

INS2010

2100-2300MHz 50W Power Amplifier

Description

The Model INS2010 is designed for band specific applications. This high power, class AB solid state amplifier utilizes LDMOS power devices to offer excellent efficiency and linearity characteristics from 2100 to 2300MHz. Inspower's ISO9001 quality management system assure consistent performance and highest reliability.



Product Features

- 50Ω RF impedance, Fully Integrated Matching
- 50W Output at Psat
- Single Supply Operation : Nominally 27V
- Built-in monitoring functions
- High reliability and ruggedness

Key Specifications

Symbol	Parameter	Unit	Min.	Typ.	Max.
BW	Frequency of Operation	MHz	2100		2300
Psat	Pout @ Psat, CW	dBm	47		
G	Small Signal Gain @ 2200MHz	dB	47.5	48	48.5
Gain Flatness over Freq.	Over 200MHz, Small Signal	dB		±1.25	±1.5
	Over 200MHz, Pout=P1dB	dB			±1.25
S11	Input VSWR				1.5:1
Spur	Spurious Signal	dBc		-70	-60
H	Harmonics @ Pout=50W	dBc		-55	
VDC	Operation Voltage	V	26.0	27.0	28.0
ID	Current Consumption @ Pout=50W	A		5.0	5.5

Mechanical Specification

Parameters	Value	Unit
Dimensions (W x D x H)	110 * 95 * 22	mm
RF Connector Input/output	SMA Female	
DC & I/O Connectors	D-Sub 9Pin Male	
Weight	0.5	Kg
Cooling	External Heat-Sink	

Environmental Characteristics

Parameters	Specifications	Remark
Operating Case Temperature Range	-20°C to +60°C Ambient	
Storage Temperature Range	-40°C to +85°C	
Operating Humidity	95% Non-Condensing	

Protection

Item	Specifications for Activation
Output Protection	Mismatch Protected with Isolator
High VSWR Shutdown	Amplifier shall be shutdown status as soon as RF output port open. At this time the transistor bias would be turned off. This Alarm is not automatically recovered *Shutdown Time: 4sec after shutdown condition occurs ** Recovery: Enable pin High (open) to Low, or VCC off and on.

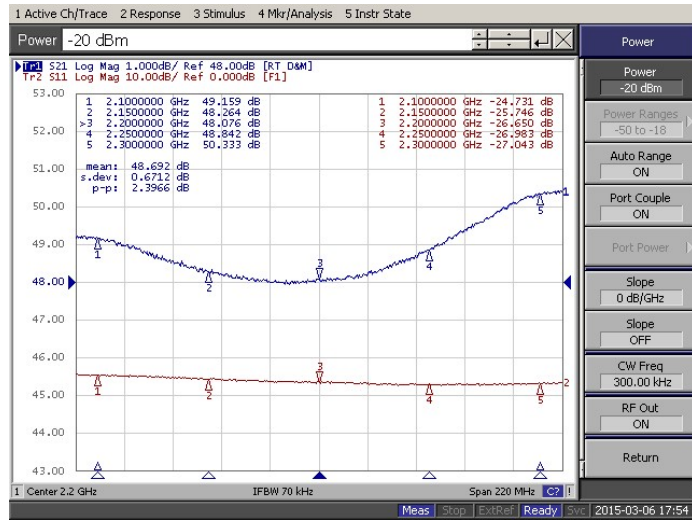
I/O Interface (D-sub 9pin Male)

Pin No	Pin Description	Specifications
1	Temperature Monitor	$V_T = 0.02(V) * T(^{\circ}C) + 1(V)$, T=Case Temperature $\pm 5^{\circ}C$
2	Power Monitor	Log Slope detector $V_{pin2} = 4 \pm 0.1$ @ CW 46dBm , slope:0.1V/dB $V_{pin2} = 4 - (46 - P_{out}) * 0.1 \pm 0.1V$
3,8	GND	GND
4	Reflect Power Monitor	Linear Slope Detector $V_{pin4} = 1.4 \pm 0.1$ V when Reflected Power = 45.0 ± 1.5 dBm
5	VSWR Fail alarm	Pin5 Indicate high 5V TTL at same time High VSWR Shutdown occurs.
6,7	Vic	27V
9	Enable/Disable	Enable: Active Low (GND) Disable: High +5V or Open status *pulled-up @ 5V with 10k ohm

Typical Characteristics

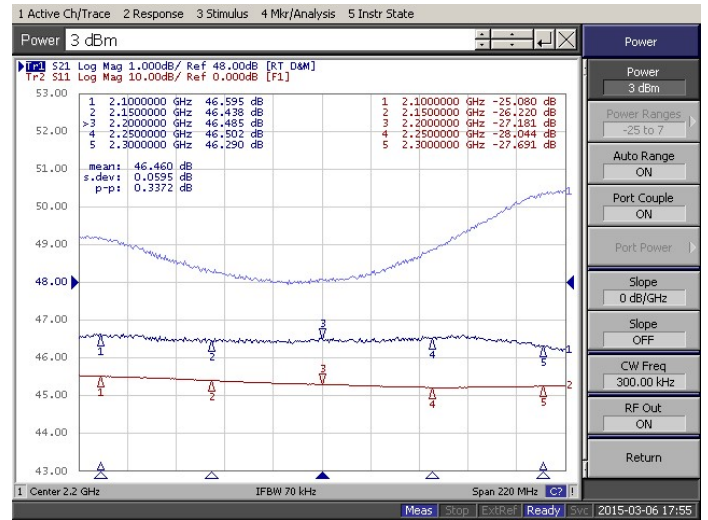
Plot 1

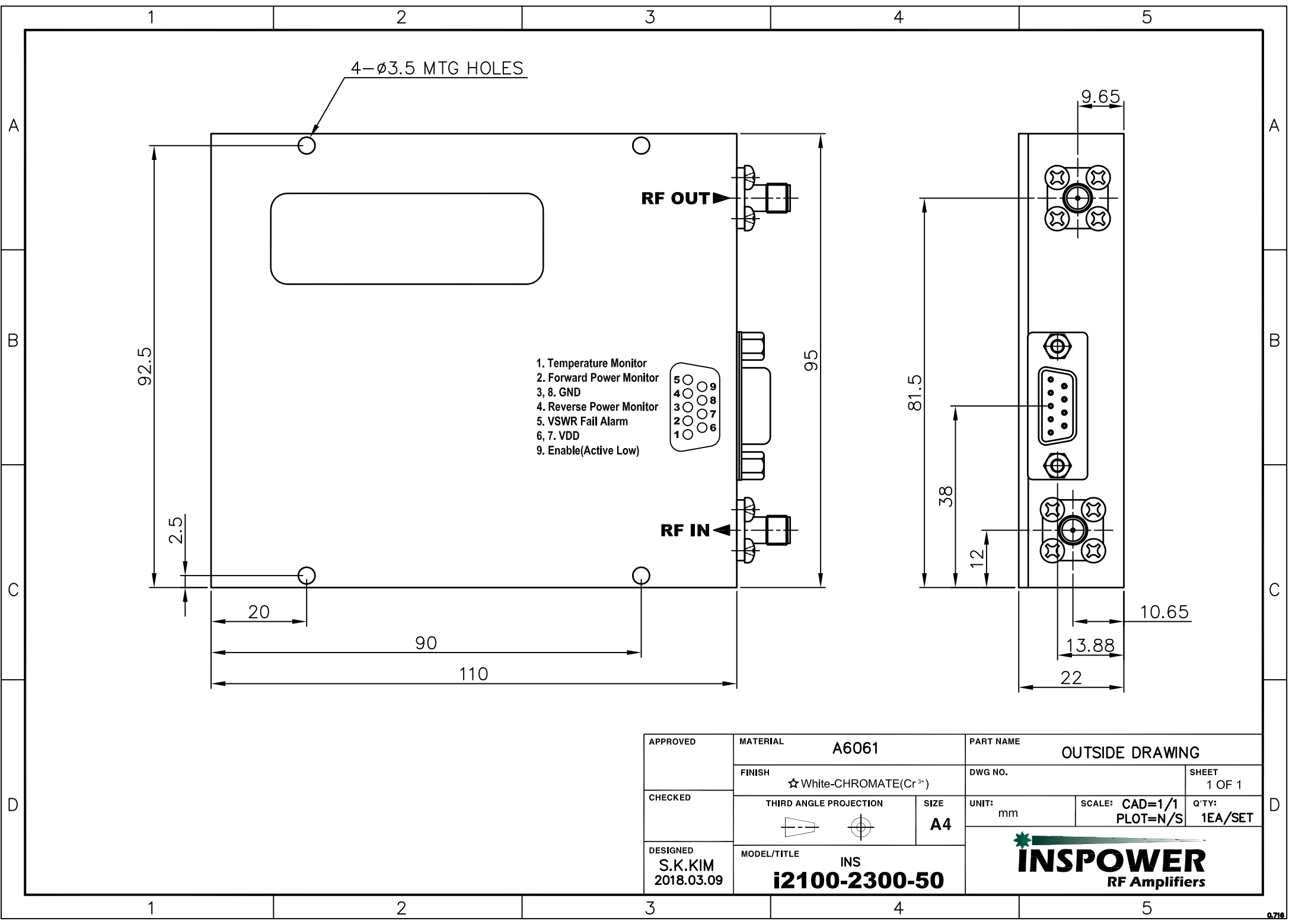
Small Signal Gain @ Pin= -20dBm
 Tr1 : Small signal Gain, 1dB/div, Ref 48dB
 Tr2 : Input Return Loss, 10dB/div



Plot 2

Power Gain @ Pin= 3dBm
 Tr1 : Power Gain, 1dB/div, Ref 48dB
 Tr2 : Input Return Loss, 10dB/div





- 1. Temperature Monitor
- 2. Forward Power Monitor
- 3, 8. GND
- 4. Reverse Power Monitor
- 5. VSWR Fail Alarm
- 6, 7. VDD
- 9. Enable(Active Low)

APPROVED	MATERIAL	A6061		PART NAME		OUTSIDE DRAWING	
	FINISH	☆White-CHROMATE(Cr ³⁺)		DWG NO.	SHEET 1 OF 1		
CHECKED	THIRD ANGLE PROJECTION			SIZE	UNIT:	SCALE: CAD=1/1	Q'TY:
	DESIGNED	MODEL/TITLE		A4	mm	PLOT=N/S	1EA/SET
S.K.KIM 2018.03.09		INS i2100-2300-50					