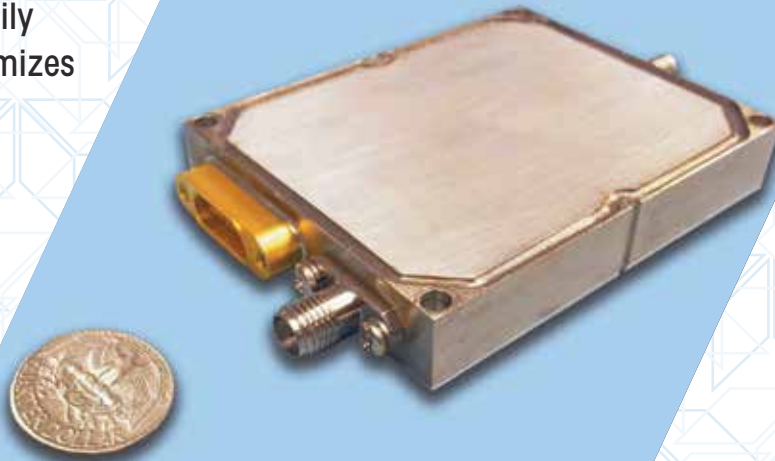


# A new SWaP Industry Standard in the 0.1 to 6.0 GHz range.

Leveraging a 50+ year heritage of engineering expertise, Teledyne Microwave Solutions' new family of GaN-based amplifiers maximizes power density and efficiency and lowers the industry's form factor threshold in the 0.1 to 6.0 GHz range. These modular, wideband amps can be designed to meet your exacting specifications drawing from our large, ever-expanding repository of parts.



## Introducing Teledyne's new line of **Modular, non-ITAR GaN Amplifiers**

### The Power You Need ... at the SWaP You Want

- ▶ **Market-leader: Small Size vs Power**
- ▶ **Optimal Ruggedization**
- ▶ **Wider bandwidths provide design flexibility**

### *For the most demanding applications ...*

*With a calculated MTBF over 40,000 hours, these GaN amplifiers are manufactured to optimal thermal requirements to deliver the highest reliability and performance in the harshest airborne and land-based environments.*

 **TELEDYNE  
MICROWAVE SOLUTIONS**  
Everywhere you look™

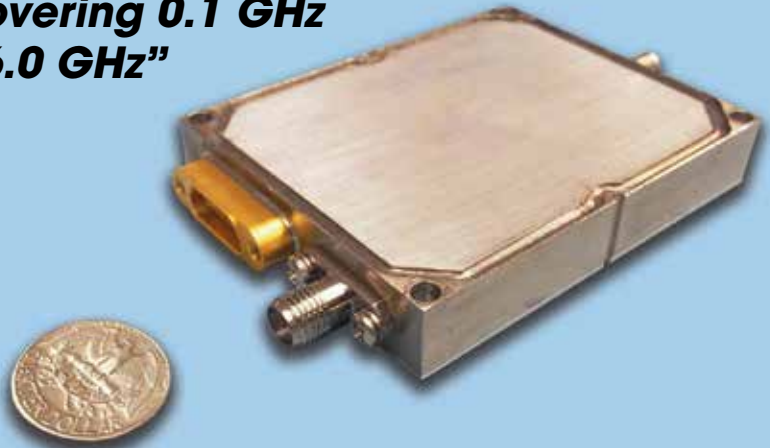
teledynemicrowave.com  
1.800.832.6869 or 1.650.962.6944  
microwave@teledyne.com

# The TMS Family of Non ITAR GaN Amplifiers

## Industry-leading SWaP + High efficiency

When Size, Weight, and Power (SWaP) are critical, Teledyne leverages decades of engineering innovation to rise and meet the needs of our warfighters, now and in the future.

**“Covering 0.1 GHz to 6.0 GHz”**



### RF Specifications and Parameters

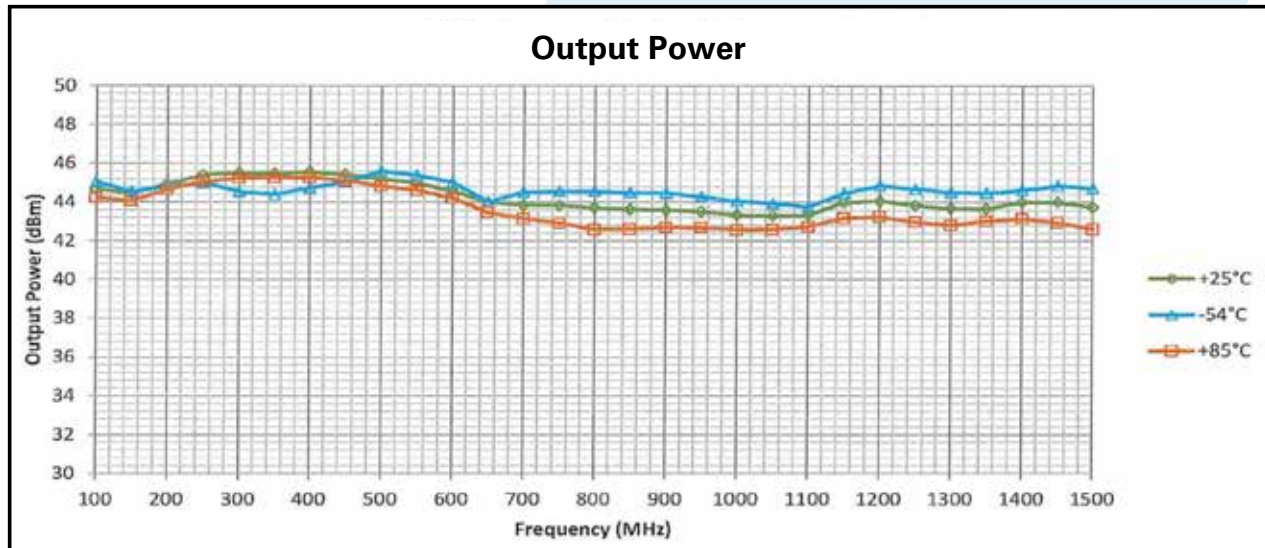
Specifications	TSA-213241	TSA-213242	TSA-213243	TSA-213244	TSA-213245
Housing	Band 1	Band 1	Band 2	Band 2	Band 2
Frequency Range	.1 to 1 GHz	.1 to 1.5 GHz	1 to 2.5 GHz	2 to 4 GHz	2 to 6 GHz
Small Signal Gain	55 dB min	55 dB min	55 dB min	55 dB min	50 dB min
Pout @ P3dB	20 Watts typical	15 Watts typical	40 Watts typical	40 Watts typical	30 Watts typical
Input VSWR	2:1 max	2:1 max	2:1 max	2:1 max	2:1 max
Output VSWR	2.3:1 max	2.3:1 max	2:1 max	2:1 max	2:1 max
Temperature Range	-55°C to +85°C	-55°C to +85°C	-55°C to +85°C	-55°C to +85°C	-55°C to +85°C
Pin max (no damage)	+10 dBm	+10 dBm	+10 dBm	+10 dBm	+10 dBm
DC Power	32Vdc @ 2.9A typ +8Vdc @ 500mA typ	32Vdc @ 2.2A typ +8Vdc @ 500mA typ	32Vdc @ 5A typ +8Vdc @ 450mA typ	28Vdc @ 5.2A typ +8Vdc @ 450mA typ	28Vdc @ 4.5A typ +8Vdc @ 450mA typ
Dimensions, excluding connectors	2.5" L x 2"W x .42"H	2.5" L x 2"W x .42"H	2.5" L x 2"W x .42"H	2.5" L x 2"W x .42"H	2.5" L x 2"W x .42"H
RF Connectors	SMA, In & Out	SMA, In & Out	SMA, In & Out	SMA, In & Out	SMA, In & Out
Harmonics	> 10 dBc	> 10 dBc	> 10 dBc	> 10 dBc	> 10 dBc

# The TMS Family of Non ITAR GaN Amplifiers

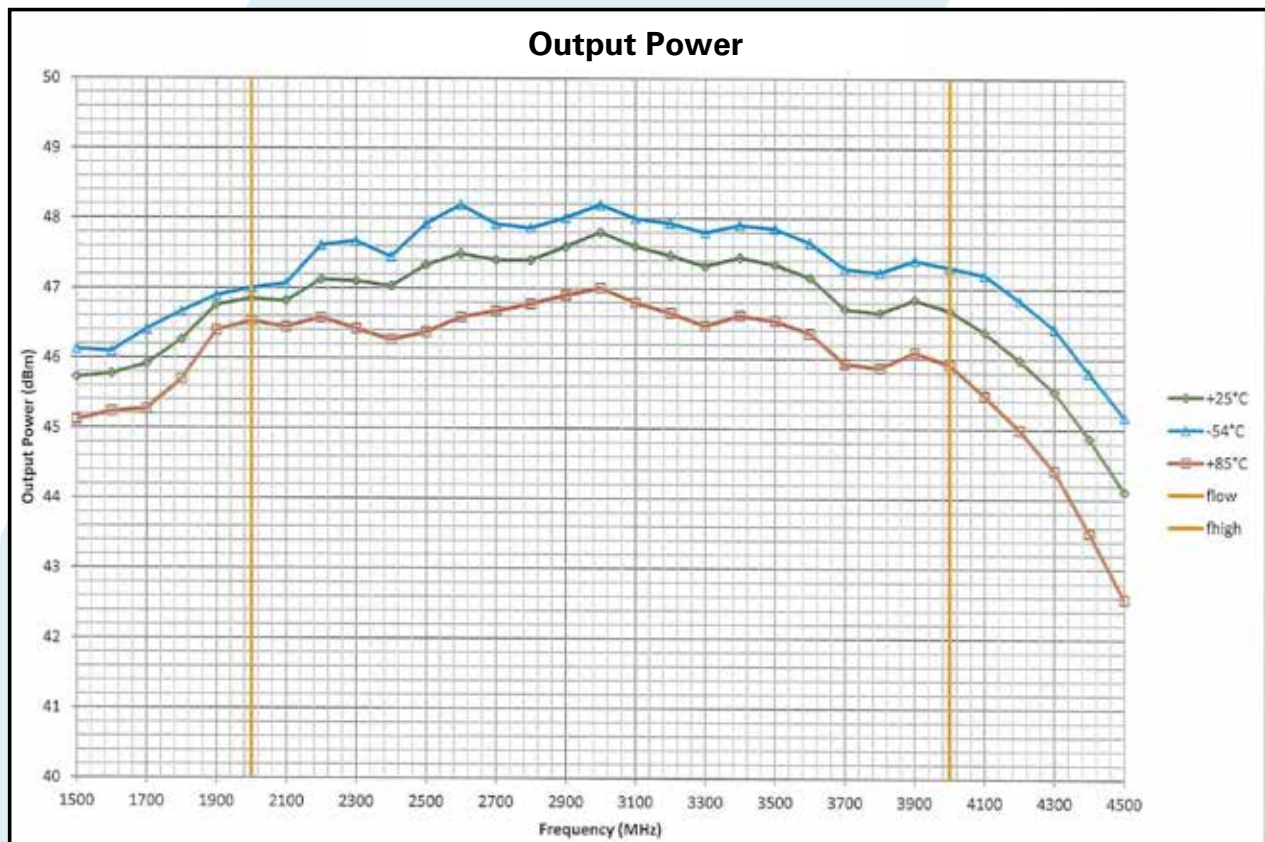
Industry-leading SWaP + High efficiency

## Samples of Output Power ( $P_{SAT}$ )

**TSA-213242**



**TSA-213244**



## TMS Releases GaN Amplifier Line that Re-defines the Optimal SWaP Currently Available in the Industry in the 0.1 to 6.0 GHz Range.

*Modular line of non-ITAR wideband GaN Amps establishes new baseline for small size in the 0.1 GHz to 6.0 GHz range. With dimensions of 2.5"L x 2"W x .42"H, this new amplifier line maximizes high power density and efficiency while maintaining the rugged design characteristics needed for harsh airborne requirements.*

**MOUNTAIN VIEW, CA – November 23, 2015 – [Teledyne Microwave Solutions](#)** (TMS) today announced a new line of wideband GaN amplifiers that further lowers the form factor threshold in the industry for the 0.1 GHz to 6.0 GHz frequency range.

The new line consists of five GaN wideband amplifier models that raise the bar for SWaP (size, weight and power) in this category of GaN amplifiers while meeting the stringent airborne requirements of the most demanding commercial and military applications. The dimensions, excluding connectors, are 2.5"L x 2"W x .42"H, at only 2.1 cubic inches. The five models numbers are TSA-213241; TSA-213242; TSA-213243; TSA-213244; and TSA-213245.

TMS has leveraged its 50 year amplifier engineering heritage to create a modular, non-ITAR line of amplifiers that TMS can quickly and efficiently tailor to the specific needs of customers utilizing one of the industry's most comprehensive repository of parts. With wider bandwidths that enable more design flexibility, the new GaN amplifier line offers a unique value proposition for the most demanding SWaP needs of today's airborne markets.

"This GaN line is the latest addition to the portfolio we have developed over decades, including our AVP catalog series," said Dan Cheadle, CTO of Cougar Products for Teledyne Microwave Solutions. "Leveraging the high power output and high efficiency of GaN, these amps offer a durable GaN solution that delivers the highest output power over wide bandwidths in the smallest footprint possible today."

This family of amplifiers was designed and manufactured with great attention to thermal requirements to ensure the high reliability required in the most demanding applications. With a calculated MTBF of over 40,000 hours @ +85° C, these units are suitable for airborne applications as well as challenging land based environments.

Depending on frequency band, output power ranges between 15 and 40 watts. Each amplifier includes preamp and driver stages to produce a minimum overall gain of 50 dB. Internal control circuitry ensures safe startup so supply voltages can be applied in any order. In addition to normal DC connections via a 15 pin Micro D connector, other convenient control / interface features available via the connector include a TX enable / disable TTL command (100 ns TYP, 200 ns MAX); over temperature automatic shutdown and associated alarm (TTL); and the ability to monitor unit temperature via an analog voltage which is proportional to case temperature.

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### ABOUT TELEDYNE MICROWAVE SOLUTIONS

Teledyne Microwave Solutions (TMS), your single source for microwave electronics, delivers the world's most advanced microwave technologies for the most demanding aerospace, military, commercial, and industrial applications. Forged from the consolidation of seven leading microwave companies, TMS leverages its expansive R&D capabilities to research, design, develop, and manufacture products from RF through 220 GHz. [www.teledynemicrowave.com](http://www.teledynemicrowave.com). TMS is a business unit of Teledyne Technologies, Inc., a leading provider of sophisticated instrumentation, digital imaging products and software, aerospace and defense electronics, and engineered systems. [www.teledyne.com](http://www.teledyne.com).

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