

PRODUCT SUMMARY

SKY78025 SkyOne™ Multimode Multiband Tx Front-End Module for Quad-Band GSM / GPRS / EDGE – WCDMA / HSPA / HSPA+ / LTE / CDMA

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 handsets
- WCDMA / HSPA / HSPA+ / LTE-modulated handsets for bands I, II, IV, V, VIII
- CDMA modulated handsets for bands BC0, BC1, BC6

Features

- PA core optimized to meet or exceed best-in-class APT performance
- Hybrid architecture: separate GSM, CDMA, WCDMA Tx paths
- 50 Ω I/O impedances, integrated DC blocking on all ports
- MiPi RFFE Control Interface w/1.8 V nominal supply, separate VCC1/VCC2, completely operable for VIO high/VBATT low, continuous bias adjustment vs. power
- Downlink Carrier Aggregation for LTE w/state-of-the-art de-sense performance
- Small, low profile package:
 - 8 mm x 9 mm x 0.9 mm
 - 60-pad configuration
- **2.5G Features:**
 - EGPRS Class 12 multi-slot operation
 - Two RF P_{OUT} control levels using digital logic interface
 - Linear PA with bias optimization for efficiency/linearity trade-off in 8PSK mode
- **3G Features:**
 - WCDMA mode supports output power, bandwidth for bands I, II, IV, V, VIII via integrated select switch
 - CDMA mode supports output power, bandwidth for BC0, BC1, BC6 via integrated select switch
 - Linear amplifiers with bias optimization and low/high mode gain switch for best efficiency/linearity tradeoff
- **4G Features:**
 - LTE supports output power, bandwidth bands I, II, IV, V, VIII
 - Bands I, II, IV up to 20 MHz bandwidth
 - Bands V, VIII up to 10 MHz bandwidth



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

The SKY78025 SkyOne™ Multimode Multiband (MMMB) Front-End Module (FEM) supports 2.5G, 3G/4G, TDD-LTE, and CDMA handsets and operates efficiently in GSM, GPRS, EDGE, WCDMA, HSPA, TDD-LTE, and LTE modes. The FEM consists of a GSM800/EGSM900 PA block, a DCS1800/PCS1900 PA block, separate WCDMA blocks operating in the low and high bands, a logic control block for multiple power control levels, and band enable functions in both cellular and UMTS. RF I/O ports internally matched to 50-ohms, minimize the need for external components. Extremely low leakage current maximizes handset standby time. The InGaP/GaAs die and passive components are mounted on a multi-layer laminate substrate and the assembly encapsulated in plastic overmold.

GSM / EDGE: The SKY78025 with new compact architecture, supports the GSM850, EGSM900, DCS1800 and PCS1900 bands, as well as 2.5G Class 12 Enhanced General Packet Radio Service (EGPRS) multi-slot operation and EDGE linear modulation.

WCDMA: The SKY78025's enhanced architecture supports WCDMA/High-Speed Downlink Packet Access (HSDPA) and High-Speed Uplink Packet Access (HSUPA) modulations, covers multiple bands for 3GPP including bands I, II, IV, V, and VIII, and

operates at different power modes. The module is fully controllable via a MiPi serial interface.

LTE: The SKY78025 meets spectral linearity requirements of LTE modulation with QPSK/16QAM up to 20 MHz bandwidth, including various resource block allocations, with good power-added efficiency.

CDMA: The SKY78025 meets spectral linearity requirements of CDMA 2K and EVDO Release A modulation with good power-added efficiency.

Receiver Section: The integrated Duplexers, RX SAWs, and SP16T SOI switch of the SKY78025 provide 2G/3G/4G Rx paths from antenna to LNA port of RFIC. Additionally, GPS and LB/HB WiFi coexistence are designed-in for exceptional support to maintain all radio performance, even in user scenarios of simultaneous use. Optimized low insertion-loss Rx paths, matching circuits, and well-grounded guard traces (high Tx–Rx isolation) inside the module mitigate de-sense problems and enhance sensitivity performance.

TRx and RX Ports: The SKY78025 provides eight auxiliary ports.

Ordering Information

Product Name	Order Number	Evaluation Board Part Number
SKY78025 SkyOne™ Multimode Multiband Front-End Module	SKY78025	EN40-D706-001

Copyright © 2013 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", and SkyOne 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.