

**PRODUCT SUMMARY**

# 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



Skyworks Green™ products are compliant with all applicable legislation and are halogen-free. For additional information, refer to Skyworks *Definition of Green™*, document number SQ04-0074.

## 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  $\Omega$  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.

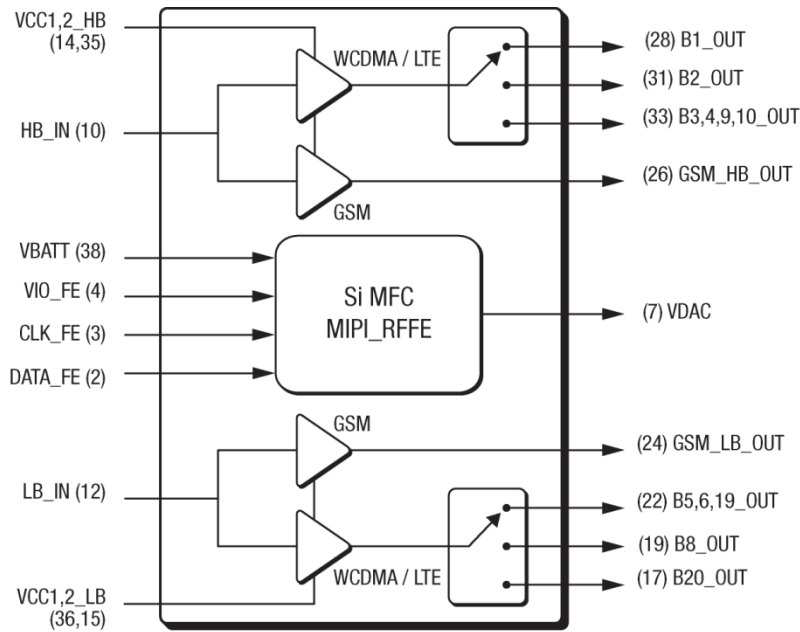
In GSM mode, varying the VCC voltage maintains power control. In EDGE mode, varying the RF input drive level maintains power control. EDGE modulation covers both 8PSK and 16QAM.

**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



201814\_001

Figure 1. SKY77603 Functional Block Diagram

Ordering Information

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

Copyright © 2012, Skyworks Solutions Inc. All Rights Reserved.

Information in this document is provided in connection with Skyworks Solutions Inc. ("Skyworks") products or services. These materials including the information contained herein are provided by Skyworks as a service to its customers and may be used for informational purposes only by the customer. Skyworks assumes no responsibility for errors or omissions in these materials or the information contained herein. Skyworks may change its documentation products services specifications or product descriptions at any time without notice. Skyworks makes no commitment to update the materials or information and shall have no responsibility whatsoever for conflicts incompatibilities or other difficulties arising from any future changes.

No license whether express implied by estoppel or otherwise is granted to any intellectual property rights by this document. Skyworks assumes no liability for any materials products or information provided hereunder including the sale distribution reproduction or use of Skyworks products information or materials except as may be provided in Skyworks Terms and Conditions of Sale.

THE MATERIALS PRODUCTS AND INFORMATION ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND WHETHER EXPRESS IMPLIED STATUTORY OR OTHERWISE INCLUDING FITNESS FOR A PARTICULAR PURPOSE OR USE MERCHANTABILITY PERFORMANCE QUALITY OR NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHT; ALL SUCH WARRANTIES ARE HEREBY EXPRESSLY DISCLAIMED. SKYWORKS DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION TEXT GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. SKYWORKS SHALL NOT BE LIABLE FOR ANY DAMAGES INCLUDING BUT NOT LIMITED TO ANY SPECIAL INDIRECT INCIDENTAL STATUTORY OR CONSEQUENTIAL DAMAGES INCLUDING WITHOUT LIMITATION LOST REVENUES OR LOST PROFITS THAT MAY RESULT FROM THE USE OF THE MATERIALS OR INFORMATION WHETHER OR NOT THE RECIPIENT OF MATERIALS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Skyworks products are not intended for use in medical lifesaving or life-sustaining applications or other equipment in which the failure of the Skyworks products could lead to personal injury death physical or environmental damage. Skyworks customers using or selling Skyworks products for use in such applications do so at their own risk and agree to fully indemnify Skyworks for any damages resulting from such improper use or sale.

Customers are responsible for their products and applications using Skyworks products which may deviate from published specifications as a result of design defects errors or operation of products outside of published parameters or design specifications. Customers should include design and operating safeguards to minimize these and other risks. Skyworks assumes no liability for applications assistance customer product design or damage to any equipment resulting from the use of Skyworks products outside of stated published specifications or parameters.

Skyworks the Skyworks symbol "Breakthrough Simplicity" DCR Helios HIP3 Innovation to Go Intera iPAC LIPA Polar Loop and System Smart are trademarks or registered trademarks of Skyworks Solutions Inc. in the United States and other countries. Third-party brands and names are for identification purposes only and are the property of their respective owners. Additional information including relevant terms and conditions posted at www.skyworksinc.com are incorporated by reference.