PRODUCT SUMMARY

SKY78010 SkyOne® Multiband Multimode Front-End Module for Quad-Band GSM / GPRS / EDGE – Penta-Band (Bands I, II, IV, V, VIII) WCDMA / HSPA / HSPA+ / LTE

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 / HSPA / HSPA+ / LTE-modulated handsets for bands I, II, IV, V, VIII

Features

- Hybrid architecture: separate GSM, WCDMA paths
- 50 Ω I/O impedances, integrated DC blocking on all ports
- Separate single-ended GSM and WCDMA inputs and outputs
- Integrated coupler with coupled port for 3G/4G band operation
- Integrated 2.5G DCS/PCS Rx filter
- CMOS-compatible four-line logic input plus HB/LB enable
- VCC stages for 2.5G / 3G can attach to battery or buck DC/DC
- Small, low profile package:
  - 7 mm x 9.8 mm x 1.05 mm
  - 60-pad configuration
- 2.5G features:
  - EGPRS Class 12 multi-slot operation
  - Two RF P_{OUT} control levels using digital logic interface
  - Linear PA with bias optimization for efficiency/linearity trade-off in 8PSK mode
- 3G features:
  - WCDMA mode supports output power, bandwidth for bands I, II, IV, V, VIII through integrated select switch
  - Two RF P_{OUT} control levels using digital logic interface
  - Linear amplifiers with bias optimization and low/high mode gain switch for best efficiency/linearity tradeoff
- 4G features:
  - LTE supports output power, bandwidth bands I, II, IV, V, VIII
  - Bands I, II, IV up to 20 MHz bandwidth
  - Bands V, VIII up to 10 MHz bandwidth
- For RoHS and other product compliance information, see the Skyworks Certificate of Conformance

Description

The SKY78010 is a hybrid, multimode, multiband Front-End Module (FEM) that supports 2.5G and 3G / 4G handsets and operates efficiently in GSM, GPRS, EDGE, WCDMA, HSPA, and LTE modes. The FEM consists of a GSM800/EGSM900 PA block, a DCS1800/PCS1900 PA block, separate WCDMA blocks operating in the 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 SKY78010 uses a new compact architecture supporting the GSM850, EGSM900, DCS1800 and PCS1900 bands. The FEM also supports 2.5G Class 12 Enhanced General Packet Radio Service (EGPRS) multi-slot operation and EDGE linear modulation.

WCDMA: The SKY78010 uses an enhanced architecture to: support WCDMA/High-Speed Downlink Packet Access (HSDPA) and High-Speed Uplink Packet Access (HSUPA) modulations; cover multiple bands for 3GPP, including bands I, II, IV, V, and VIII; operate at different power modes. The module is fully controllable via four logic lines and band-enable interfaces.

LTE: The SKY78010 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.

Receiver Section: The SKY78010 has integrated Duplexers, RX SAWs and SP12T SOI switch to provide 2G / 3G / 4G Rx paths from antenna to LNA port of RFIC. Optimized “Rx paths and matching circuits” with well-grounded guard trace (high Tx–Rx isolation) inside module mitigate de-sense problem and enhance sensitivity performance.

TRx Port: The SKY78010 provides three vacant broadband TRx ports for additional band requirements.

Ordering Information

Product Name	Order Number	Evaluation Board Part Number
SKY78010 SkyOne® Multiband Multimode Front-End Module	SKY78010