



# AURIGA

*MICROWAVE*

*Balanced Solutions that overcome historical  
and challenging power amplifier  
design and performance limitations*



*Power • Efficiency • Linearity • Bandwidth • Weight • Size*



## ***What we deliver***

Auriga designs and manufactures high-performance, solid-state, power amplifier modules integrating original and conventional design techniques to provide cutting-edge, low-risk solutions. Some of these techniques include envelope tracking, N-way Doherty, switch-mode biasing (Class D, E, & F), and digital/analog pre-distortion. Often, an ideal approach involves integrating digital, analog, and microwave circuitry to maintain compact size and affordability. We specialize in custom solutions, creatively optimizing efficiency, linearity and size to exceed specifications based on performance, time and money. Customers can expect to see solutions that offer:

- Higher output power
- Improved efficiency
- Better linearity
- Wider bandwidth
- Smaller size
- Lighter weight

## ***How we can help you***

Auriga delivers time- and cost-effective solutions. Tell us your “must-have” specifications and performance requirements and we will design and manufacture a balanced solution that exceeds your needs using our:

- GaN- and GaAs-based expertise
- Innovative designs (many patent-pending)
- World renowned and proprietary modeling capabilities
- Dedicated team effort
- Strong relationships with DoD Category 1A trusted foundries
- Access to newly released technology

## ***What makes us different***

Auriga is dedicated to providing unsurpassed amplifier and RF front-end performance for military and commercial applications. The world-class design team specializes in blending conventional techniques with novel approaches to create solutions that are innovative and reliable. We understand there are trade-offs between size and power, efficiency and linearity, and novelty and cost. Our strength lies in our ability to find the most balanced solution for each customer.

Having in-house modeling capability provides Auriga with a unique advantage. Rather than using foundry models intended for universal application, Auriga generates custom models tailored for specific design environments. This facilitates first-pass success that translates to optimal performance, faster delivery, and lower cost for the customer.

Auriga has deep roots in solid-state device measurement, characterization, and modeling. With an advanced understanding of device physics, Auriga engineers optimize the full potential of the latest GaN- and GaAs based technologies. Leveraging strong working relationships with GaN and GaAs foundries around the world, we employ the most desirable process to meet each project’s technical requirements. Often, we have access to foundries’ developmental products, allowing us to stay on the forefront of bleeding-edge technology.

## What we are doing now

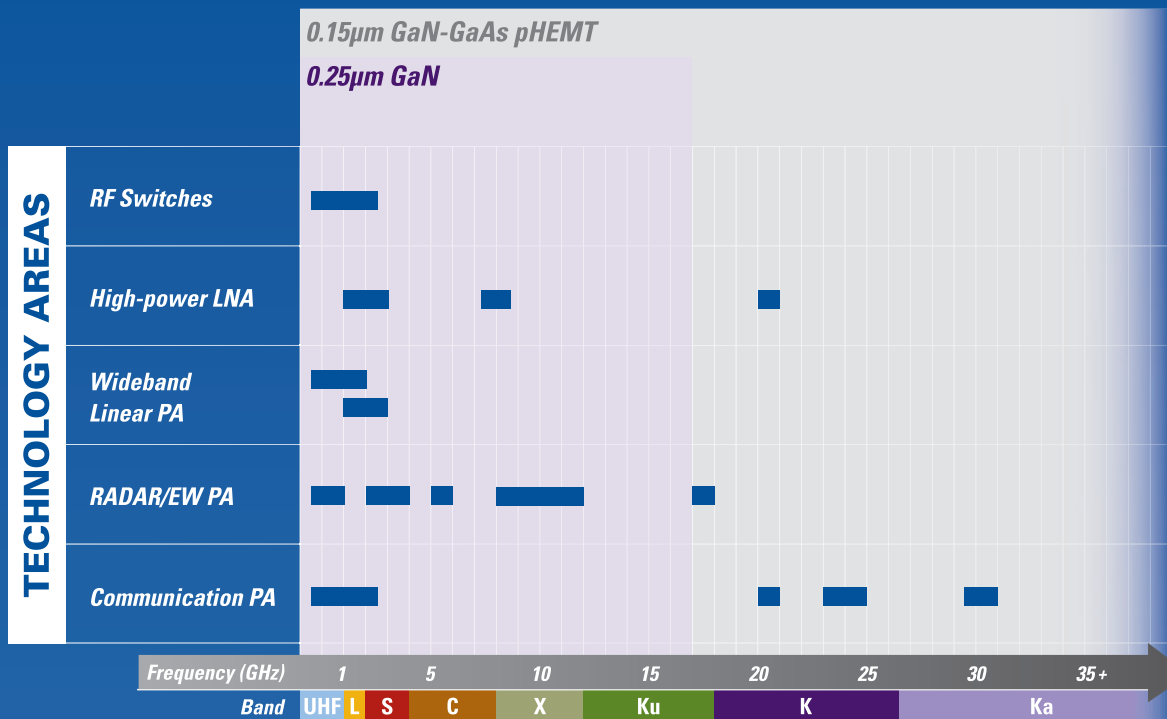
Auriga designs and manufactures power amplifier modules for integration into radar, radar jamming and communications systems.

Auriga power amplifier modules are customized for:

- **High power**  
*building a combined solution up to 700W*
- **High frequency**  
*projects covering UHF – 30GHz*
- **High linearity**  
*jammer covering up to 8 tones*
- **High efficiency**  
*up to 70% power-added efficiency, depending on project and method*

CUSTOMER/AFFILIATION	TOPIC	BRANCH	NEED/REQUIREMENT
<b>SBIR: N07-007</b>	Solid-State High-Efficiency Radar Transmit Module (UHF)	Navy: Unmanned Aviation and Strike Weapons	High-efficiency radar transmitter to reduce the weight, fuel consumption, and operating cost of Unmanned Aerial Systems (UASs)
<b>SBIR: N08-039</b>	Wide Bandgap Amplifier Linearization (L & S-Bands)	Navy: Tactical Aircraft	Wide band, high-linearity, high-efficiency PA for Next Gen Jammer
<b>SBIR: N07-194</b>	Shipboard Low Noise Amplifier Assembly (UHF, L, & S-Bands)	Navy: C4I	Low noise amplifier with high-power survivability for mast top deployment
	Wideband, High-Efficiency GaN Power Amplifier (UHF, L, & S-Bands)	Communications	100 W PA equipped with power-down capability maintaining efficiency over a wide dynamic range
<b>SBIR: A08-007</b>	High-Power Integrated RF Switches for JTRS (UHF, L, & S-Bands)	Army: Missiles and Space	High-power MPMT switch with very low loss for switch matrix
<b>SBIR: N08-172</b>	High-Efficiency Solid-State Radar PAs (S & X-Bands)	Navy: Integrated Warfare Systems	High-power S-band PA with very high efficiency
<b>SBIR: N093-221</b>	Highly Efficient Transmitter for High PAPR Waveforms (UHF & L-Band)	Navy: JTRS	Compact, broadband highly efficient transmitter for complex waveforms with high PAPR
<b>SBIR: N111-023</b>	Thermal Management of Highly Integrated Radio Frequency (RF) Electronics	Navy: Unmanned Aviation and Strike Weapons	Cost effective thermal management to improve system performance and reliability of high heat flux, air cooled, RF electronic systems
<b>SBIR: AF112-150</b>	20 GHz Radiation Hardened SSPA for Satellite Communications Downlinks (K-Band)	Air Force	Affordable battlefield communications with high data rates that use complex modulation schemes
<b>Samsung-Thales</b>	High-Efficiency MMIC Hybrid Module (K-Band)	Agency Defense Development for Republic of South Korea	High power and high efficiency
<b>Energy</b>	High-Power MMIC Hybrid Module (Ku-Band)	Energy sensor amplification	High-power sensor operating at extreme temperature

## Programs Underway



Frequency band of operation and enabling solid-state technology under development, November 2011



## ***Who we are***

Auriga is committed to being the international leader in designing and manufacturing innovative RF/microwave solutions. At Auriga, we push the limits of science and technology to surpass the performance goals of our customers.

For more than 30 years, Auriga's design and modeling teams have excelled in RF measurement science. We have the experience to help companies achieve never-before-seen MMIC designs and non-linear models with unparalleled performance. Whether supplementing customers' design and modeling resources or delivering custom turn-key solutions, Auriga is a "sure-fire" asset in getting products to market faster, more efficiently, and with greater potential for success.

Partnering with our customers, we are a leading high-performance power-amplifier designer for Department of Defense primes – offering the government state-of-the-art power-amplifier capabilities. All technology is designed for expedited integration into other programs, military branches, and industry applications.

## ***Our team***

Since 2007, when Auriga earned its first Small Business Innovated Research (SBIR) award, our dedicated team of "old-" and "new-school" engineers has led the way in cutting-edge technology. Under the leadership of Dr. Yusuke Tajima, Chief Technology Officer, our design team has created and produced some of the most sophisticated terrestrial and space-qualified military technology in use today. Dr. Tajima was responsible for delivering such satellite programs as Globalstar, Inmarsat, and Skybridge. He was a pioneer of GaAs MMIC technology.

Auriga is led by a team of entrepreneurs whose vision and expertise have transformed start-up companies into multi-million-dollar corporations.

## ***Contact Auriga***

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