

Description

The Model INS2196 is designed for band specific applications. This high power, class AB solid state amplifier utilizes the latest GaN Technology to provide excellent efficiency and broadband performance across the 5100 to 5800MHz range. Inspower's ISO9001 quality management system ensures consistent performance and highest reliability.

Product Features

- 50Ω RF impedance, Fully Integrated Matching
- Saturated output power: 50W min., 60W typ.
- Built-in output isolator for VSWR protection
- Built-in monitoring functions
- High reliability and rugged design

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

Symbol	Parameter	Unit	Min.	Typ.	Max.
BW	Frequency of Operation	MHz	5100		5800
Psat	Power Output Saturated	Watt	50	60	
P1dB	Power Output P1dB	Watt		30	
Gp	Power Gain @ Pin=0dBm	dB	47	48	
Pin	Input Power for Rated Psat			0	
ΔGss	Small Signal Gain Flatness	dB			±1.5
ΔGp	Power Gain Flatness	dB			±1.0
S11/S22	Input & output VSWR				1.5:1
ΔGT	Gain variation with temperature	dBc		±1.0	
OIP3	Third Order Intercept Point 2- Tones, Pout = 42dBm/Tone, Δ=100KHz	dBm		55	
H	Harmonics @Pout=50W	dBc		-35	
VDD	Operation Voltage	V	26	28	30
IDq	Quiescent Current	A		0.5	1
IDD	Current Consumption @Pout=50W	A		5.5	6
IDSAT	Current Consumption @ Pin=6dBm	A			7

Mechanical Specifications

Parameters	Value	Unit
Dimensions (W x D x H)	165 x 95 x 27	mm
RF Connector Input/output	SMA Female	
DC & I/O Connector	D-Sub 9Pin Male, 4-40 screw	
Weight	0.8	kg

Environmental Characteristics

Parameters	Specifications	Remark
Operating Case Temperature Range	-30°C to +80°C	
Storage Temperature Range	-40°C to +85°C	
Operating Humidity	95% non-condensing	
Cooling	External Heat-Sink	

Survivability

Item	Specifications	Remark
Input Overdrive Level	+10dBm Max	Max
VSWR Protection	Mismatch Protected with Isolator	
VSWR Alarm	6:1 Max (Return Loss = 3dB)	Pout=40dBm Min
Thermal Overload	+85 °C ±5 °C Shutdown, +65 °C ±5 °C Auto-recover	

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

Pin No	Pin Description	Specifications
1	Forward Power Monitor	RMS Detector. Vout=1.4V±0.05V@47dBm, Slope: 40mV/dB
2	Reverse Power Monitor	RMS Detector. Vout=1.4V±0.05V@47dBm, Slope: 40mV/dB
3	VSWR Fail Alarm	high +5V TTL Output while a High VSWR Alarm occurs. Always recover the normal status when the return loss is more than 3dB.
4	Over Temp Alarm	High +5V TTL Output @ Case Temperature 85°C±5.0 Auto Restart @ Case Temperature 65°C±5.0
5	Enable/Disable	Enable: Active Low (GND) Disable: High +5V or Open status *Pulled up @ 5V with 10k ohm
6,7	VDD	+28V
8, 9	GND	Ground

Typical Characteristics @ +28VDC, 25°C

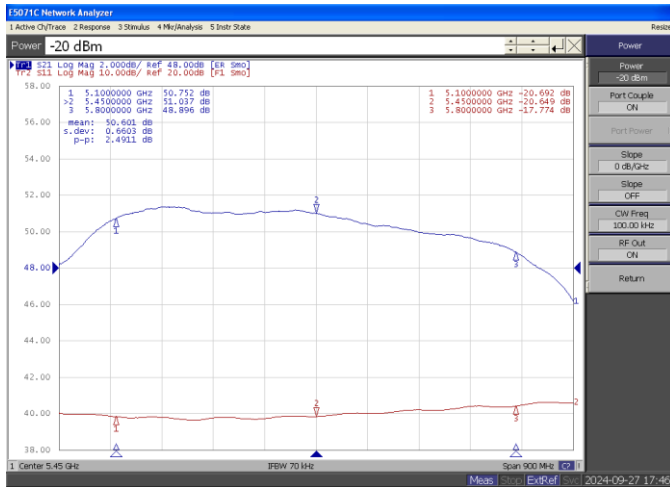
Plot 1 – Small Signal Gain

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

Reference: 48dB, 2dB/div

Bottom Curve: Input Return Loss

Reference: 20dB, 10dB/div



Plot 2 – Small Signal Gain & P_{SAT}

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

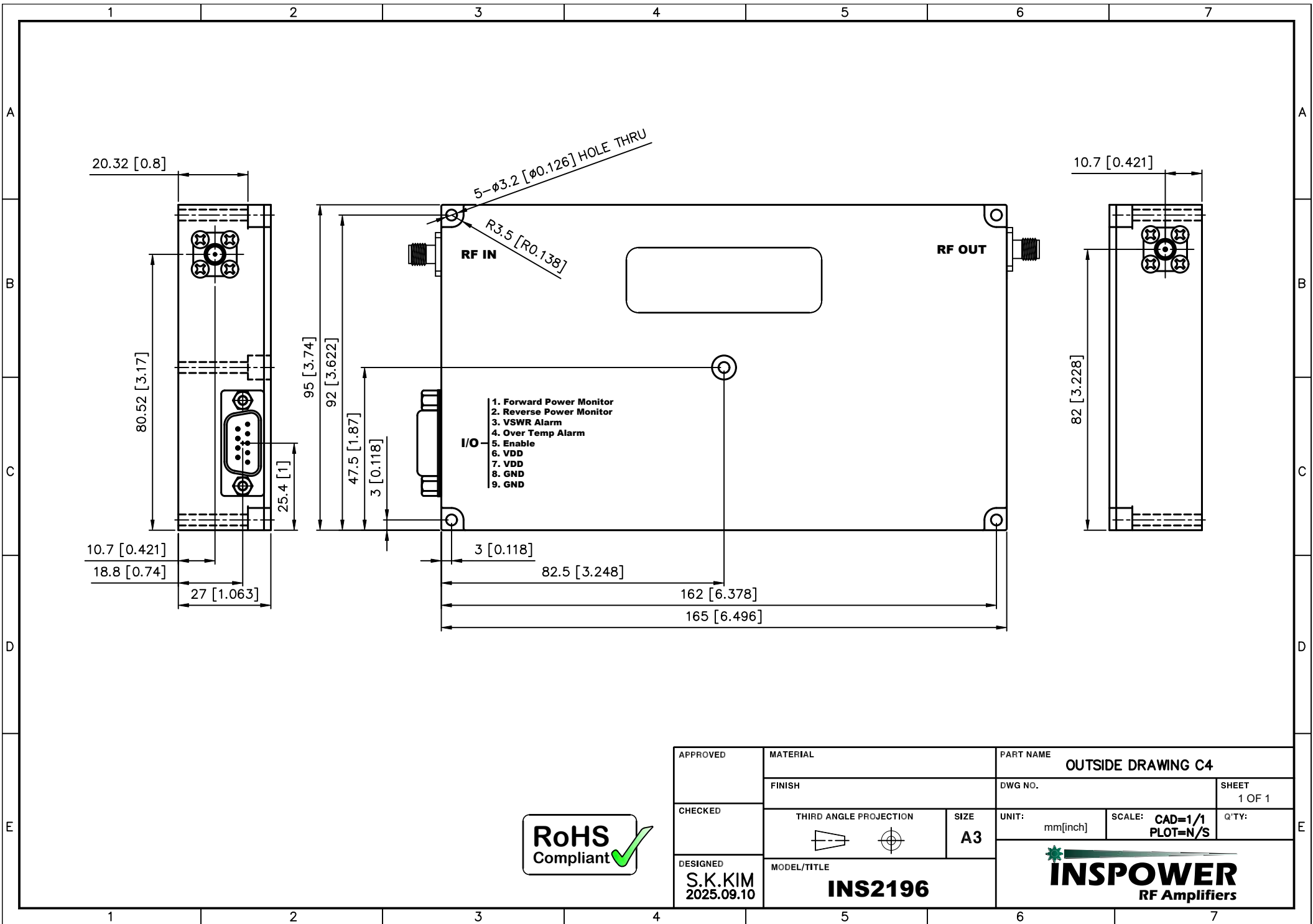
Middle Curve: Power Gain @ P_{SAT}, Pin= 0dBm

Reference: 48dB, 2dB/div

Bottom Curve: Input Return Loss

Reference: 20dB, 10dB/div





APPROVED	MATERIAL		PART NAME	
	FINISH		OUTSIDE DRAWING C4	
CHECKED	THIRD ANGLE PROJECTION		DWG NO.	SHEET
	A3		UNIT: mm[inch]	1 OF 1
DESIGNED	MODEL/TITLE		SCALE: CAD=1/1 PLOT=N/S	Q'TY:
S.K.KIM 2025.09.10	INS2196		INSPOWER RF Amplifiers	