



G50V4 GaN ON SiC 0.25 μ M MMIC FOUNDRY PROCESS

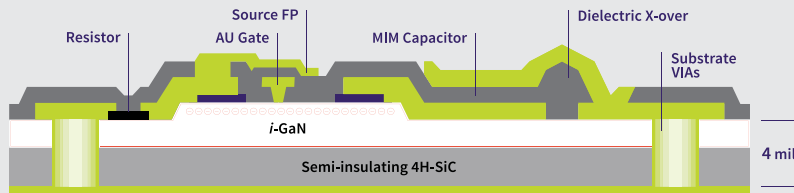
ENABLING 50 V RF DESIGNS THROUGH X-BAND

PROCESS DESCRIPTION

Wolfspeed's G50V4 is a high performance 50 V microwave process targeting applications operating at frequencies from DC through 14 GHz. The process has been fully qualified with the qualification report available upon request. The drain voltage of 50 V with breakdown of 150 V optimizes this process for high performance applications where high power and efficiency over wide bandwidths is 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 Silicon Carbide 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 G50V4 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.



FEATURES

- 0.25 μ m Gate Length
- $V_p \sim -2.7$ V
- 50 V Bias with >150 V Breakdown
- Performance DC-14 GHz
- >15 dB Gain @ 10 GHz
- $P_{sat} = 8.5$ W/mm @ 10 GHz
- Peak PAE = 55% @ 10 GHz
- Metal1 = 3 μ m; Metal2 = 3 μ m
- MIM Cap 180pF/mm²
- TFR 12 Ω /sq
- GaN Resistors: 70 and 395 Ω /sq
- Protective Scratch Coat Top Layer
- Substrate Thickness: 100 μ m
- Substrate VIAs
- Au Back Metal



CIRCUIT TYPES

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



APPLICATIONS

- RADAR
- Telecom
- Point-to-Point Radio
- Ultra-wide Band EW
- ECM

ASK ABOUT THE **GaN RF FOUNDRY ONLINE TRAINING COURSE.**

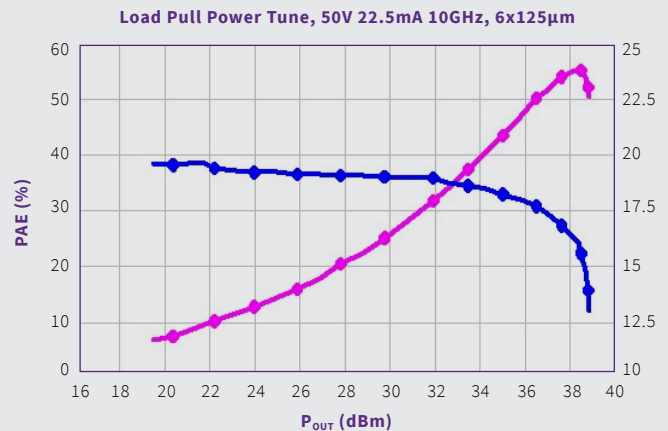
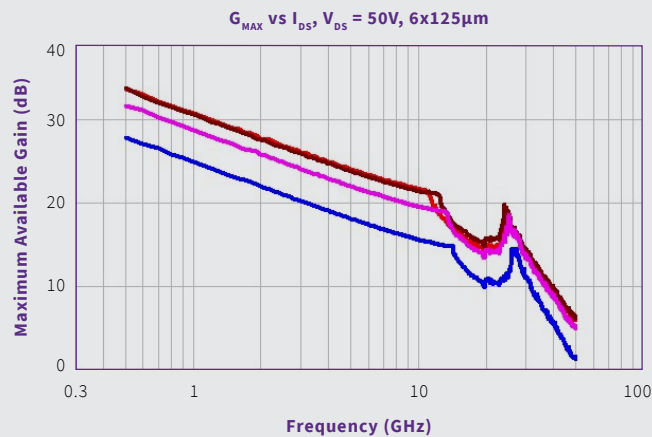
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FOUNDRY SERVICES

Customers can design and fabricate circuits through Wolfspeed's foundry using development or production lots. Designs from development masks are easily ported to production mask sets for volume production. Wolfspeed foundry is a high volume manufacturer and can handle all 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 Tape

READY TO GET STARTED? VISIT [WOLFSPEED.COM/RF/FOUNDRY-SERVICES](https://www.wolfspeed.com/rf/foundry-services) OR CONTACT US AT FOUNDRY@WOLFSPEED.COM

[wolfspeed.com](https://www.wolfspeed.com)

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