

Description

The Model INS3157 is a high power, class AB solid state amplifier which utilizes the latest GaN Technology to offer broadband performance from 500 to 2500MHz. Inspower's ISO9001 quality management system assures consistent performance and highest reliability.

Product Features

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

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

Symbol	Parameter	Unit	Min.	Typ.	Max.
BW	Operating Frequency	MHz	1000		3000
P _{SAT}	Power Output Saturated	Watt	80	100	
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			±4.0
ΔG _P	Power Gain Flatness	dB			±2.0
S ₁₁	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	14
I _{BQ}	Quiescent Current	Amp		2.0	3.0
I _{sq}	Current Consumption @Shutdown	mA			200
T _{ON/OFF}	Switching Time	uSec		2	5

Mechanical Specification

Parameters	Value	Limit	Unit
Dimension (W × D × H)	185 * 90 * 27	-	mm
RF Connector Input/output	SMA Female	-	-
DC Interface Connector	D-Sub 9pin Male	-	-
Weight	900	Max	gram
Cooling	External Heat-sink	-	-

Environmental Characteristics (Design to Meet)

Parameters	Specifications	Remark
Operating Case Temperature Range	-40°C to +80°C	
Storage Temperature	-40°C to +85°C	
Relative Humidity non-condensing	95%	
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	Remark
Input Overdrive	+10dBm Max	
Load VSWR	∞: 1	
Thermal Degradation	85°C Min	

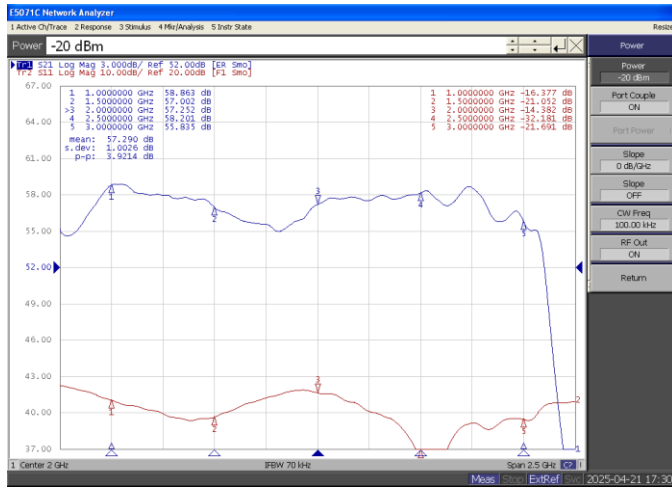
I/O Interface (D-sub 9pin Male)

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	

Typical Characteristics @ +28VDC, 25°C

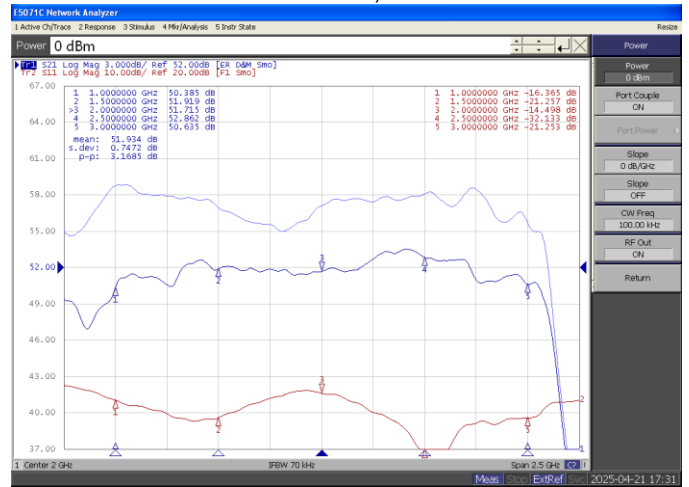
Plot 1 – Small Signal Gain

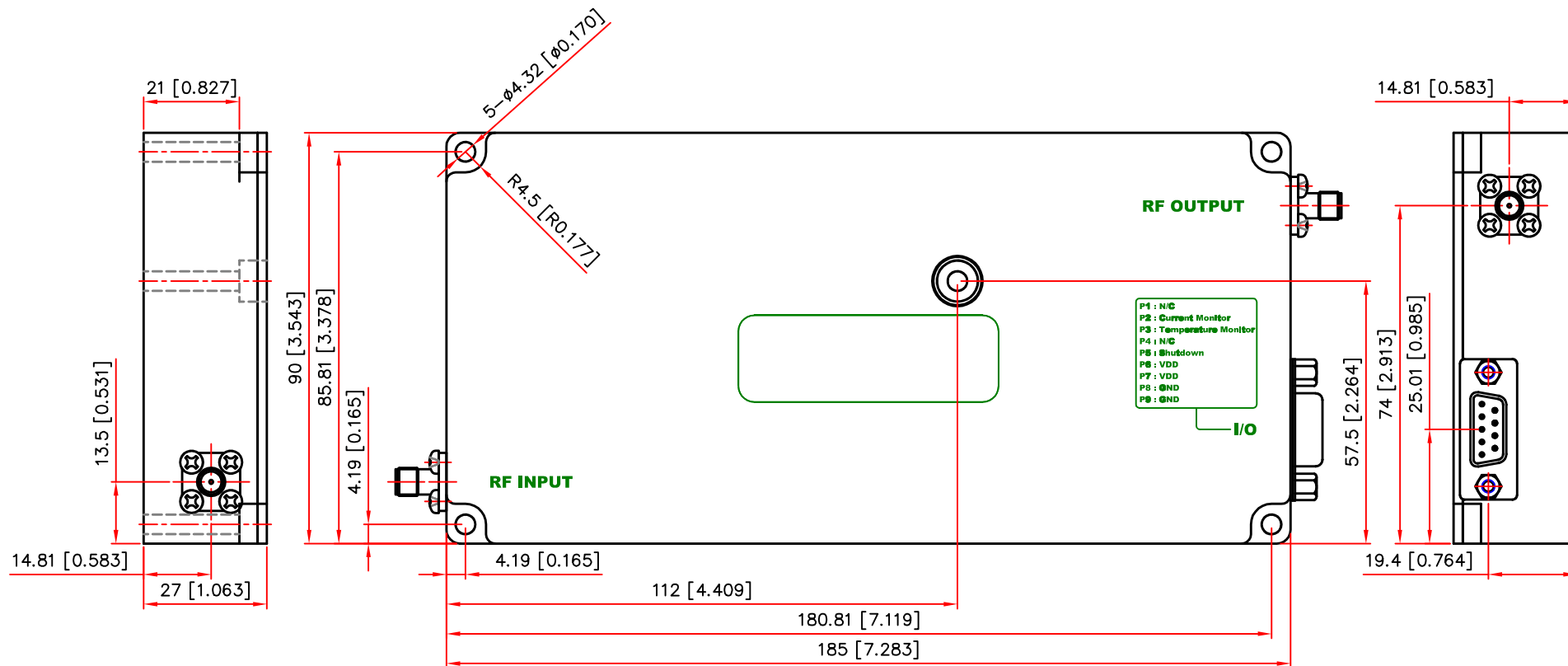
Top Curve: Small Signal Gain @ Pin= -20dBm
Reference: 52dB, 3dB/div
Bottom Curve: Input Return Loss
Reference: 20dB, 10dB/div



Plot 2 – Small Signal Gain & P_{SAT}

Top Curve: Small Signal Gain @ Pin= -20dBm
Middle Curve: Power Gain @ P_{SAT}, Pin= 0dBm
Reference: 52dB, 3dB/div
Bottom Curve: Input Return Loss
Reference: 20dB, 10dB/div





APPROVED	MATERIAL		PART NAME		
	FINISH		DWG NO.		SHEET 1 OF 1
CHECKED	THIRD ANGLE PROJECTION		SIZE	UNIT:	SCALE
			A3	mm	CAD=1/1 PLOT=N/S
DESIGNED	MODEL/TITLE		Q'TY:		
	INS3157		1EA/SET		
S.K.KIM 2024.09.20			 INSPOWER RF Amplifiers		