



Designing and Manufacturing RF Power Amplifiers (SSPA) & High-Power Microwave Generators

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Company Introduction



Introduction

We are experts in designing RF (radio frequency) / microwave amplification technology

Established in 2014 by former Motorola engineering leaders, Elite RF has set a very high standard in designing and manufacturing solid-state RF power amplifiers and high-power microwave generators for off the shelf availability and custom design solutions. With our in-house engineering team and a quality controlled 22,000-sf manufacturing facility, our core strength lies in our commitment to collaborative engineering, robust designs, high manufacturing quality, and on-time delivery. Here, we're dedicated to boosting your operational performance, aiming to provide you with a significant competitive advantage in the rapidly evolving RF landscape.

Our Mission

Elite RF is committed to delivering high-quality products and services in RF engineering while maintaining the highest reliability, performance, and durability standards. We back our amplifiers with confidence, providing the industry leading warranty. We strive to provide excellent customer service, support, and responsiveness to our clients.

Quality Statement

“Customer Satisfaction is our #1 Priority”
At Elite RF, we prioritize quality and customer satisfaction. Our core strength lies in our unmatched engineering capabilities. With over 150 years of combined experience in power amplifier design and business management, we aim to deliver the most competitive products in the industry.

Solid-State RF Power Amplifiers

- Amplifiers from low frequencies to **40GHz**
- Power from **1W to 100kW**
- Class A & Class AB Amplifiers
- CW/Pulsed
- Built in different forms – Module, Rack or Custom Enclosures
- Built-in Protection, Enable/Disable Input, High Reverse Isolation and more features
- Options
 - (-H) Heatsink
 - (-T) TTL Input Trigger
 - (-D) Sub D
 - (-I) Isolator with Forward & Reverse Output

*All MA/MB/MP series modules can be built into AA/AB/AP or DA/DB rack mount systems as required



RF Amplifier Module
Elite RF's MA/MB/MP Series



RF Amplifier Module w/Heatsink
MA/MB/MP series with (-H) Option



19-inch Rack Mount Amplifier
(with built-in heatsink and power supply)
Elite RF's AA/AB/AP Series



19-inch Rack Mount Amplifier
(with built-in heatsink, power supply and display)
Elite RF's DA/DB Series

Custom Designs/RF Engineering Consulting

- From idea on paper to a working prototype to high volume production
 - We have you covered!
- Make your RF power requirements a reality



High Frequency
RF generator for
dental application



Wideband
20MHz to 18GHz
RF Amplifier for
military application



High Power 6 kW
amplifier at lower
frequency for cyclotron

Solid-State High Power Microwave Generators

- Robust and reliable Solid-State Microwave Generators to replace tube-based technology
- ISM Frequency: 433MHz, 915MHz, 2.45GHz & 5.8GHz
- System includes Power Supply and RF Generator
- Microwave Power – from 500W to 100kW (modular design)
- In-house design capabilities and years of hands-on experience to build custom generators up to 100kW through efficient RF combining techniques



Custom Power
Supply for
RF Generator



6 kW Microwave
Generator Unit



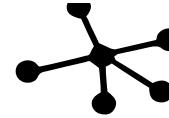
Applications/Markets Served



DEFENSE (EW)



MEDICAL



COUNTER DRONE



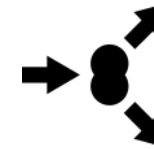
EMI/EMC



RESEARCH



COMMUNICATIONS



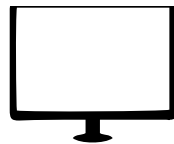
LINAC



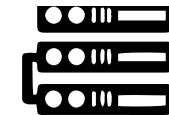
AEROSPACE



PLASMA GENERATION



ADVANCED COMPUTING



INDUSTRIAL MICROWAVES



COMMERCIAL



Elite RF Amplifiers – Gold Series < 18GHz

Part Number	Frequency Min	Frequency Max	Psat (Watts)	Power Gain (dB)	Voltage
MB030512M504850	30 MHz	512 MHz	100	48	50 VDC
MB030512M534850	30 MHz	512 MHz	200	48	50 VDC
MB.026.0G434350	20 MHz	6000 MHz	20	43	50 VDC
MB.502.5G504050	500 MHz	2500 MHz	100	40	50 VDC
MB.502.5G534850	500 MHz	2500 MHz	200	48	50 VDC
MB2.42.5G544850	2400 MHz	2500 MHz	250	48	50 VDC
MB2.42.5G574850	2400 MHz	2500 MHz	500	48	50 VDC
MB1.06.0G454824	1000 MHz	2500 MHz	35	48	24 VDC
MB2.06.0G444828	2000 MHz	6000 MHz	25	48	28 VDC
MB2.0018G434822	2000 MHz	18000 MHz	20	48	22 VDC
MB6.0012G444820	6000 MHz	18000 MHz	25	48	20 VDC
MB6.0018G434820	6000 MHz	12000 MHz	20	48	20 VDC
MP8.011G534828	8000 MHz	11000 MHz	200	48	28 VDC

Our Most Popular Frequency Band

- 20 MHz to 6000 MHz
- 30 MHz to 512 MHz
- 500 MHz to 2500 MHz
- 2000MHz to 18000MHz
- 6000MHz to 12000MHz
- 6000MHz to 18000MHz
- X-Band
- ISM Bands

CW & Pulsed Signals

Custom Designs available

All the above RF amplifier modules can be mounted on air cooled heatsink or in 19-inch rack (with integrated power supply and heatsink). Contact sales@eliterf.com



Elite RF Amplifiers for EMI/EMC Test & Other Applications

Part Number	Frequency Min	Frequency Max	Psat (Watts)	Power Gain (dB)	Voltage
AB1.06.0G5757AC	1000 MHz	6000 MHz	500	57	380 VAC
AB2.0018G5050AC	2000 MHz	18000 MHz	100	50	220 VAC
AB6.0018G5353AC	6000 MHz	18000 MHz	200	53	220 VAC
AA9K400M5353AC	9 KHz	400 MHz	200	53	220 VAC
MA9K400M535348	9 KHz	400 MHz	200	53	48 VDC
AB.021.0G5757AC	20 MHz	1000 MHz	500	57	220 VAC
AB026040G4747AC	26500 MHz	40000 MHz	50	47	220 VAC
AB026040G5353AC	26500 MHz	40000 MHz	200	53	380 VAC
AB2.06.0G5353AC	2000 MHz	6000 MHz	200	53	220 VAC
AB2.06.0G5757AC	2000 MHz	6000 MHz	500	57	220 VAC
AB018027G4747AC	18000 MHz	26500 MHz	50	47	220 VAC
AB.076.0G5353AC	700 MHz	6000 MHz	200	53	220 VAC
MB018026G434420	18000 MHz	26500 MHz	20	44	20 VDC
MB2.06.0G474728	2000 MHz	6000 MHz	50	47	28 VDC
AB6.0018G5050AC	6000 MHz	18000 MHz	100	50	220 VAC
MB2.0018G444428	2000 MHz	18000 MHz	25	44	28 VDC

AB Series mentioned are EMC systems. Systems with different frequency bands and power are available. RF Amplifier Modules are available for other applications. Contact sales@eliterf.com



New Released Elite RF Amplifiers up to 40GHz

Part Number	Frequency Min	Frequency Max	Psat (Watts)	Power Gain (dB)	Voltage
MB1.06.0G474728	1000 MHz	6000 MHz	50	47	28 VDC
MB1.06.0G505032	1000 MHz	6000 MHz	100	50	32 VDC
AB1.5M18G4747AC	1.5 MHz	18000 MHz	50	47	220 VAC
MB2.06.0G505030	2000 MHz	6000 MHz	120	50	30 VDC
AB2.06.0G5353AC	2000 MHz	6000 MHz	200	53	220 VAC
MB2.08.0G494928	2000 MHz	8000 MHz	80	49	28 VDC
MB6.0018G475228	6000 MHz	18000 MHz	50	52	28 VDC
MB6.0018G505028	6000 MHz	18000 MHz	100	50	28 VDC
MB026040G505022	26500 MHz	40000 MHz	100	50	22 VDC
MB026040G465524	26500 MHz	40000 MHz	35	55	24 VDC
MB033037G474722	33000 MHz	37000 MHz	50	47	22 VDC
MB.703.0G515028	700 MHz	3000 MHz	120	50	28 VDC
MB2.04.0G525228	2000 MHz	4000 MHz	170	52	28 VDC
MB018026G404424	18000 MHz	26500 MHz	10	44	24 VDC
MB013015G474728	13500 MHz	15500 MHz	50	47	28 VDC
MB014015G474728	14400 MHz	15400 MHz	50	47	28 VDC

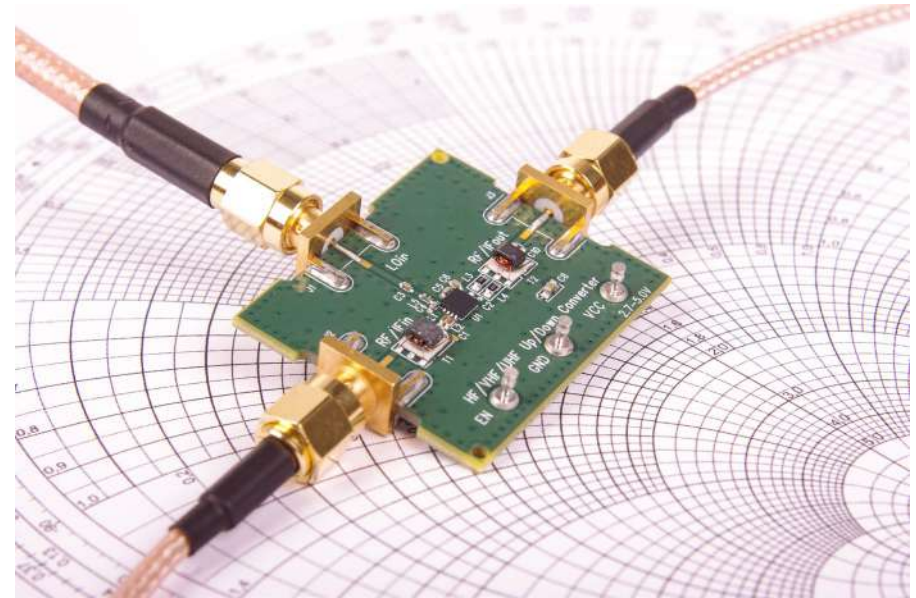
All the MB modules can be mounted on air cooled heatsink or in 19-inch rack (with integrated power supply and heatsink). More frequency band and power options available. Contact sales@eliterf.com



Engineering Capabilities

Capabilities

- RF Amplification up to 40GHz and 100kW saturated/peak power
- Over 200 documented and verified “trade secret” designs (used as building blocks to design custom products within 60 days)
- GAN & LDMOS technology
- Basic to multifunction PA modules and system
- Embedded software and controllers
- Quick Turn Design
- Design for robustness, reliability and longevity
- Strong customer collaboration at every step of design

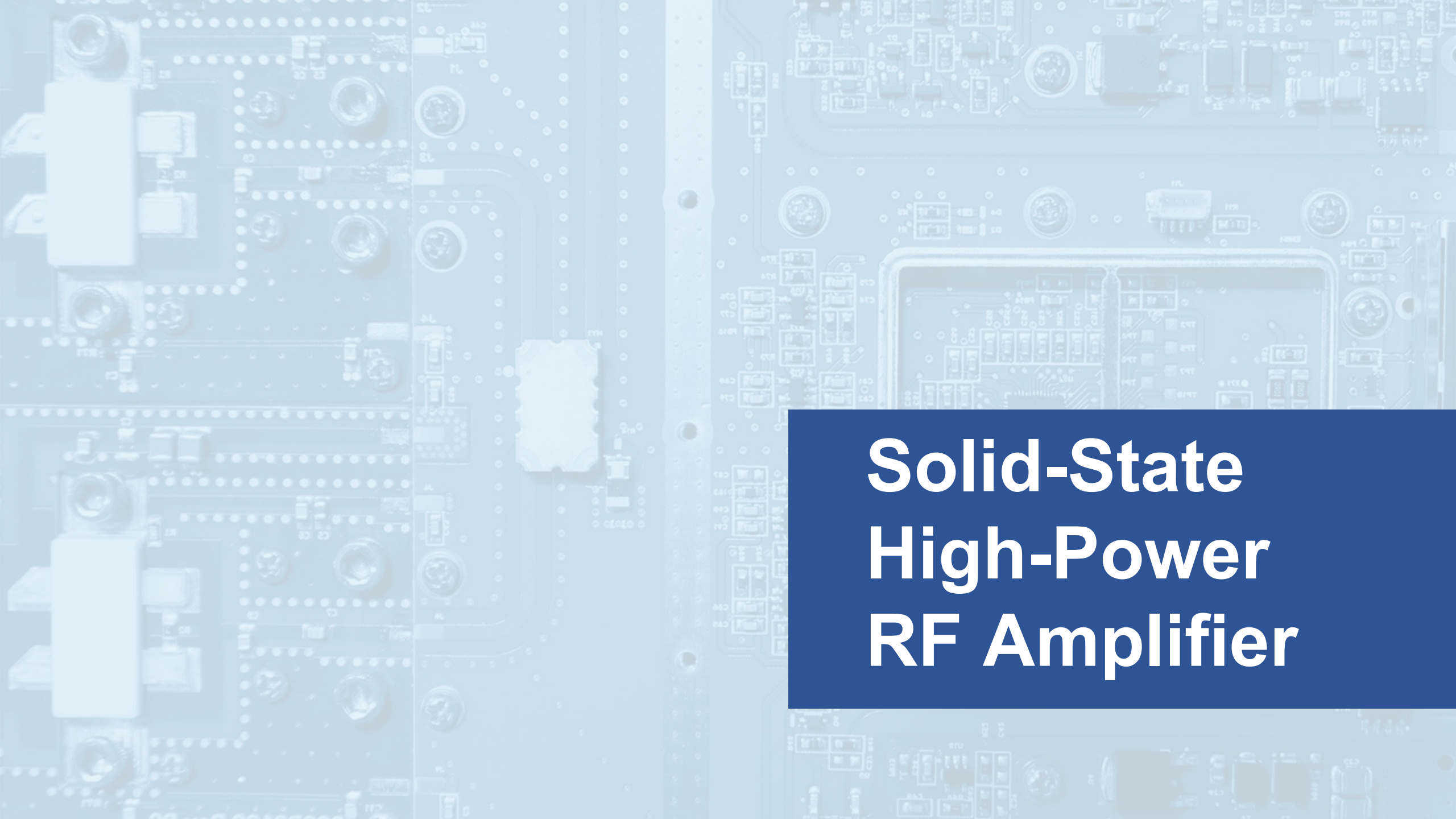


Engineering Disciplines

- Electrical Engineering
- RF/Wireless Engineering
- Mechanical Engineering
- System Engineering
- Software Engineering
- Project Management

Simulation/CAD

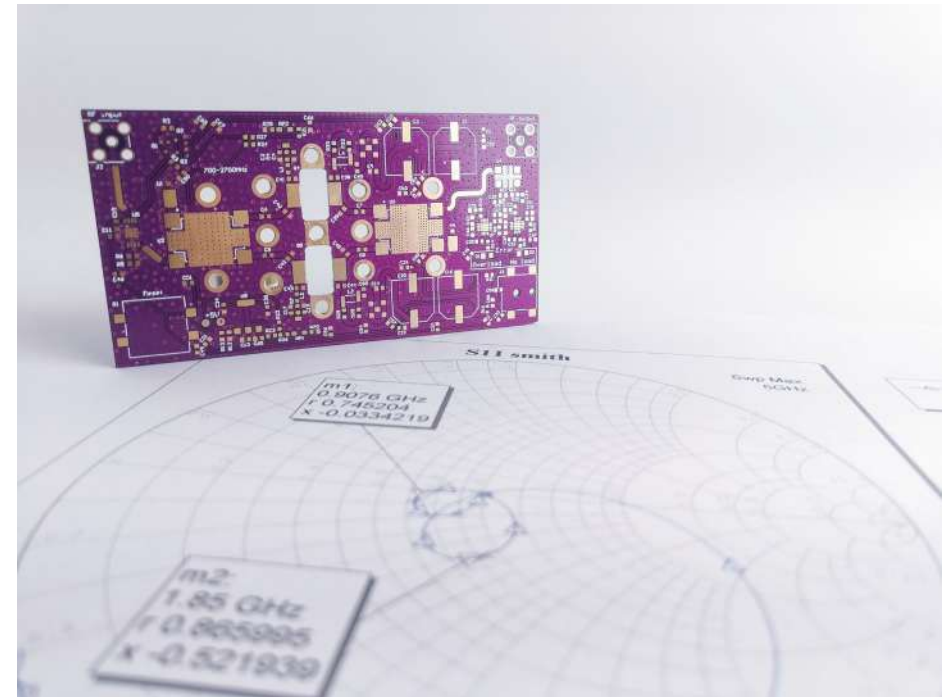
- Linear and non-linear circuit simulation (MW Office)
- 2.5D electromagnetic simulation (MW Office)
- Full 3D electromagnetic simulation (HFSS)
- PCB design and layout (ORCAD)
- Mechanical design and layout (AutoCAD)
- Solid Modeling (Solidworks)
- Thermal analysis (Harvard Thermal TAS)
- Reliability analysis and MTBF prediction (RELEX)
- LabView



Solid-State High-Power RF Amplifier

Expertise in Designing High Power RF Amplifiers

- The following is an example of our Custom Design capabilities. We believe in Collaborative Partnership – Our Engineers are involved in the customer's program for technical discussions even before the order is placed.
- This design concept presentation was done for a US customer in the Particle Accelerator Market for a 100kW system.





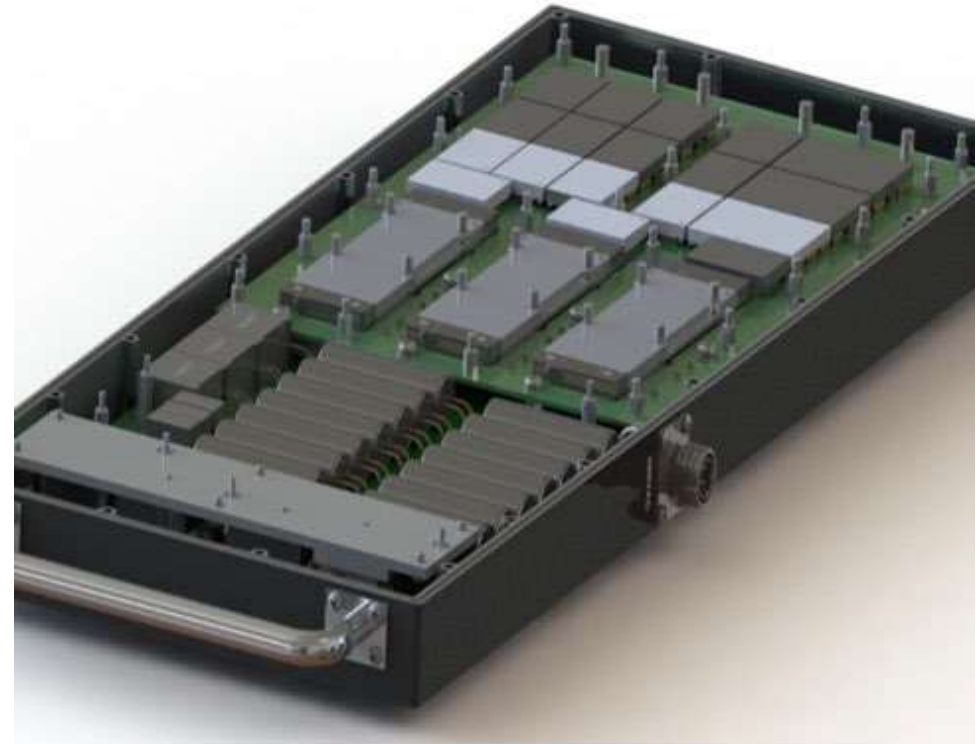
2 KW/352 MHz High Power Module Integrated RF and Power supply

Module Specification

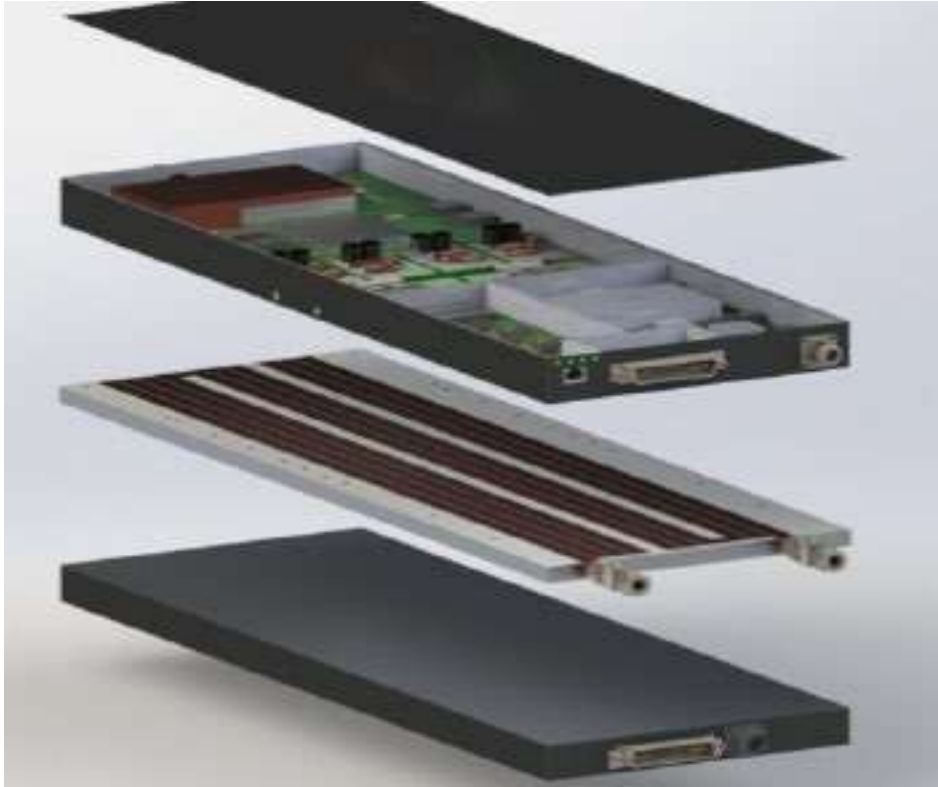
- 348-352 MHz
- 2 KW Psat/CW
- 60 dB gain
- > 60% module efficiency
- Class AB, dual finals
- Phase Control
- Gain Control
- 12C Communication
- Final drain voltage control
- > 94% power supply efficiency
- Hot swap capability
- RF output 7/16 DIN connector
- Water cooled / Amplifier and power supply
- 480 VAC/3 phase input



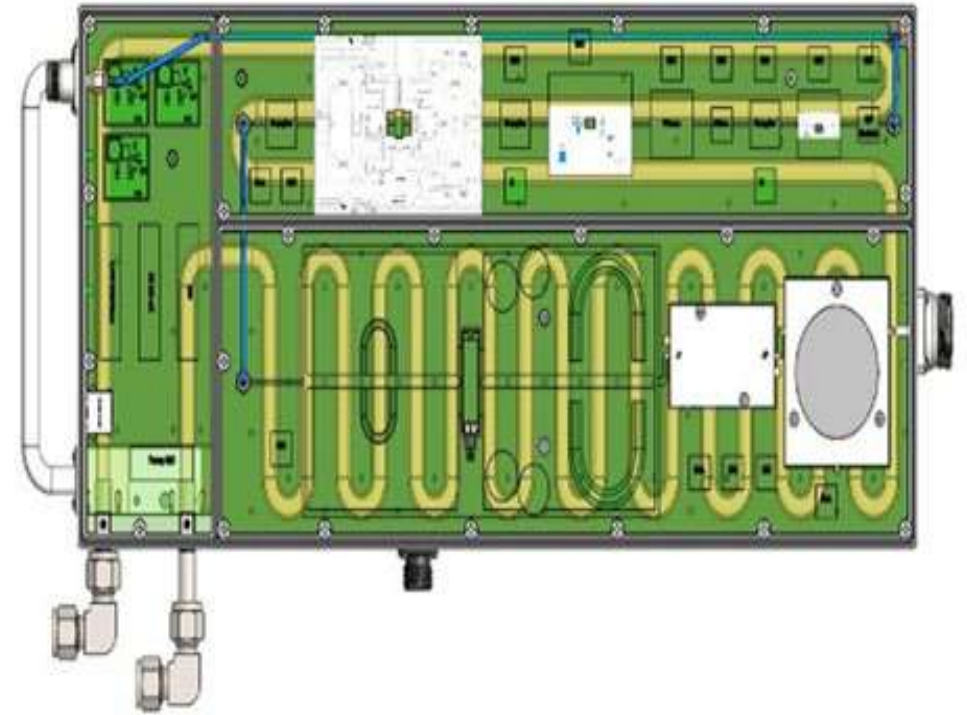
2 KW / 352 MHz High Power Module



Custom Power Supply Design



2 KW / 352 MHz High Power Module Assembly

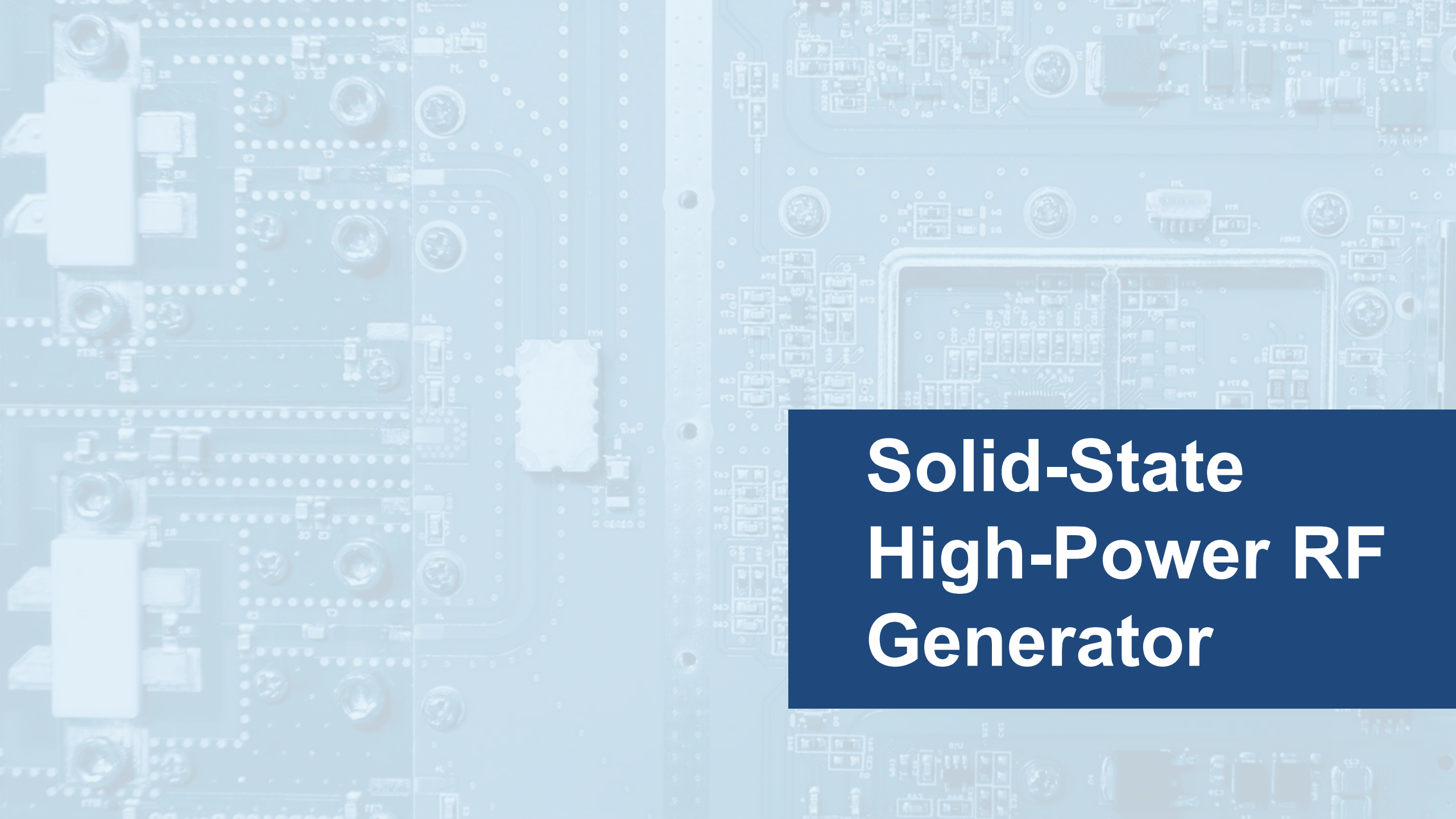


RF Side Copper Plate / Water Channels

100 KW RF Modular System with Hot Swap Technology



64 / 2KW Modules



Solid-State High-Power RF Generator

Introducing Solid-State Microwave Generation Technology

Navigate the RF Energy Shift – From vacuum tubes to semiconductors for microwaves

Problem

TUBE BASED TECHNOLOGY Magnetrons

Inefficient to use where power stability is of high importance for the final product quality

10000+ hours

Yes

Fixed

No

The usage of tubes presents certain limitations. The landscape of solid-state microwave generation is changing rapidly, and the emerging technologies hold the potential to shape the future of this field.

Opportunity

SEMICONDUCTOR BASED TECHNOLOGY Solid-State High Power Generators (SSHPG)

Excellent control on frequency and power output enhancing the final product quality

100000+ hours

No

Full ISM Band

Yes

No process interruptions due to part failure
Modular design
Excellent reliability
Low cost of replacement

EFFICIENCY

LIFETIME

SIGNAL NOISE

FREQUENCY

CUSTOMIZED
SOFTWARE CONTROL

Designing and manufacturing RF/microwave generators up to 100kW for these addressable markets

- Lab Grown Diamonds
- Hydrogen Production
- Semiconductor Processing
- Syngas Production
- LINAC (Linear Particle Accelerator)
- Pasteurizing
- Tempering
- Microwave Ablation
- Plasma Chemical Vapor Deposition
- Rubber Vulcanization
- Biological Waste Disposal
- Plasma lighting
- Textile Processing
- Laser Cutters
- Pharmaceuticals
- Coating systems
- Fiber Optic Preform
- Freeze Drying
- Nuclear Fusion
- Sterilization
- Metalized 3D printing
- Counter Drone Systems
- Directed Energy
- Mass Drying
- Biofuels
- Microwave Assisted Chemistry





Production Capabilities

Production Capabilities

Production Control

- We maintain in-house control over all amplifier and generator assembly, wiring, housing, testing, and integration processes. PC boards and PC board assemblies are manufactured by our QMS certified Contract Manufacturer only.

Production Capacity

- Our production is currently operating in a quality controlled 22,000-square-foot facility. The facility is designed to achieve high volume production to offer a one stop solution to the customers.



Production Capabilities

ISO9001:2015 Certified QMS

- Our meticulous approach to manufacturing ensures the highest level of quality and customization for our customers. Each amplifier is rigorously tested and documented before shipment to customer.



Strong Vendor Network

- Like customers, we share a strong relationship bond with our suppliers developed over years of working together. Gives us an advantage to offer high quality amplifiers and generators in lower turn around times.





THANK YOU

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