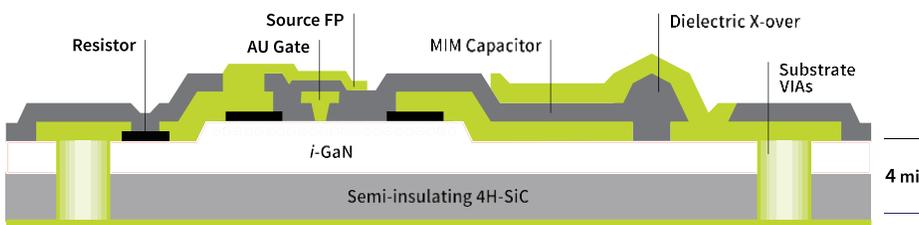


G28V4 GaN on SiC 0.25 μ m MMIC Foundry Process

Enabling 28 V RF Designs through Ku-Band



PROCESS DESCRIPTION

The G28V4 is a high performance 28V microwave process targeting applications operating at frequencies from DC through 18 GHz. The process has been fully qualified with the qualification report available upon request. The process is well suited for high performance applications at microwave frequencies where high power and efficiency over a wide bandwidth are required.

The process features two gold RF interconnect layers, MMIC 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 100 microns and has the smallest substrate via sizes available in a GaN on SiC MMIC process, which enables very compact FET footprint for high frequency applications. Process Design Kits (PDKs) with scalable, accurate models of the G28V4 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. Model validation reports are available upon request.

The G28V4 process is offered through the foundry services using either dedicated or shared wafer runs.

FEATURES

- 0.25 μ m Gate Length
- V_p - - 3 V
- 28 V bias with >84 V breakdown
- Performance DC-18 GHz
- 16.3 dB gain @ 3.5 GHz
- 4.9 W/mm @ 3.5 GHz
- PAE > 60% @ 3.5 GHz
- Metal1 = 3 μ m; Metal2 = 3 μ m
- MIM cap 180 pF/mm²
- TFR 12 Ω /sq
- GaN Resistors: 70 and 415 Ω /sq
- Substrate Thickness: 100 μ m
- Substrate Vias
- Au Back Metal

APPLICATIONS

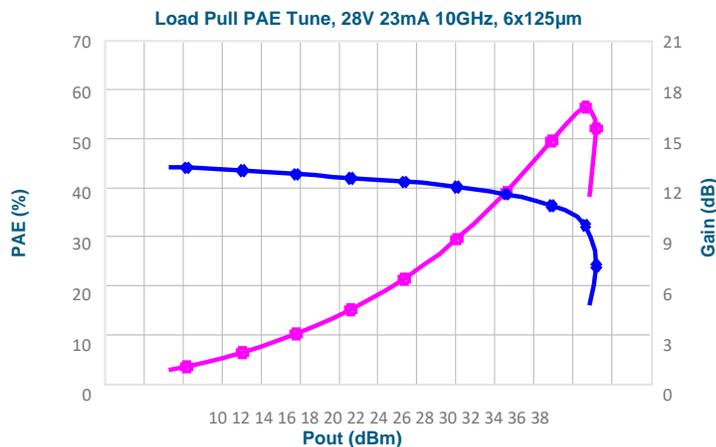
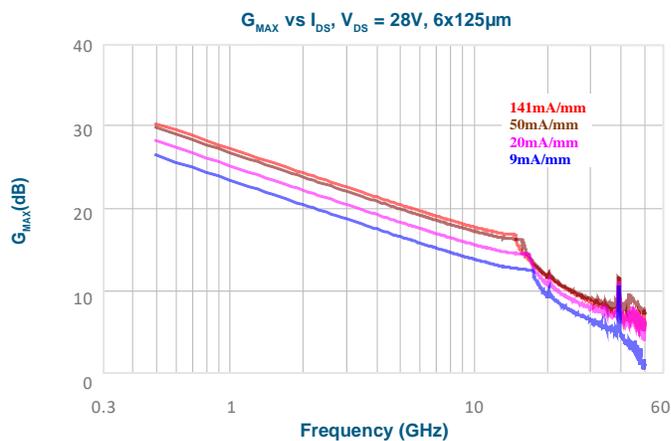
- Satcom
- RADAR
- Telecom
- Point-to-Point Radio
- Ultra-wide band EW
- ECM

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

- Process Design 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 UV tape

Notes & Disclaimer

MACOM Technology Solutions Inc. ("MACOM"). All rights reserved.

These materials are provided in connection with MACOM's products as a service to its customers and may be used for informational purposes only. Except as provided in its Terms and Conditions of Sale or any separate agreement, MACOM assumes no liability or responsibility whatsoever, including for (i) errors or omissions in these materials; (ii) failure to update these materials; or (iii) conflicts or incompatibilities arising from future changes to specifications and product descriptions, which MACOM may make at any time, without notice. These materials grant no license, express or implied, to any intellectual property rights.

THESE MATERIALS ARE PROVIDED "AS IS" WITH NO WARRANTY OR LIABILITY, EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHT, ACCURACY OR COMPLETENESS, OR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES WHICH MAY RESULT FROM USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.