

PRODUCT BRIEF - WIRELESS SUMMIT2629[™]



Address challenges constraining 5G mmWave with our 28 GHz Beamforming front end IC



Operating from 26.5 to 29.5 GHz, the SUMMIT2629[™] integrates power amplifiers (PA), low noise amplifiers, T/R switching, beamformers with beam table memory, calibration, gain control and temperature and power telemetry with a high-speed system peripheral interface (SPI) for control. A single SUMMIT2629[™] provides two sets of four channels for two antenna polarizations – a total of eight channels per RFIC. "Sivers Semiconductors is indeed offering a real performance breakthrough which will translate to higher performance and lower cost mmWave phased array systems." Daniel Kang, Head of Digital Solution Team, Dreamtech

Sivers Semiconductor products and services enable 5G manufacturers to simplify product design, integrate components to reduce footprint and improve system reliability. Of course, with best-inclass RF performance.

SUMMIT2629[™] is an eight-channel RF front-end for 28 GHz, 5G phased array antenna system fabricated in RF-Silicon on Insulator (RF-SOI). SUMMIT2629[™] is designed to address the challenges constraining 5G mmWave performance by:

- Extending the link range to decrease infrastructure costs and improve customer satisfaction.
- Reducing power consumption and thermal dissipation.
- Reducing antenna array complexity and overall RF front-end cost.



Features

- 26.5 GHz-29.5 GHz
- Beamforming transceiver with 8 (2x4 H+V) ports enabling two data streams supporting 2 MIMO layers
- Tx/Rx independent beam directions enabled by 6-bit phase shifting and 16 dB variable gain in each path
- High-power, high-efficiency SOI CMOS power amplifiers
- Integrated low-loss T/R switches, linear power and state-ofthe-art low noise amplifiers
- Ultra-low Transmit- and Receive-Mode power consumption

- 6-bit full-360° phase shifting and 0.5dB-step 16dB-range variable gain in each path
- Fully calibrated for Gain/Phase matching across ICs
- Extensive On-chip temperature and power sensing
- On-chip gain control for temperature compensation
- High-Speed SPI with large on-chip beam table storage
- Wafer-Level Chip-Scale Package (WLCSP) compatible with low-cost PCB manufacturing
- Support for large-scale arrays through multiple chipaddressing modes 7 dB NF (Noise Figure)

High power and efficiency will be success factors when designing larger Base Transceiver Station (BTS) antenna arrays, where thermal design is critical. SUMMIT2629™ is a greener and more compelling solution reaching more customers, still using less energy.



Figure 1. Block schematics SUMMIT2629™



Figure 2. The SUMMIT2629[™] offers 3-5 times better efficiency and 6-12 dB more output power than competitors

Sivers Semiconductors provides a wide range of mmWave products, services and algorithms. The portfolio includes:

- 5G mmWave RFICs, BFICs and complete modules with integrated antennas.
- Dual-polarized SatCom Chipsets.
- Algorithms boosting Open RAN and RF architectures.
- Analogue repeaters cost-effectively extending signal reach.