

PRODUCT SUMMARY

SKY77458 Front-End Module for LTE / EUTRAN Band VIII (Tx 880-915 MHz), (Rx 925-960 MHz)



Applications

- Long-Term Evolution (LTE)
- Evolved Universal Terrestrial Radio Access Network (EUTRAN)
- Handsets and Data Cards

Features

- QPSK, 16QAM, 64QAM modulations
- Up to 20 MHz bandwidths
- Up to 100 resource blocks
- Linear power at 3.3 V
 - LTE: 25 dBm
 - WCDMA: 26 dBm
- Duplexer Tx-Rx attenuation and isolation: > 50 dB
- Integrated Power Detector, interstage filter and duplexer
- Low voltage positive bias supply: 3.0 V to 4.6 V
- Supports low collector voltage operation down to 1.5 V
- Excellent linearity, efficiency
- Large dynamic range
- Low Profile 16-pad package: 4 mm x 7 mm x 1.1 mm
- Analog bias current control in low power mode using VBA pad
- InGaP BiFET Technology
- Skyworks Green™ Packaging

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

The SKY77458 Front-End Module (FEM) is a fully matched, 16-pad surface mount module developed for LTE/EUTRAN applications. Small and efficient, this LTE FEM integrates the interstage filter, input and output matching, power amplifier, power detection, and duplexer into a single 4 mm x 7 mm x 1.1 mm package.

The SKY77458 meets the stringent spectral linearity requirements of LTE with QPSK / 16QAM modulations from 1.4 to 20 MHz bandwidth and full or partial resource block allocations with high power added efficiency. The FEM incorporates Inter-Stage Filter and Duplexer, InGaP BiFET PA, and output power detector.

Integration of the RF front-end greatly simplifies the design of the 4G-compatible handset radio or data card as all critical matching between the interstage filter, PA, power detection, and duplexer is optimized within the single module component. By optimizing the efficiency of the InGaP BiFET PA MMIC, reducing RF loss between the integrated components and within the Duplexer itself, and improving the match between the PA and the Duplexer, this FEM achieves low current at maximum output power that significantly reduces the power dissipated in the LTE-enabled handsets or data cards.

Primary bias to the SKY77458 is supplied via the VCC1 and VCC2 pads directly from a three-cell Ni-Cad, a single-cell Li-Ion, or other suitable battery with output in the 3.0 V to 4.6 V range, while the bias network is powered up with the VCCB pad. DC-DC converter operation can be supported with lower power operation down to 1.5 V.

Power down is accomplished by setting a logic low level on the VEN pad. No external supply side switch is needed as typical “off” leakage is 10 μA with full primary voltage supplied from the battery (VBA = 0 V). The VMODE pad is used to switch between high and low power modes to reduce current consumption and gain in the back-off conditions. VBA is used to further control the current consumption in the low power mode.

This small package uses Skyworks’ low cost, multi-layer laminate substrate technology and is approximately half the size of individually packaged component solutions. The SKY77458 front-end module can save handset and data card designers significant board space and design-cycle time, and significantly simplify supply chain and sourcing of RF components.

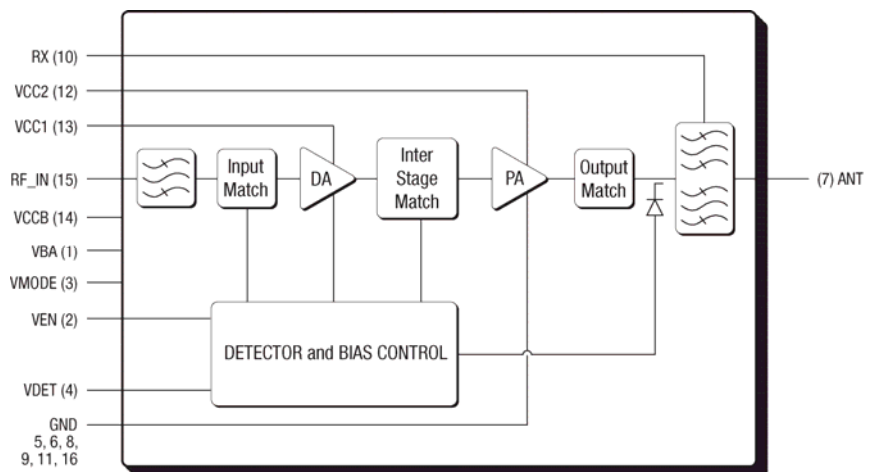


Figure 1. Functional Block Diagram

Ordering Information

Model Number	Manufacturing Part Number	Product Revision	Package	Operating Temperature
SKY77458	SKY77458		MCM 4 x 7 x 1.1 mm	-20 °C to 85 °C

© 2008, 2009, 2010, 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.