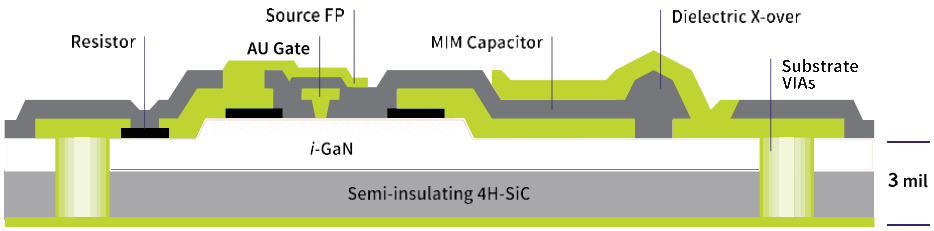
G28V5 GaN on SiC 0.15µm mmWave Foundry Process

Enabling 28 V designs through Ka band



PROCESS DESCRIPTION

The G28V5 is a high performance 28V mm-wave process targeting high frequency applications as well as lower frequency operation for the highest efficiency or wide bandwidth requirements. The process has been fully qualified with the qualification report available upon request. The mean-time-to-failure is greater than 1 million hours at 225 °C and drain voltage of 28V.

The process features two gold RF interconnect layers, two varieties of capacitors, thin film and bulk GaN resistors, and dielectrically supported bridges for connections to circuit elements such as capacitors and inductors. The SiC substrate thickness is 75 microns and has the smallest substrate via sizes available in a GaN on SiC MMIC process, which enables very compact FET footprint for mm-wave applications. Process Design Kits (PDKs) with scalable, accurate models of the G28V5 devices are available for Microwave Office (MWO) or Advanced Design System (ADS) simulators. The PDKs have been vetted for both small signal and large signal accuracy and model validation reports are available upon request.

The G28V5 process is offered through the foundry services through dedicated or shared wafer runs.

FEATURES

- 0.15µm Gate Length
- V_P ~ -2V
- 28V bias with >84V breakdown
- F_{MAX} > 120GHz
- 12dB gain @ 30GHz
- 3.75W/mm @ 30GHz
- PAE > 40% @ 30GHz
- Metal1 = 3µm; Metal2 = 3µm
- MIM cap 180pF/mm²
- HD cap 305pF/mm²
- TFR 12Ω/□
- GaN Resistors: 66 and 410 Ω/□

APPLICATIONS

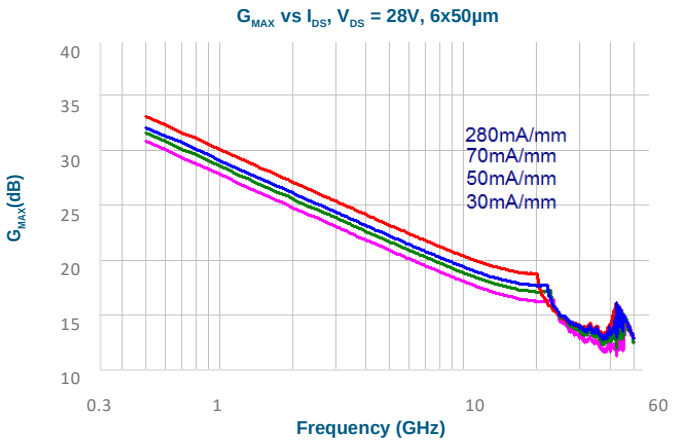
- Satcom
- RADAR
- Telecom
- Point-to-Point Radio
- Ultra-wide band EW

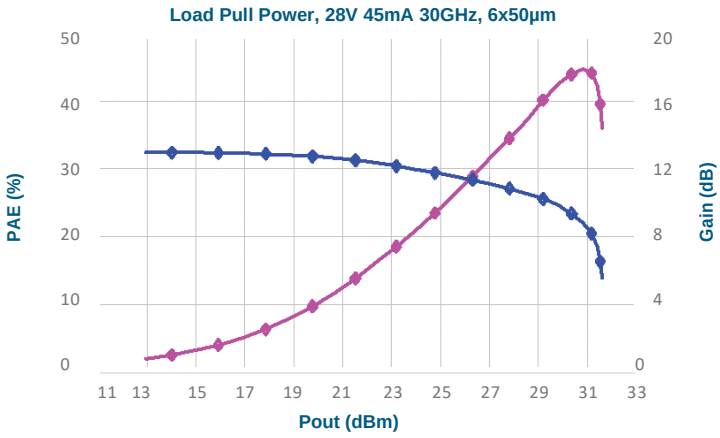
CIRCUIT TYPES

- High Power Amplifiers
- Low Noise Amplifiers
- RF Switches
- Phase-Shifters
- Attenuators

FOUNDRY SERVICES

Customers can design and fabricate circuits through the foundry using either a dedicated or shared mask option. The dedicated mask provides the greatest flexibility and die count since the dedicated foundry run is completely composed of customer content. Shared masks are run quarterly. With this option, multiple customers share a single run with each customer purchasing a portion of the mask reticle into which their circuits must fit. In all cases, extreme care is taken to protect customer IP on shared masks or dedicated masks - your information is always protected. If you choose shared mask or dedicated mask options for your development, your designs are easily ported to production mask sets for volume production. The foundry is a high volume manufacturer and can handle your production needs.





DESIGN TOOLS

- Design Manual
- Device Library of Circuit Elements: FETs, thin film resistors, bulk resistors, capacitors, inductors
- Design Kit for ADS Design Environment
- Design Kit for AWR Microwave Office
- Design Rule Check
- Thermal Reference Designs

SUPPORT FEATURES

- PDK Kits
- Design Rule Check
- Tiling of GDSII Stream Files
- On-wafer Test Development
- Failure Analysis
- Mask Procurement
- Production 100mm wafer
- Wafer Thinning
- Wafer Singulation
- Substrate Vias
- DC Test
- RF On-wafer Test
- Custom Design Services
- Die pick
- Wafer delivery on tape

Notes & Disclaimer

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