

PRODUCT SUMMARY

SKY77528 Tx Front-End Module for Quad-Band GSM / EDGE

Applications

- Quad-band, cellular handsets:
 - Class 4 GSM850/ GSM900
 - Class 1 DCS1800/ PCS1900
 - Class E2 GSM850/ EGSM900
 - Class E2 DCS1800/ PCS1900
 - Class 12 EGPRS multi-slot operation

Features

- High efficiency:
 - GSM850, 45% (peak)
 - EGSM900, 45% (peak)
 - DCS1800, 40% (peak)
- PCS1900, 40% (peak)
- Low-loss PHEMT RF antenna switch
- Detector output: linear dB/V
- Closed loop GMSK mode power control
- Low VRAMP current
- Low VBATT detection
- Integrated temperature sensor
- Small Package
 8 mm x 6 mm
- Low Profile
 - 1.1 mm Max.



Skyworks Green™ products are lead (Pb)-free, RoHS (Restriction of Hazardous Substances)-compliant, conform to the EIA/EICTA/JEITA Joint Industry Guide (JIG) Level A guidelines, and are free from antimony trioxide and brominated flame retardants

Description

The SKY77528 is a transmit Front-End Module (FEM) designed for quad-band Global System for Mobile Communications (GSM), General Packet Radio Service (GPRS), and Enhanced Data Rate for GSM Evolution (EDGE) handsets and modules.

The SKY77528 consists of a GSM850/EGSM900 PA block and a DCS1800/PCS1900 PA block, impedance-matching circuitry for 50 Ω inputs and outputs, a multi-function PA control block, low-pass harmonic rejection filter, and a transmit/receive antenna switch.

Two Heterojunction Bipolar Transistor (HBT) PA blocks are fabricated onto an Indium Gallium Phosphide (InGaP) die; one block supports the GSM850 and EGSM900 bands, the other supports the DCS1800 and PCS1900 bands. The InGaP die, the Silicon (Si) die, the PHEMT die, and the passive components are mounted on a multi-layer laminate substrate. The entire assembly is encapsulated with plastic overmold.

Pad signals BS1 and BS2 select the GSM/EGSM or DCS/PCS frequency bands. The TX_EN pad signal selects transmit or receive mode of the respective RF switch. MODE pad circuitry selects GMSK modulation or EDGE modulation. The VRAMP pad controls the output power for GMSK modulation and provides bias optimization for EDGE modulation depending on the state of the MODE pad.

An integrated Multi-Function Control (MFC) circuit provides closed loop power control in GMSK mode, reducing sensitivity to antenna load, input drive, temperature, power supply, and process variation. In EDGE mode, the MFC configures the PA for fixed gain and provides the ability to optimize the PA bias operation at different power levels. The VDET pad is used to detect saturation conditions in GMSK mode (which automatically reduces the VRAMP output) and for power control in EDGE mode.

The functional block diagram for the 34-pad Multi-Chip Module (MCM) package is shown in Figure 1.



Figure 1. SKY77528 Functional Block Diagram

Ordering Information

Model Number	Manufacturing Part Number	Product Revision	Package	Operating Temperature
SKY77528	SKY77528		MCM 8 x 6 x 1.1 mm Max.	–25 °C to 85 °C

Copyright © 2009 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 in	formation 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 no	tice. 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	e 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.