PRODUCT SUMMARY

SKY77661-11 Multimode Multiband Power Amplifier Module for Dual Mode Quad-Band GSM/EDGE – WCDMA / HSDPA / HSUPA / HSPA+ / LTE (Bands 1, 3, 4, 7, 8, 12, 13, 20, 25, 26, 28, 30, 38, 34/39, 40, 41)

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/ HSDPA/ HSUPA/ LTE-modulated handsets for Bands 1, 3, 4, 7, 8, 12, 13, 20, 25, 26, 28, 30, 38, 40, 41, 34/39
- CDMA modulated handsets for Bands BC0, BC1, BC6, BC10

Features

- Hybrid architecture: separate GSM, WCDMA paths
- 50 ohm input and output impedances, integrated DC blocking on all ports
- Separate single-ended GSM and WCDMA inputs and outputs
- CMOS-compatible, two-wire MIPI logic inputs (SCLK, SDATA)
- VCC stages for 2.5G can attach to battery or buck DC/DC
- Small, low profile package:
  - 7 mm x 4 mm x 0.8 mm
  - 44-pad configuration

2.5G FEATURES:

- EGPRS Class 12 multi-slot operation
- Four RF POUT control levels using RFFE interface
- Linear PA with bias optimization for efficiency/linearity trade-off in 8-PSK mode
- Dual mode GSM PA with VRAMP for efficiency/linearity trade off in 8-PSK mode

3G FEATURES:

- WCDMA mode supports output power, bandwidth for bands 1, 25, 3, 4, 34/39, 26, 8 (and sub-bands 2, 5) through an integrated band-select switch
- Digital bias optimization through RFFE interface for best efficiency/linearity tradeoff

4G FEATURES:

- Optimized for Average Power Tracking system
- LTE supports output power bandwidth bands 1, 3, 4, 7, 8, 12, 13, 20, 25, 26, 28, 30, 38, 39, 40, 41 (and sub-bands 2, 9, 5, 10, 17, 18, 19,)

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Description

The SKY77661-11 is a hybrid, multimode multiband (MMMB) Power Amplifier Module (PAM) that supports 2.5G and 3G/4G handsets and operates efficiently in GSM, EGPRS, EDGE, WCDMA, and LTE modes. The PAM consists of a GSM 800/EGSM 900 PA block, a DCS1800/PCS1900 PA block, separate WCDMA blocks operating in 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 are internally matched to 50 Ω to minimize the number of 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 (Dual Mode): The SKY77661-11 uses a new compact architecture supporting the GSM850, EGSM900, DCS1800 and PCS1900 bands. The PAM also supports 2.5G Class 12 Enhanced General Packet Radio Service (EGPRS) multi-slot operation and EDGE linear modulation.

VRAMP MODE: In GMSK modes, the PA controller provides envelope amplitude control as a function of VRAMP and reduces sensitivity to input drive, temperature, power supply, and process variation. Skyworks' Finger-based Integrated Power Amplifier Control (FB-iPAQ) minimizes output power variation into mismatch.

In EDGE modes, VRAMP voltage and MIPI-based bias settings optimize PA linearity and efficiency.

WCDMA: The SKY77661-11 uses enhanced architecture to support WCDMA, High-Speed Downlink Packet Access (HSDPA), High-Speed Uplink Packet Access (HSUPA) and LTE modulations; cover multiple bands for 3GPP, including bands 1, 2, 4, 5 and 8 and operate at different power modes. The module is fully controlled through MIPI interface.

TD-SCDMA/TDD LTE: The SKY77661-11 uses an enhanced architecture that supports TD-SCDMA bands 34/39 and TDD LTE band 39.

LTE: The SKY77661-11 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.

Figure 1 is a functional block diagram of the SKY77661-11 module.

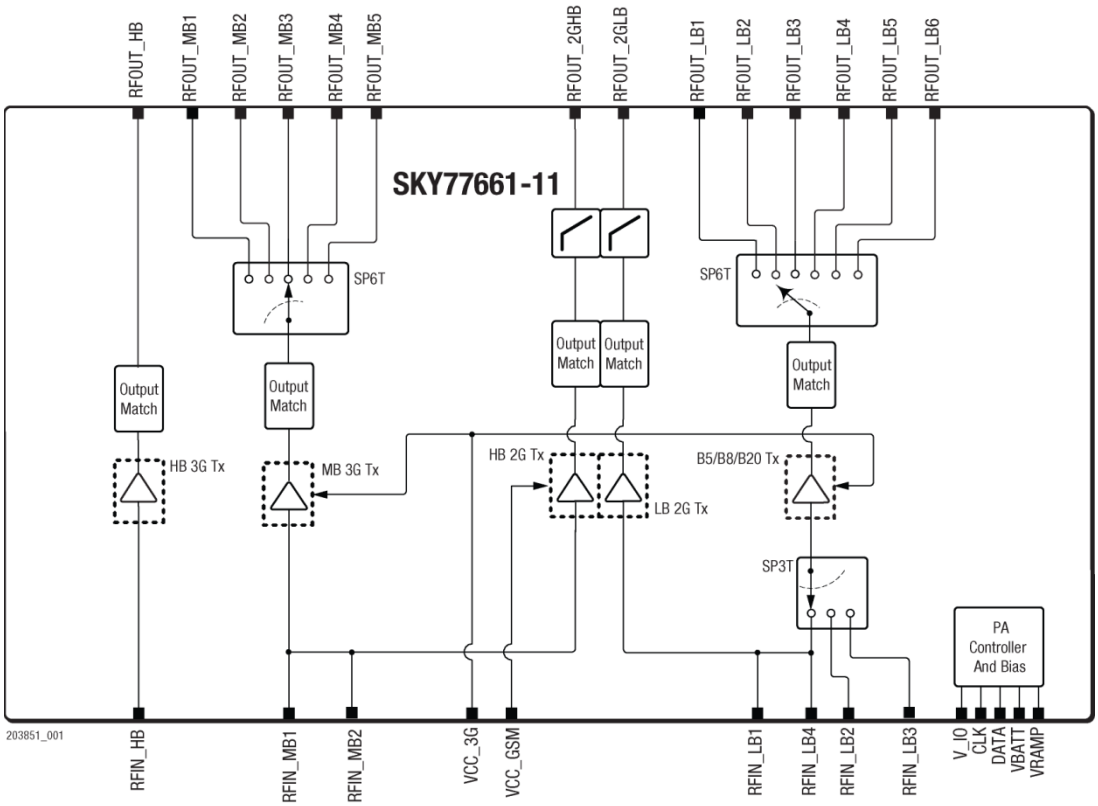

Figure 1. SKY77661-11 Block Diagram

Ordering Information

Product Name	Order Number	Evaluation Board Part Number
SKY77661-11 Multimode Multiband Power Amplifier Module	SKY77661-11	EN41–D175–001

Revision History

Revision	Date	Description
A	February 5, 2016	Initial Release

References

Skyworks Application Note: *PCB Design and SMT Assembly/Rework Guidelines for MCM–L Packages*; Document Number 101752

Electrostatic Discharge Sensitivity (ESD) Testing: *JEDEC Standard, JESD22-A114 Human Body Model (HBM)*