

# INS3035

500-2500MHz 100W Broadband GaN Power Amplifier

**INSPower**  
RF Amplifiers



## Description

The Model INS3035 is a high power, class AB solid state amplifier which utilizes the latest GaN Technology to offer broadband performance from 500 to 2500MHz. Inspower's ISO9001 quality management system assure consistent performance and highest reliability.

## Product Features

- 50Ω RF impedance, Fully Integrated Matching
- 100W Output
- Single Supply Operation : Nominally 28V
- Built-in monitoring functions
- High reliability and ruggedness

## Electrical Specifications @ +28.0VDC, 25°C, 50Ω System

Symbol	Parameter	Unit	Min.	Typ.	Max.
BW	Operating Frequency	MHz	500		2500
P <sub>SAT</sub>	Power Output Saturated	Watt	100	120	
P <sub>1dB</sub>	Power Output P1dB	Watt		50	
G <sub>1dB</sub>	Power Gain	dB	50		
P <sub>IN</sub>	Input Power for Rated P <sub>SAT</sub>	dBm		0	3
ΔG <sub>SS</sub>	Small Signal Gain Flatness	dB			±3.0
ΔG <sub>P</sub>	Power Gain Flatness	dB			±2.0
S11	Input Return Loss	dB			-10
IP <sub>3</sub>	Third Order Intercept Point 2-Tone@37dBm/Tone, 1MHz Spacing	dBm		+50	
H	Harmonics @Pout=100W	dB		-25	
Spur	Spurious Signal	dBc		-70	-60
V <sub>DC</sub>	Operation Voltage	Volt	26.0	28.0	30.0
I <sub>DD</sub>	Current Consumption @Pout=100W	Amp		11.5	14
I <sub>DQ</sub>	Quiescent Current	Amp		2.5	3.0
I <sub>SO</sub>	Current Consumption @Shutdown	mA			200
T <sub>ON/OFF</sub>	Switching Time	uSec		2	5

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Specification Ver 2.0 2018-12-13

### Mechanical Specification

Parameters	Value	Limit	Unit
Dimension ( W × D × H )	185 * 90 * 22	-	mm
RF Connector Input/output	SMA Female	-	-
DC Interface Connector	D-Sub 9pin Male	-	-
Weight	700	Max	gram
Cooling	External Heat-sink	-	-

### Environmental Characteristics

Parameters	Specifications	Remark
Operating Case Temperature Range	-40°C to +80°C	
Storage Temperature	-40°C to +85°C	
Relative Humidity non-condensing	95%	

### Protection

Item	Specifications for Activation	Remark
Input Overdrive	+10dBm Max	
Load VSWR	∞ : 1	
Thermal Degradation	85°C Min	

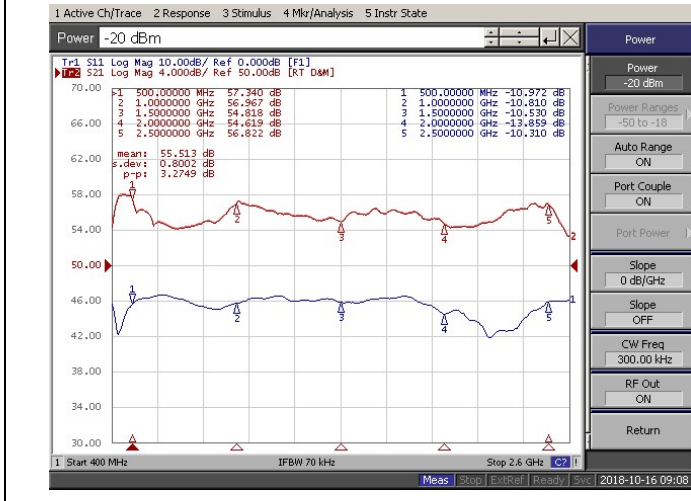
### I/O Interface (D-sub 9pin Male)

Pin No	Pin Description	Specifications	Remark
1	NC	Not Connected	
2	Current Monitor	Analog Voltage Relative to IDD @ 25mV/100mA	
3	Temp Monitor	$V_{out}=10mV/°C \times Temp + 500mV$	
4	NC	Not Connected	
5	Shutdown	Enable : TTL "0" or Open Disable: TTL "1" = 3.3-5V	
6	VDD	+28VDC	
7	VDD	+28VDC	
8	GND	Ground	
9	GND	Ground	

### Typical Characteristics @ +28VDC, 25°C

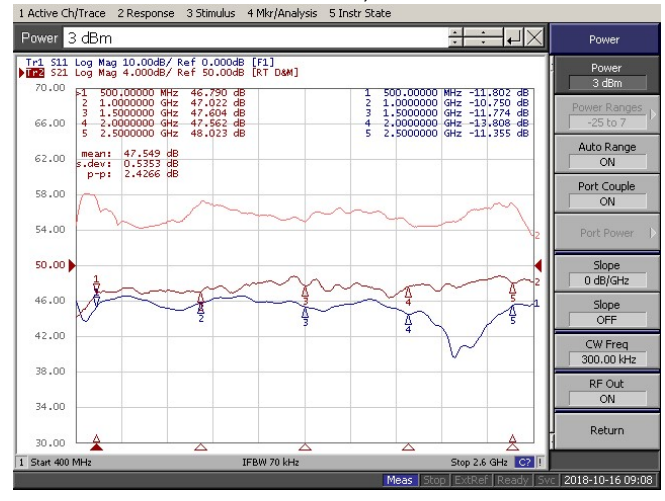
**Plot 1 – Small Signal Gain**

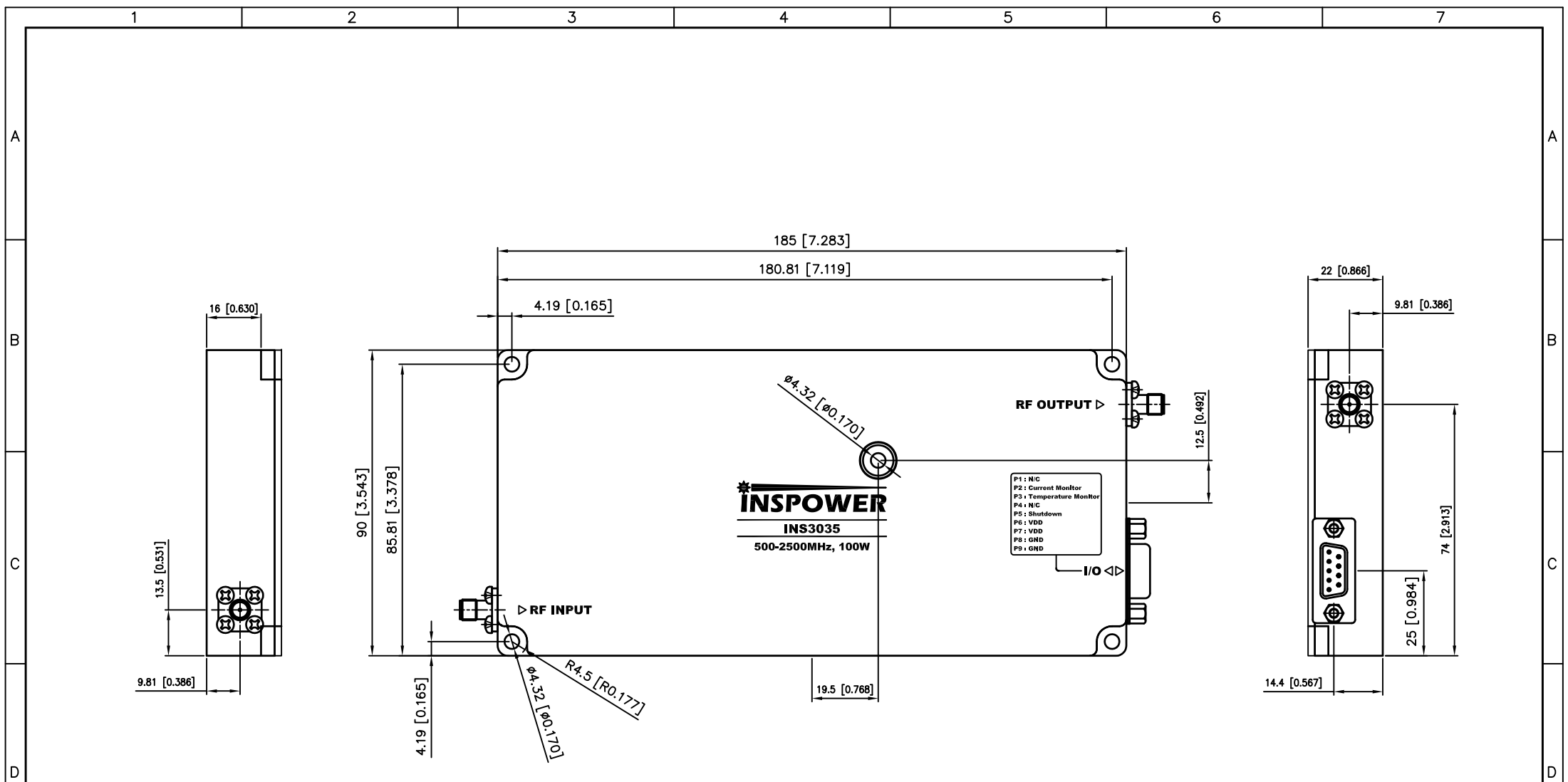
Top Curve: Small Signal Gain @ Pin= -20dBm  
 Reference: 50dB, 4dB/div  
 Bottom Curve: Input Return Loss  
 Reference: 0dB, 10dB/div



**Plot 2 – Small Signal Gain & P<sub>SAT</sub>**

Top Curve: Small Signal Gain @ Pin= -20dBm  
 Middle Curve: Power Gain @ P<sub>SAT</sub>, Pin= 3dBm  
 Reference: 50dB, 4dB/div  
 Bottom Curve: Input Return Loss  
 Reference: 0dB, 10dB/div





APPROVED	MATERIAL	A6061		PART NAME		OUTSIDE DRAWING	
	FINISH	☆ White-CHROMATE(Cr <sup>3+</sup> )		DWG NO.			SHEET 1 OF 1
CHECKED	THIRD ANGLE PROJECTION		SIZE	UNIT:	SCALE:	Q'TY:	
			A3	mm	CAD=1/1 PLOT=N/S	1EA/SET	
DESIGNED	MODEL/TITLE						
	INS3035						