PRODUCT SUMMARY

SKY78070 SkyOne® Multimode Multiband Front-End Module for Quad-Band GSM / GPRS / EDGE / WCDMA / HSPA / HSPA+ / FDD LTE (Bands 1, 2, 3, 4, 5, 8, 12/17, 13, 20, 27, 28) / TD-SCDMA / TDD LTE (Bands 34, 39)

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+ / FDD LTE-modulated handsets for bands 1, 2, 3, 4, 5, 8, 13, 12/17, 20, 27/28
- TD-SCDMA / TDD LTE-modulated handsets for bands 34, 39

Features

- PA core optimized to meet or exceed best-in-class performance
- Optimized for envelope tracking system
- Full power supported for average power tracking system
- Hybrid architecture: separate GSM, TDSCDMA, WCDMA Tx paths
- 50 ohms I/O impedances, integrated DC blocking on all ports
- Integrated duplexers for bands 1, 2, 5, 8
- Seven Tx post-PA outputs (3MB, 1LB, 3VLB) to support external duplexers from internal PA engine
- Ten TRx Aux ports (4HB, 4MB, 2LB/VLB) to support external RF paths and satellite PAs / duplexers / coexistence filters
- MIPI® RFFE Control Interface w/1.8 V nominal supply, fully operable for VIO high / VBATT low
- Small, low profile package
  - 7 mm x 7.8 mm x 0.8 mm
  - 56-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 tradeoff in 8PSK mode

- 3G Features:
  - WCDMA mode supports output power, bandwidth for bands 1, 2, 4, 5, 8 through an integrated select switch
  - TD-SCDMA mode supports output power, bandwidth for B34, 39 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 1, 2, 3, 4, 5, 8, 12/17, 13, 20, 27, 28, 39
  - Bands 1, 2, 3, 4, 20, 28, 39 up to 20 MHz bandwidth
  - Band 27 up to 15 MHz bandwidth
  - Bands 5, 8, 12/17, 13 up to 10 MHz bandwidth
Description
The SKY78070, SkyOne® is a hybrid, multimode multiband (MMMB) Front-End Module (FEM) that supports 2.5G and 3G/4G handsets and operates efficiently in GSM, GPRS, EDGE, TD-SCDMA, 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 mid-bands, duplexers for bands 1, 2, 5 and 8, 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 ohms to minimize the need for external components. Extremely low leakage current maximizes handset standby time.

Filter Integration: Duplexers for bands 1, 2, 5, and 8 are designed into the SKY78070. This produces a highly integrated front-end solution wherein PA matching is accomplished with pre- and post-duplexer matching circuits which eliminates any required tuning outside the module. This highly integrated solution significantly reduces time-to-market and also provides the smallest RF footprint which yields more space for form factor designers.

GSM / EDGE: The SKY78070, 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 SKY78070 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 1, 2, 3, 4, 5, and 8, and operates at different power modes.

LTE: The SKY78070 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.

TD-SCDMA: The SKY78070 meets spectral linearity requirements of TD-SCDMA modulation with good power-added efficiency.

Receiver Section: The SKY78070 integrated Duplexers, RX SAWs, and 1P16T SOI switch provides 2G/3G/4G Rx paths from antenna to LNA port of RFIC. GPS and WiFi coexistence are designed-in for exceptional support to maintain all radio performance, even in scenarios of simultaneous use. Optimized low insertion-loss Rx paths, matching circuits, and well-grounded guard traces (high Tx–Rx isolation) inside the module mitigate desense problems and enhance sensitivity performance.

MIPI RFFE Control Interface: The SKY78070 is fully controllable via 2 separate MIPI serial interfaces, one for the PA engine and one for the ASM.
## Ordering Information

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<th>Product Name</th>
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