optimize transceiver/PA current by adjusting DC/DC Converter, PA bias current, and transceiver drive power
- Fully programmable MIPI (Mobile Industry Processor Interface) control
- MIPI programmable low power mode optimizes DG09
- MIPI programmable bias optimizes best efficiency / linearity trade-off
- Small, low profile package:
  - 6 mm x 8 mm x 0.9 mm
  - 38-pad configuration

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Description

Skyworks SKY77603 is a hybrid multimode, multiband Power Amplifier Module (PAM) that supports 2.5G / 3G and 4G handsets, and operates efficiently in GSM, EGPRS, EDGE, WCDMA, and LTE modes. The module is fully programmable through MIPI.

The PAM consists of a GSM850/EGSM900 PA block, a DCS1800/PCS1900 PA block, a separate WCDMA /LTE block 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 BiCMOS integrated circuit, using standard MIPI control, provides the internal MFC interface and operation. Extremely low leakage current maximizes handset standby time.

The InGaP die and the silicon die and passive components are mounted on a multi-layer laminate substrate. The assembly is encapsulated in a 6 x 8 x 0.9 mm, 38-pad MCM, SMT package which allows for a highly manufacturable, low-cost solution.

2.5G: The SKY77603 supports the GSM850, EGSM900, DCS1800, and PCS1900 bands as well as 2.5G Class12 Enhanced General Packet Radio Service (EGPRS) multi-slot operation and EDGE linear modulation.

In GSM mode, varying the VCC voltage maintains power control. In EDGE mode, varying the RF input drive level maintains power control. EDGE modulation covers both 8PSK and 16QAM.

3G: The SKY77603 supports WCDMA, High-Speed Downlink Packet Access (HSDPA), and High Speed Uplink Packet Access (HSUPA) modulation by utilizing a DC/DC converter. Varying the input power level maintains power control and adjusting VCC to maximize efficiency.

4G: The SKY77603 supports 1.4, 3, 5, 10, 15, 20 MHz channel bandwidths. Varying the input power level maintains power control and adjusting VCC to maximize efficiency. A supplied external VDAC supports multi-satellite LTE PAs.

3G / 4G Modulation scheme includes:

- WCDMA Voice Release 99.
- HSPA+ 16 QAM UL
- HSUPA categories 1–7
- Dual-cell HSDPA (2 adjacent carriers)
- HSDPA categories 21–24
- Dual-cell HSUPA (2 adjacent carriers)
- LTE 1.4, 3, 5, 10, 15, 20 MHz Channel BW
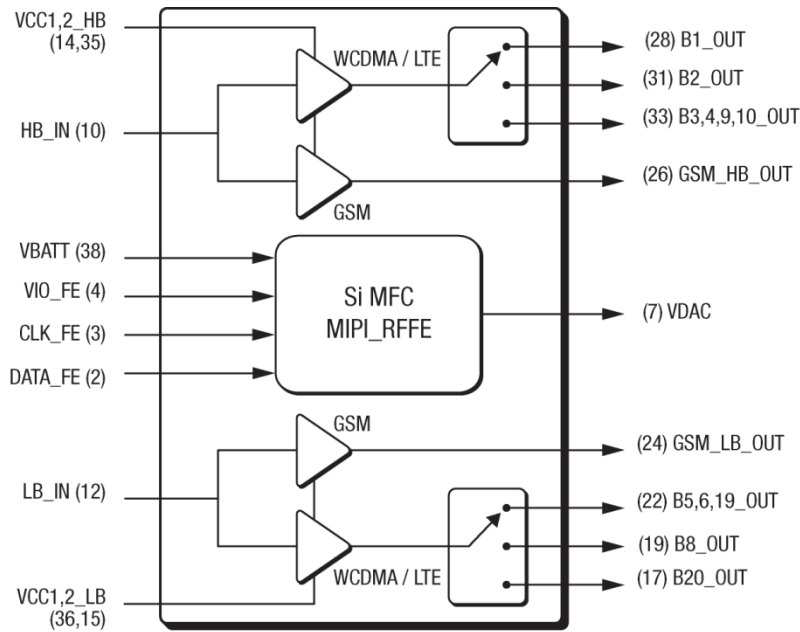
Figure 1. SKY77603 Functional Block Diagram

Ordering Information

Product Name	Order Number	Evaluation Board Part Number
SKY77603 Multimode Multiband Power Amplifier Module	SKY77603	

Skyworks Solutions, Inc. • Phone [781] 376-3000 • Fax [781] 376-3100 • sales@skyworksinc.com • www.skyworksinc.com

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