

PRODUCT SUMMARY

SKY78021 SkyOne™ Multimode Multiband FEM for Quad-Band GSM / GPRS / EDGE – Octo-Band (1, 2/25, 3, 4, 5/18/19/26, 8, 20) WCDMA / HSPA / HSPA+ / LTE CDMA (Bands BCO, 1, 6, 10, 14, 15)

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 1, 25, 3, 4, 26, 8, 20

Features

- PA core optimized to meet or exceed best-in-class APT performance
- Hybrid architecture: separate GSM, CDMA, WCDMA Tx paths
- 50 Ω I/O impedances, integrated DC blocking on all ports
- MIPI RFFE Control Interface w/1.8 V nominal supply, separate VCC1/VCC2, completely operable for VIO high/VBATT low, continuous bias adjustment vs. power
- Downlink Carrier Aggregation for LTE w/state-of-the-art de-sense performance
- Small, low profile package:
 - 8 mm x 9 mm x 0.9 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 1, 2/25, 3, 4, 5/26, 8, 20 through integrated select switch
 - CDMA mode supports output power, bandwidth for BCO, 1, 6, 10, 14, 15 via integrated select switch
 - Linear amplifiers with bias optimization and low/high mode gain switch for best efficiency/linearity tradeoff
- **4G Features:**
 - LTE supports output power, bandwidth bands 2, 2/25, 3, 4, 5/18/19/26, 8, 20
 - Bands 1, 2/25, 3, 4, 20 up to 20 MHz bandwidth
 - Bands 18/19, 26 up to 15 MHz bandwidth
 - Bands 5, 8 up to 10 MHz bandwidth



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Description

The SKY78021, SkyOne™ is a hybrid, multimode, multiband (MMMB) Front-End Module (FEM) that supports 2.5G, 3G/4G, and CDMA 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, internally matched to 50 ohms, minimize the need for 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 SKY78021, with new compact architecture, supports the GSM850, EGSM900, DCS1800 and PCS1900 bands, as well as 2.5G Class 12 Enhanced General Packet Radio Service (EGPRS) multi-slot operation and EDGE linear modulation.

WCDMA: The SKY78021’s enhanced architecture supports WCDMA/High-Speed Downlink Packet Access (HSDPA) and High-Speed Uplink Packet Access (HSUPA) modulations, covers multiple bands for 3GPP including bands I, II, III, IV, V, and VIII, and operates at different power modes. The module is fully controllable via a MIPI serial interface.

LTE: The SKY78021 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.

CDMA: The SKY78021 meets spectral linearity requirements of CDMA 2K and EVDO Release A modulation with good power-added efficiency.

Receiver Section: The SKY78021 integrated Duplexers, RX SAWs, and a split LB (SP8T) / HB (SP10T) SOI switch support simultaneous Downlink Carrier Aggregation for additional Rx data rate, and provides 2G/3G/4G Rx paths from antenna to LNA port of RFIC. Carrier Aggregation (CA) requirements for noise and harmonics are designed-in for best desense performance. Additionally, GPS and LB/HB WiFi coexistence are designed-in for exceptional support to maintain all radio performance, even in user scenarios of simultaneous use. Optimized low insertion-loss Rx paths, matching circuits, and well-grounded guard traces (high Tx–Rx isolation) inside module mitigate de-sense problems and enhance sensitivity performance.

TRx and RX Ports: The SKY78021 provides four LB and five HB ports.

Ordering Information

Product Name	Order Number	Evaluation Board Part Number
SKY78021 SkyOne™ Multimode Multiband Front-End Module	SKY78021	EN40-D625-001

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