PRODUCT SUMMARY

SKYA21055 Automotive Multimode Multiband Power Amplifier Module for Quad-Band GSM, LTE, LTE-A (Downlink Carrier Aggregation Applications)

Applications

- Quad-band cellular Telematics Modems:
  - Class 4 GSM850 / EGSM900
  - Class 1 DCS1800 / PCS1900
  - Class E2 GSM850 / EGSM900 / DCS1800 / PCS1900
  - Class 12 multi-slot EGPRS
- Multiband 3G telematics modems
- LTE, LTE-A telematics modems for Bands 1, 25, 3, 4, 34/39, 26, 8, 20, 12, 13, 28
- CDMA modulated telematics modems for Bands BC0, BC1, BC6 and BC10

Features

- Automotive PPAP report available
- –40 °C to 85 °C ambient operating temperature
- Extended production life, automotive PCN management and IMDS material declaration
- Enhanced biased HAST / THB reliability performance
- Hybrid architecture: separate GSM, WCDMA paths
- 50 ohm input and output impedances, integrated DC blocking on all ports

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.

Features

- 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 5 mm x 0.8 mm
  - 42-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

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, 25, 3, 4, 39, 26, 8, 20, 12, 13, 28 (and sub-bands 2, 9, 10, 5, 18, 19, 17)

Description

The SKYA21055 is a hybrid, multimode multiband (MMMB) Power Amplifier Module (PAM) that supports 2.5G and 3G/4G telematics modems 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: The SKYA21055 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.

WCDMA: The SKYA21055 uses an 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, 25, 3, 4, 26, 8 and operate at different power modes. The module is fully controlled through MIPI interface.

TD-SCDMA/TDD LTE: The SKYA21055 uses an enhanced architecture that supports TD-SCDMA bands 34/39 and TDD LTE band 39.

LTE: The SKYA21055 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 SKYA21055 module.

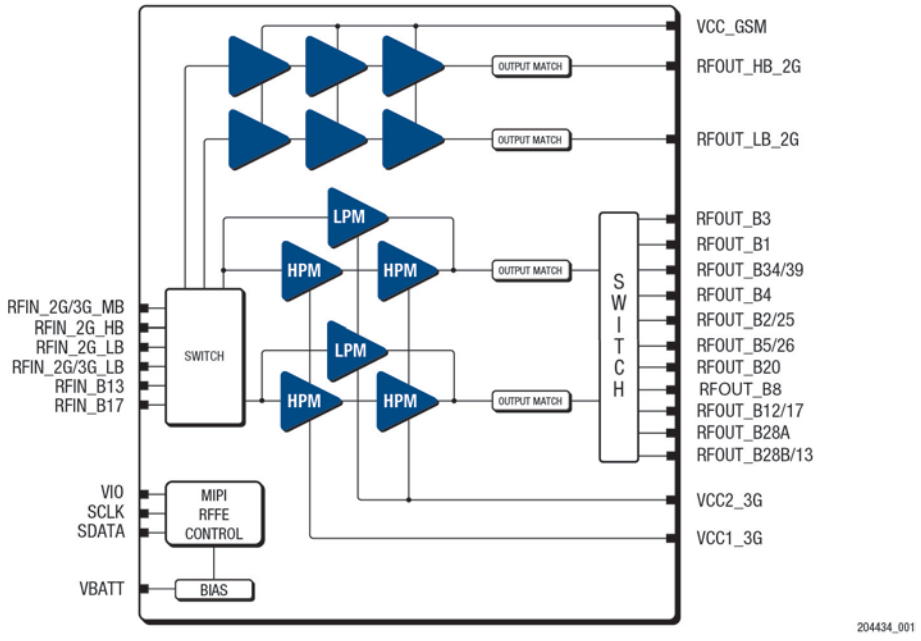

Figure 1. SKYA21055 Functional Block Diagram

Ordering Information

Product Name	Order Number	Evaluation Board Part Number
SKYA21055 Automotive Multimode Multiband Power Amplifier Module	SKYA21055	EN40-D955-001EK1