

INS3072

2000-6000MHz 100W Broadband GaN Power Amplifier

Description

The Model INS3072 is a high power, class AB solid state amplifier which utilizes the latest GaN Technology to offer broadband performance from 2000 to 6000MHz. Inspower's ISO9001 quality management system assures consistent performance and highest reliability.

Product Features

- 50Ω RF impedance, Fully Integrated Matching
- 100W Output
- Suitable for CW, AM, and FM.
- Built-in monitoring functions
- Option: Heatsink with Fans



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

Symbol	Parameter	Unit	Min.	Typ.	Max.
BW	Operating Frequency	MHz	2000		6000
P _{SAT}	Power Output Saturated	Watt	100	130	
P _{1dB}	Power Output P1dB	Watt		40	
G _{1dB}	Power Gain	dB	50		
P _{IN}	Input Power for Rated P _{SAT}	dBm		0	3
ΔG _{SS}	Small Signal Gain Flatness	dB			± 8.0
ΔG _P	Power Gain Flatness	dB			±2.0
S11	Input Return Loss	dB			-10
IP ₃	Third Order Intercept Point 2-Tone@40dBm/Tone, 1MHz Spacing	dBm		+55	
H	Harmonics @Pout=100W	dBc		-20	
Spur	Spurious Signal	dBc		-70	-60
V _{DC}	Operation Voltage	Volt	26.0	28.0	30.0
I _{DD}	Current Consumption @Pout=100W	Amp		15	20
I _{DQ}	Quiescent Current	Amp		5	6
I _{SD}	Current Consumption @Shutdown	mA			300
T _{ON/OFF}	Switching Time	uSec		2	5

Mechanical Specification

Parameters	Value	Limit	Unit
Dimension (W × D × H)	230 * 120 * 25	-	mm
RF Connector Input/output	SMA Female	-	-
DC & Interface Connector	D-Sub 7W2 Male (5+2 Power)	-	-
Weight	1.5	Max	Kg
Cooling	External Heat-sink	-	-

Environmental Characteristics

Parameters	Specifications	Symbol
Operating Case Temperature Range	-40°C to +85°C	Tc
Storage Temperature	-40°C to +85°C	Tstg
Relative Humidity non-condensing	95%	RH

Protection

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

DC & I/O Interface (D-sub 7W2 Male, 5+2 Power)

Pin No	Pin Description	Specifications	Remark
A1	VDD	+28VDC	
A2	GND	Ground	
2	Current Monitor	Analog Voltage Relative to IDD @ 10mV/100mA	
3	Temp Monitor	Vout=10mV/°C×Temp+500mV Temp=Case Temperature ± 5°C	
4	N/C	Not Connected	
5	Shutdown	Enable: TTL "0" = 0V or Open Disable: TTL/CMOS"1" = 3.3-5V	
7	N/C	Not Connected	
8	GND	Ground	
9	GND	Ground	

Typical Characteristics @ +28VDC, 25°C

Plot 1 – Small Signal Gain

Top Curve: Small Signal Gain @ Pin= -20dBm

Reference: 55dB, 5dB/div

Bottom Curve: Input Return Loss

Reference: 10dB, 10dB/div



Plot 2 – Small Signal Gain & P_{SAT}

Top Curve: Small Signal Gain @ Pin= -20dBm

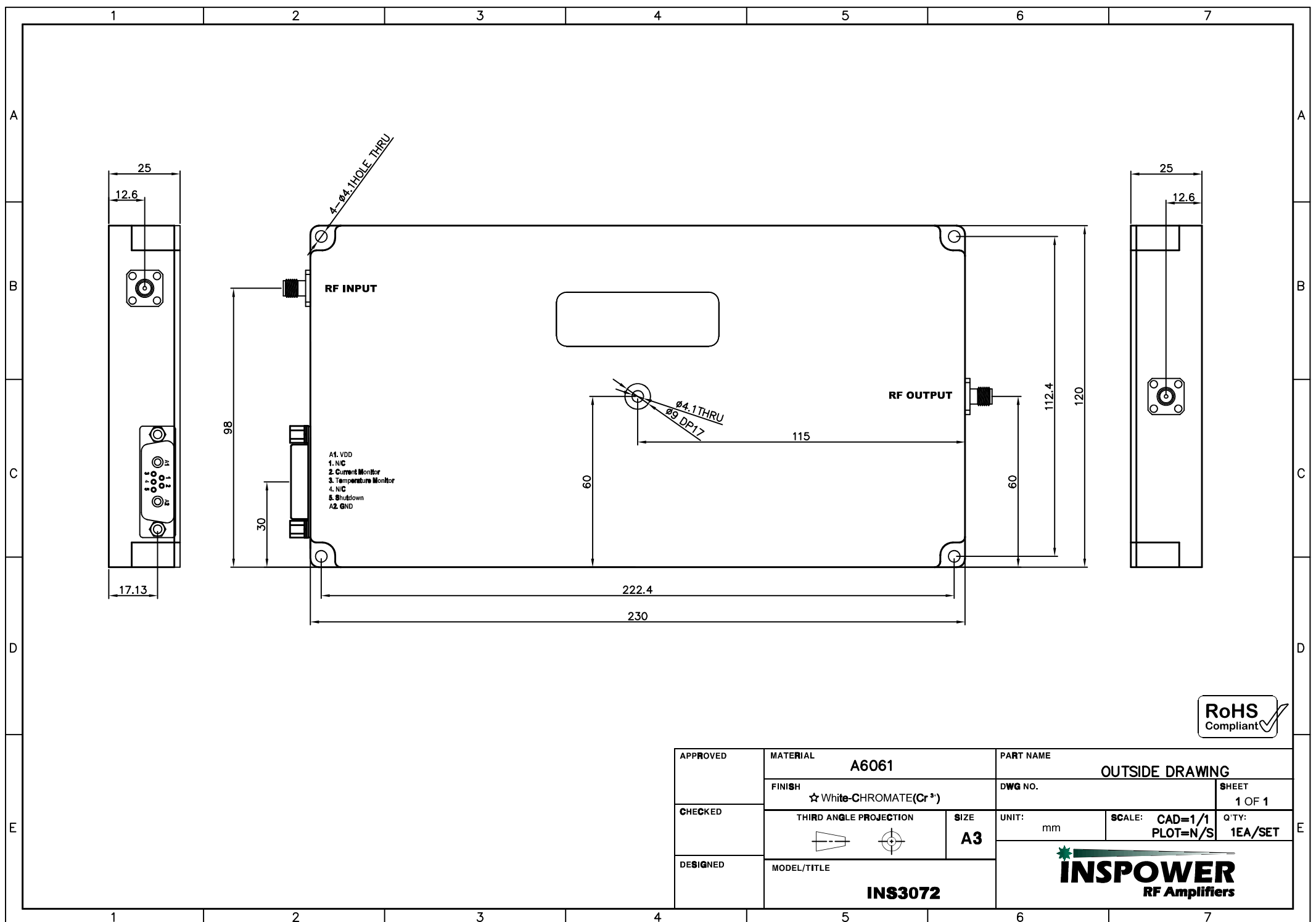
Middle Curve: Power Gain @ P_{SAT}, Pin= 0dBm

Reference: 55dB, 5dB/div

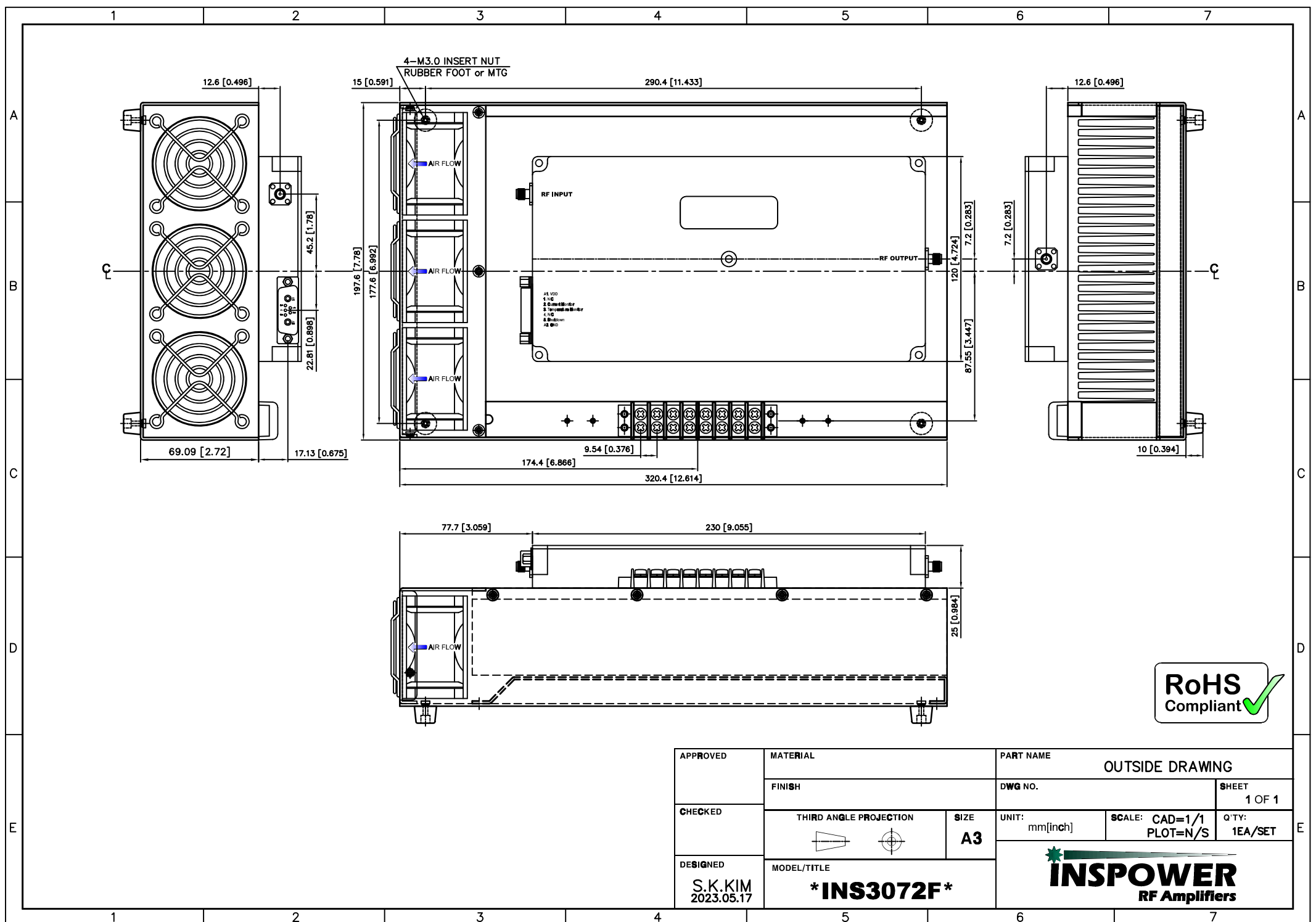
Bottom Curve: Input Return Loss

Reference: 10dB, 10dB/div





APPROVED	MATERIAL A6061		PART NAME OUTSIDE DRAWING			
	FINISH ☆ White-CHROMATE(Cr⁺)		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		 INSPOWER RF Amplifiers			



APPROVED	MATERIAL		PART NAME	
	FINISH		OUTSIDE DRAWING	
CHECKED	THIRD ANGLE PROJECTION		DWG NO.	SHEET
	SIZE		UNIT:	Q'TY:
DESIGNED	MODEL/TITLE		mm[inch]	CAD=1/1 PLOT=N/S
	S.K.KIM 2023.05.17		A3	1 OF 1 1EA/SET
INS3072F		INSPOWER RF Amplifiers		