

## PRODUCT SUMMARY

# SKY77456 Front-End Module for LTE / EUTRAN Band IV / X (Tx 1710-1770 MHz), (Rx 2110-2170 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 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.

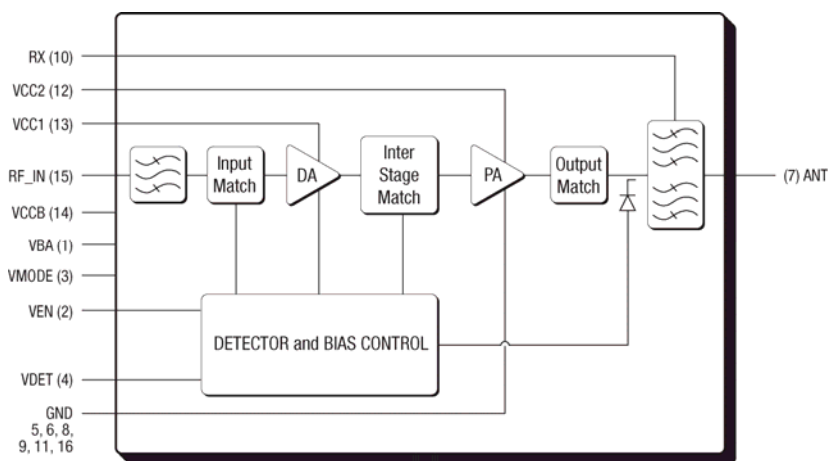


## Description

The SKY77456 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 SKY77456 meets the stringent spectral linearity requirements of LTE with QPSK/16QAM modulations from 1.4 to 20MHz 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 SKY77456 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 volt range, and 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 100 microamperes with full primary voltage supplied from the battery. 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-laminate substrate technology and is approximately half the size of individually packaged component solutions. The SKY77456 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.



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**Figure 1. Functional Block Diagram**

## Ordering Information

Model Number	Manufacturing Part Number	Product Revision	Package	Operating Temperature
SKY77456	SKY77456		MCM 4 x 7 x 1.1 mm	-20 °C to 85 °C

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