INS3037F

700-2700MHz 100W Power Amplifier

Description

The Model INS3037F is a high power, class AB solid state amplifier which utilizes the latest GaN Technology to offer broadband performance from 700 to 2700MHz. Inspower's ISO9001 quality management system assures consistent performance and highest reliability. The unit comes with a Heatsink and Fan.

Product Features

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

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

Symbol	Parameter	Unit	Min.	Typ.	Max.
BW	Operating Frequency	MHz	700		2700
P_{SAT}	Power Output Saturated	Watt	100	120	
P_{1dB}	Power Output P1dB	Watt		50	
G_{1dB}	Power Gain	dB	50		
P_{IN}	Input Power for Rated P_{SAT}	dBm		0	3
ΔG_{SS}	Small Signal Gain Flatness	dB			±3.0
ΔG_P	Power Gain Flatness	dB			±2.0
S11	Input Return Loss	dB			-10
IP_3	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_{DC}	Operation Voltage	Volt	26.0	28.0	30.0
I_{DD}	Current Consumption @Pout=100W	Amp		11.5	14
I_{DQ}	Quiescent Current	Amp		2.5	3.0
I_{SQ}	Current Consumption @Shutdown	mA			200
$T_{ON/OFF}$	Switching Time	uSec		2	5

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Specification Ver 2.0 2019-04-22

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	Vout=10mV/°C×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	

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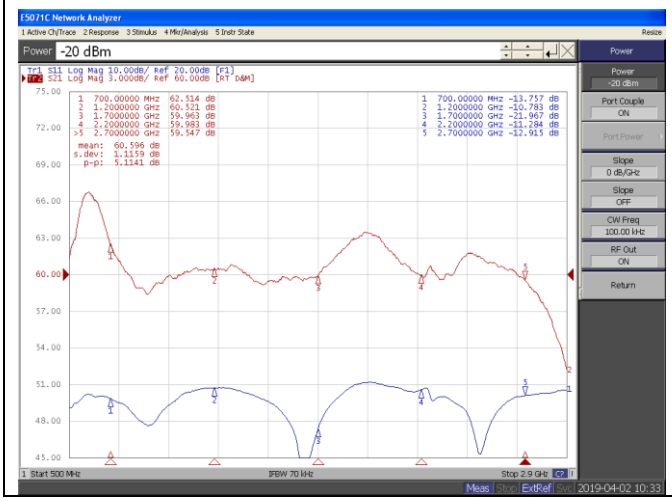
Typical Characteristics @ +28VDC, 25°C

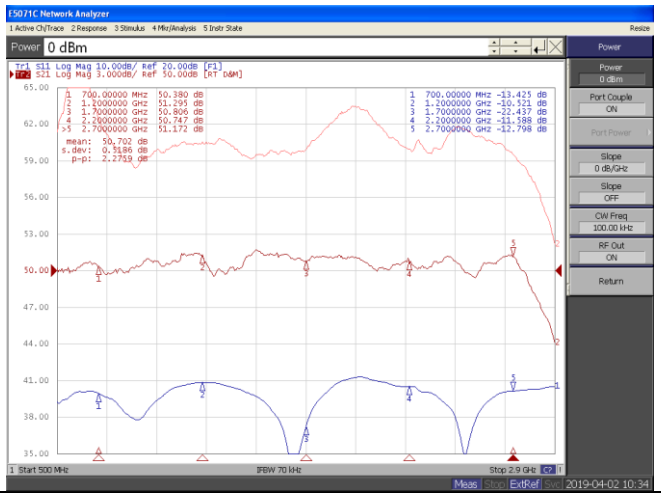
Plot 1 – Small Signal Gain

T□□ □□r□□□□Sm□□□S□□□□□□G□□□ □ □□□□□ □□□□d□m
R□□□r□□□□□□□□d□□□d□□d□□
□□□□□m □□r□□□l□□□□R□□□r□ L□□□□
R□□□r□□□□□□□□d□□1□d□□d□□

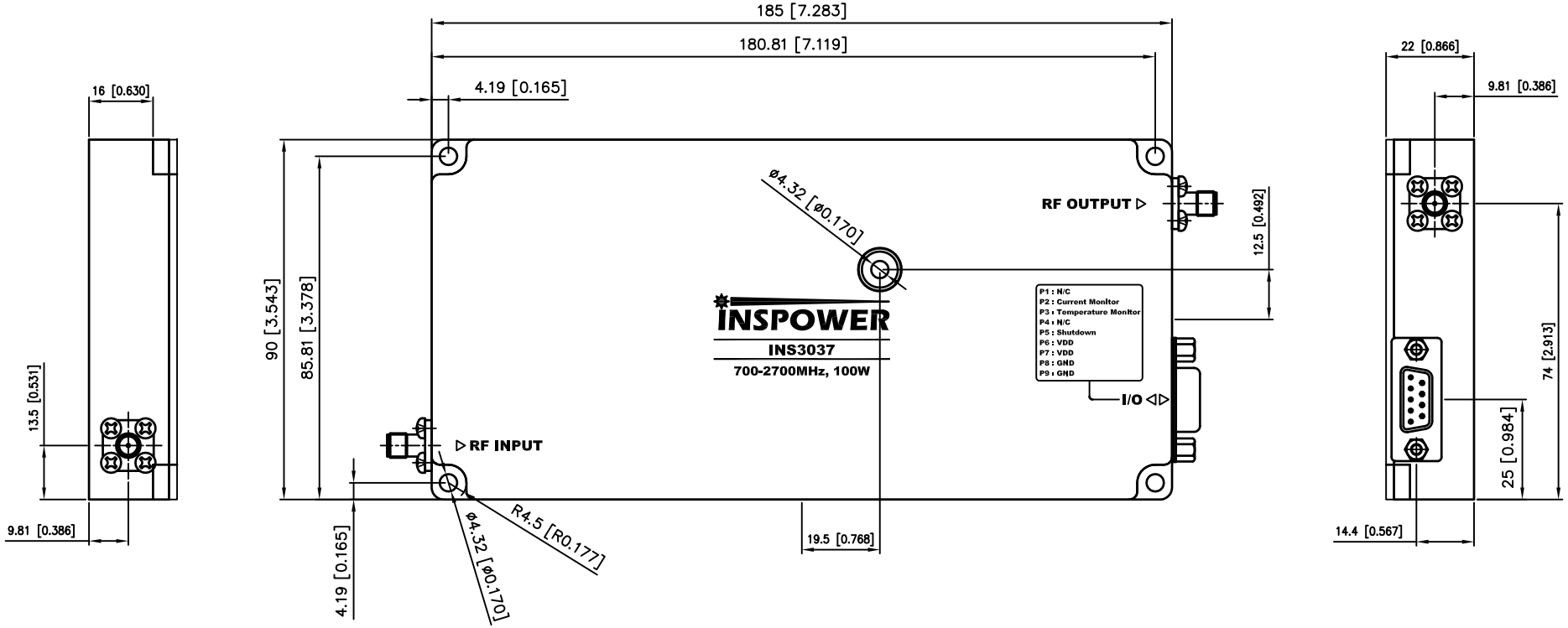


Plot 2 – Small Signal Gain & P_{SAT}

T□□ □□r□□□□Sm□□□S□□□□□□G□□□ □ □□□□□ □□□□d□m
M□dd□□ □□r□□□□□□□r G□□□□□ □SAT□□□□□ □d□m
R□□□r□□□□□□□□d□□□d□□d□□
□□□□□m □□r□□□l□□□□R□□□r□ L□□□□
R□□□r□□□□□□□□d□□1□d□□d□□

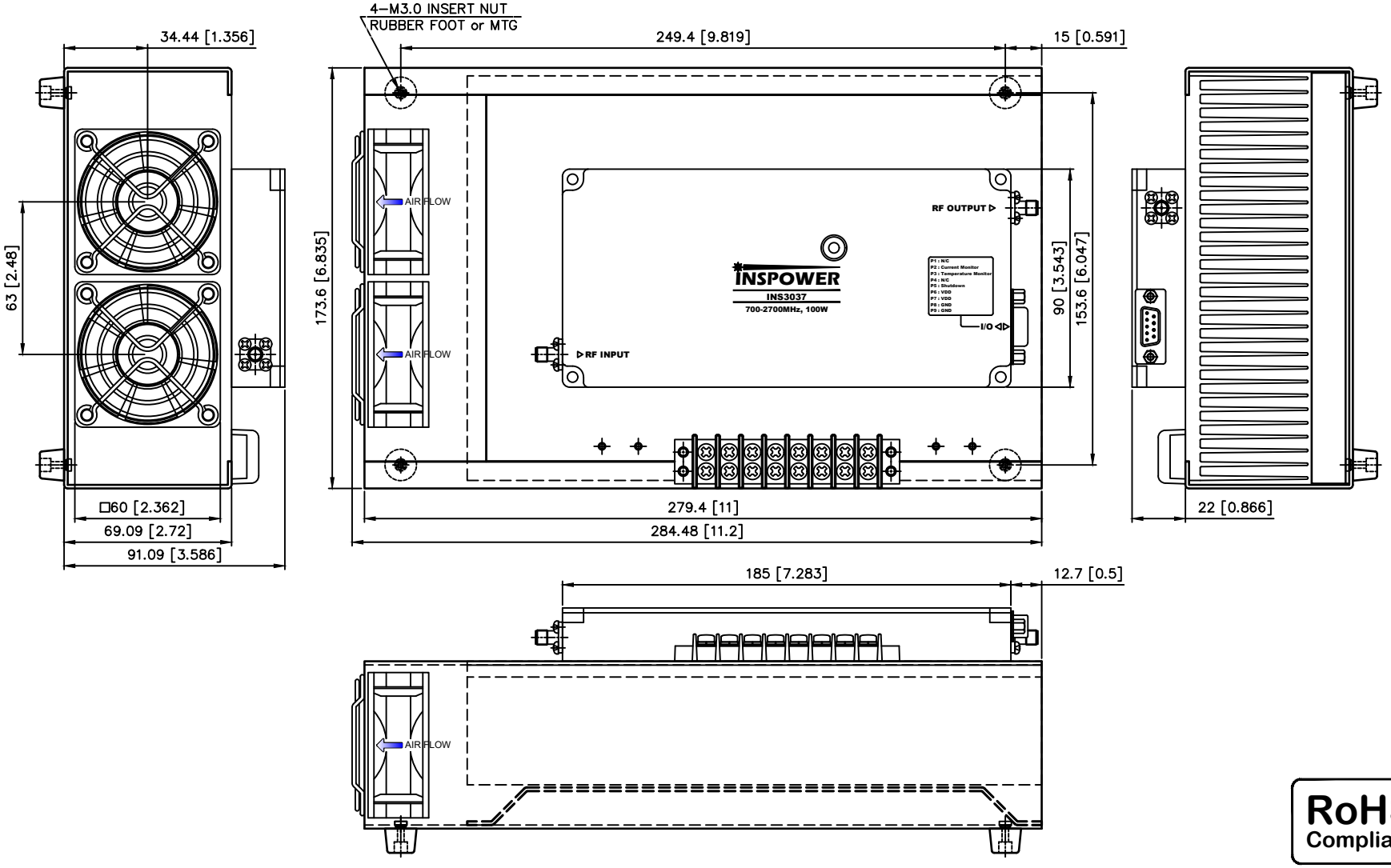


Frequency	700	1200	1700	2200	2700	MHz
Psat	127	130	118	107	111	Watts
Small Signal Gain	62.5	60.5	59.9	59.9	59.5	dB
IP3 @ 37dBm/Tone, 1MHz Spacing	54.7	53.3	52.8	53.8	55.7	dBm
2nd Harmonic @ Po=100W	-36.8	-25.6	-48.5	-47	-35.3	dBc
Current @ Po=100W	12.8	11.1	10.1	11.4	10.7	A
PAE @ Po=100W	27.9	32.2	35.4	31.3	33.4	%



RoHS Compliant

APPROVED	MATERIAL: A6061	PART NAME: OUTSIDE DRAWING	
	FINISH: ☆White-CHROMATE(Cr 3+)	DWG NO.	SHEET: 1 OF 1
CHECKED	THIRD ANGLE PROJECTION / SIZE: A3	UNIT: mm	SCALE: CAD=1/1 PLOT=N/S / Q'TY: 1EA/SET
DESIGNED	MODEL/TITLE: INS3037	INSPOWER RF Amplifiers	



RoHS Compliant

APPROVED	MATERIAL	PART NAME	OUTSIDE DRAWING
	FINISH	DWG NO.	SHEET 1 OF 1
CHECKED	THIRD ANGLE PROJECTION	SIZE A3	UNIT: mm / SCALE: CAD=1/1 PLOT=N/S / Q'TY: 1EA/SET
DESIGNED S.K.KIM 2021.06.23	MODEL/TITLE **INS3037F**	INSPOWER RF Amplifiers	