

INS2071

1200-1400MHz 50W Power Amplifier

Description

The Model INS2071 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 1200 to 1400MHz. Inspower's ISO9001 quality management system assures consistent performance and highest reliability.

Product Features

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



Electrical Specifications

Symbol	Parameter	Unit	Min.	Typ.	Max.
BW	Frequency of Operation	MHz	1200		1400
Psat	Power Output Saturated	Watt	50	70	
P1dB	Power Output P1dB	Watt		40	
G	Small Signal Gain @ 1300MHz	dB	48	50	
ΔG_{SS}	Small Signal Gain Flatness	dB			± 1.0
ΔG_P	Power Gain Flatness	dB			± 1.0
S11	Input VSWR				1.5:1
Spur	Spurious Signal	dBc		-70	-60
H	Harmonics @ P 1dB	dBc		-55	-50
VDC	Operation Voltage	V	26	28	30
I_{DD}	Current Consumption @ Disable	mA		100	200
I_{DQ}	Quiescent Current	A		1.0	1.2
I_{DD}	Current Consumption @ Pout=47dBm	A		5	6
E_{ff}	Module Efficiency @ Pout=47dBm	%		36	
$T_{ON/OFF}$	Switching Time	uSec		2	5

Mechanical Specifications

Parameters	Value	Unit
Dimensions (W x D x H)	162.56[6.4] * 86.36[3.4] * 25.4[1]	mm[inch]
RF Connector Input/output	SMA Female	
DC & I/O Connectors	D-Sub 9Pin Male	
Weight	0.7	Kg
Cooling	External Heat-Sink	

Environmental Specifications (Design to Meet)

Parameters	Specifications	Remark
Operating Case Temperature Range	-40°C to +85°C	
Storage Temperature Range	-40°C to +85°C	
Operating Humidity	95% non-Condensing	
Altitude	MIL-STD-810F Method 500.4	0 - 30,000 ft.
Shock	MIL-STD-810F Method 516.5	
Vibration	MIL-STD-810F Method 514.5	

Protection

Item	Specifications for Activation
Max RF Input Power	+10dBm
Output Protection	Mismatch Protected with Isolator

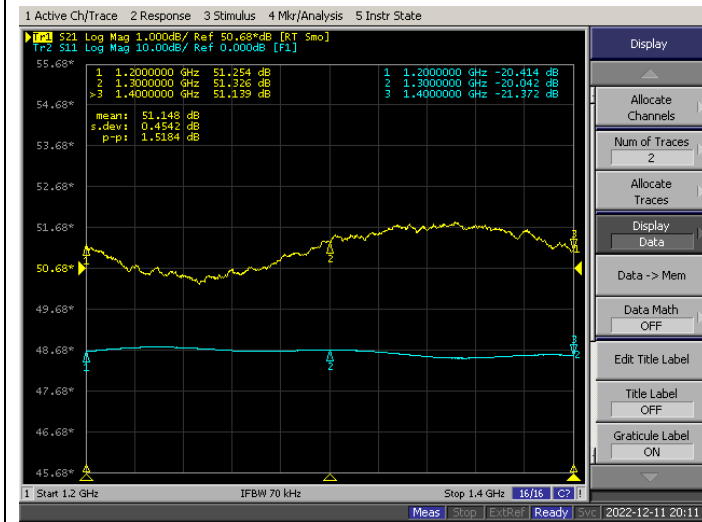
I/O Interface (D-sub 9pin Male)

Pin No	Pin Description	Specifications
1	Forward Power Monitor	RMS Detector $V_{out}=2V\pm 0.05V@47dBm$, Slope: 50mV/dB
2	Reverse Power Monitor	RMS Detector $V_{out}=2V\pm 0.05V@47dBm$, Slope: 50mV/dB
3	Temperature Monitor	$V_{out}=10mV/^{\circ}C \times Temp + 500mV$
4	Current Monitor	Analog Voltage Relative to I_{DD} @ 25mV/100mA
5	Enable/Disable	Enable: TTL "0" or Open Disable: TTL "1" = 3.3-5V
6	VDD	+28VDC
7	VDD	+28VDC
8	GND	GND
9	GND	GND

Typical Characteristics @ +28VDC, 25°C

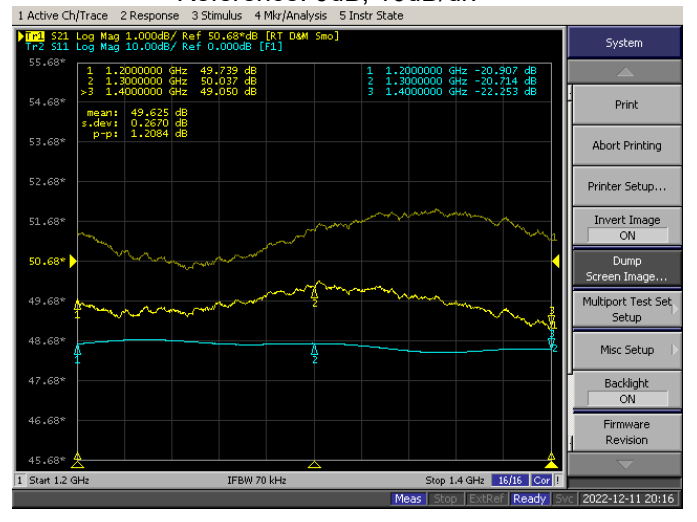
Plot 1 – Small Signal Gain

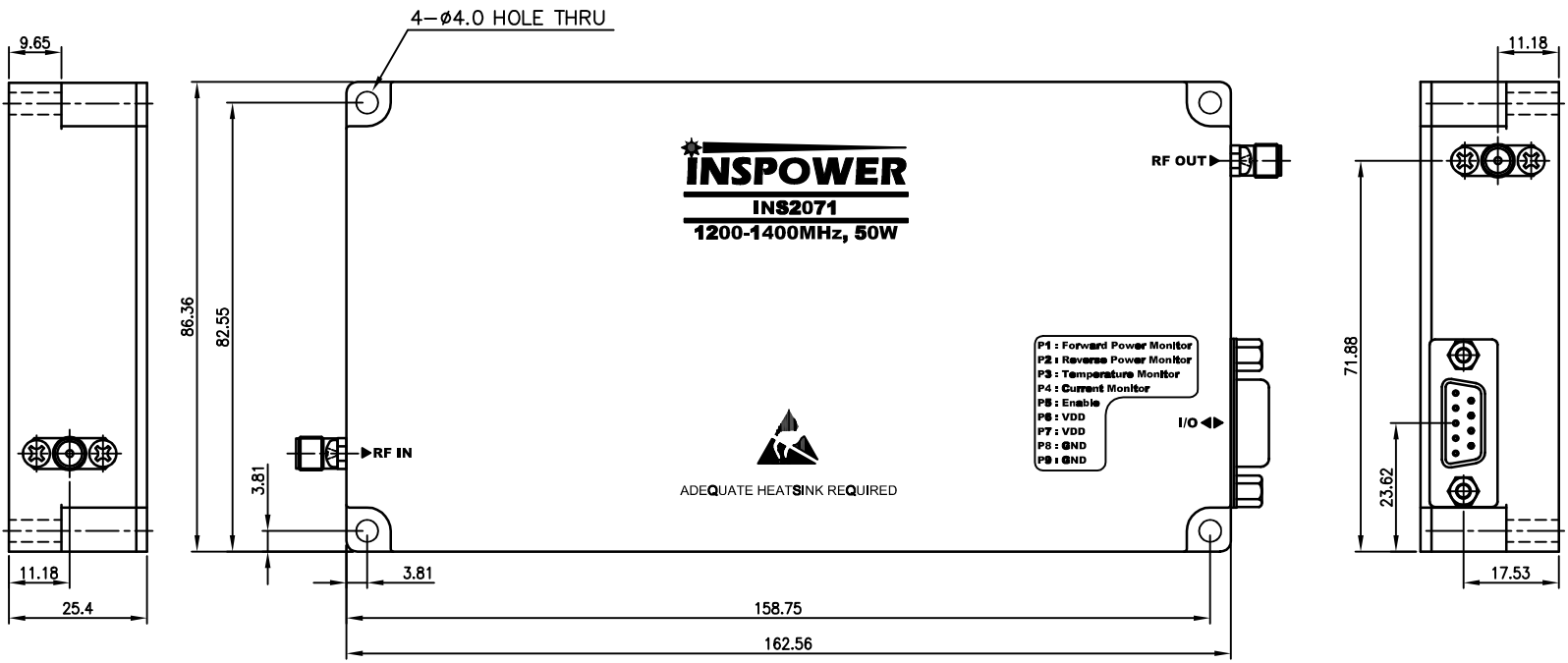
Top Curve: Small Signal Gain @ Pin= -20dBm
 Reference: 50.68dB, 1dB/div
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div



Plot 2 – Small Signal Gain & P_{SAT}

Top Curve: Small Signal Gain @ Pin= -20dBm
 Middle Curve: Power Gain @ P_{SAT}, Pin= 0dBm
 Reference: 50.68dB, 1dB/div
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div





APPROVED	MATERIAL	PART NAME		
	FINISH	OUTSIDE DRAWING		
CHECKED	THIRD ANGLE PROJECTION	DWG NO.	SHEET	
		UNIT: mm	SCALE: CAD=1/1 PLOT=N/S	1 OF 1
DESIGNED	MODEL/TITLE	QTY: 1EA/SET		
S.K.KIM 2023.05.31	INS2071			