



The 1st Antenna in Package for 5G mmWave infrastructure is here. Enjoy our 39 GHz dual polarization phased array antenna module.

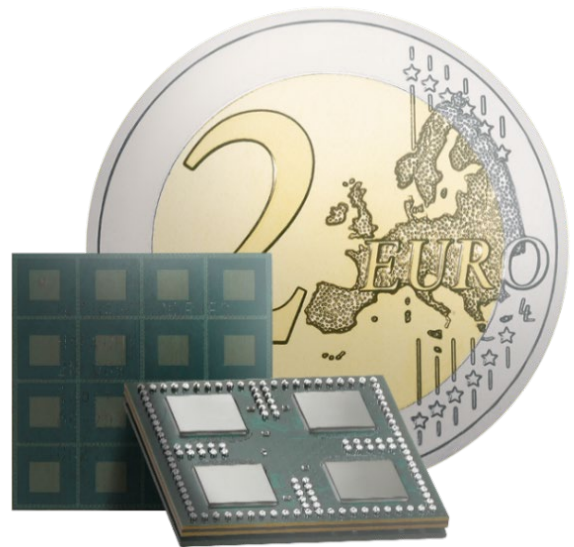
Savers Semiconductor products and services enable 5G manufacturers to simplify product design, integrate components to reduce footprint and improve system reliability. Of course, with best-in-class RF performance.

The ECLIPSE 3741™ is a highly integrated 5G beam-former phased array Antenna in Package (AiP) module. Covering FR2 band n260 from 37.0 to 41.0 GHz, it offers exceptionally high linear output power, efficiency, and extreme integration. This AiP module has been designed to enable $\lambda/2$ lattice spacing when tiled together for higher EIRP applications. It has also been extensively optimized for heat management.

ECLIPSE3741™ is designed to address the challenges constraining 5G mmWave performance by;

- Easier implementation
- Lower cost
- Compact solution
- Higher data rate FR2 5G system

Applications include Cellular Base Stations (gNodeB), Consumer Premises Equipment (CPE), Fixed Wireless Access (FWA) and Mobile User Equipment (UE).



ECLIPSE3741 39GHz
16 Antenna Elements in a Tiny 15x15mm Module



5G MMWAVE



FWA

Features

- 37.0 GHz-41.0 GHz
- Sixteen-element dual polarization phased array antenna module
- +45 dBm EIRP @3% EVM for full BW 64-QAM OFDM
- Full TX/RX TDD Beam forming RF chains
- Ultra-low TX and RX power consumption
 - TX ON: 10.24W Both polarizations @3% EVM for full BW 64-QAM OFDM
 - RX ON: 640 mW per polarization
- Independent dual polarization beam directions
- Low-loss T/R switches for TDD applications
- Phase shifting
 - 6-bit full 360° with 11.25 degrees step and 6th bit for linearization
 - 0.5dB-step 15dB-range variable gain per path
- 20 dB common gain control
- Fully-calibrated for gain/phase matching channel-to-channel and chip-to-chip up to and including the antenna
- On-chip
 - Temperature sensor
 - Power sensor for each TX path
- 100 MHz SPI
- 2048-entry on-chip beam table storage
- 8-bit chip addressing supports 1020 element dual polarization arrays
- Antenna in Package (AiP) BGA Module
 - 15mm x 15mm
 - 0.65mm BGA pitch
- Operable temperature range -40° to +120°C case

High power and efficiency will be success factors when designing larger Base Transceiver Station (BTS) antenna arrays, where thermal design is critical. ECLIPSE3741™ is a greener and more compelling solution reaching more customers, still using less energy.

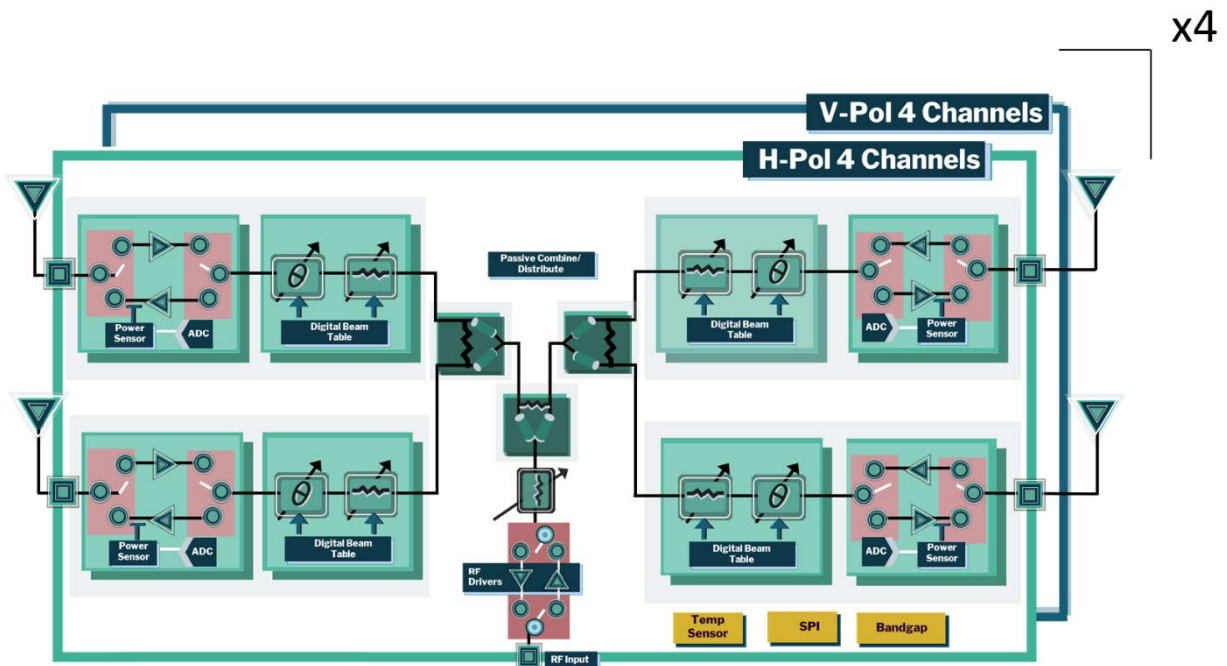


Figure 1. Block schematics ECLIPSE3741™ including four SUMMIT3741 ICs

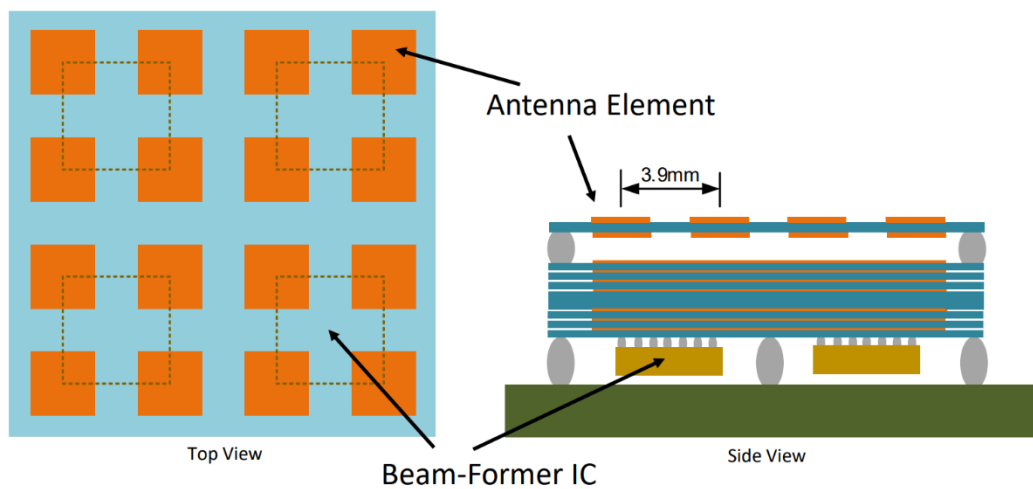


Figure 2. AiP module: IC and antenna arrangement ECLIPSE3741™

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.