

Description

The Model INS3167 is a high power, class AB solid state amplifier which utilizes LDMOS RF power devices to offer broadband high power performance from 1.8 to 30MHz. Inspower's ISO9001 quality management system assures consistent performance and highest reliability.

Product Features

- 50Ω RF impedance, Fully Integrated Matching
- 200W Minimum P1dB Output
- Single Supply Operation: Nominally 50V
- Built-in monitoring functions
- VHF Band applications
- Option: Heatsink with fans

Electrical Specifications @ +50.0VDC, 25°C, 50Ω System

Symbol	Parameter	Unit	Min.	Typ.	Max.
BW	Operating Frequency	MHz	1.8		30
P _{SAT}	Power Output Saturated	Watt	300		
P _{1dB}	Power Output P1dB	Watt	200		
G _{1dB}	Power Gain @ P1dB	dB	53		
P _{IN}	Input Power for Rated P _{SAT}	dBm		0	3
ΔG _{SS}	Small Signal Gain Flatness	dB			±2.0
ΔG _P	Power Gain Flatness	dB			±2.0
S11	Input Return Loss	dB			-10
IM3	Third Order Intermodulation Distortion 2-Tone@44 dBm/Tone, 100KHz Spacing	dBc		-25	
H	Harmonics @ Pout=200W	dB		-30	
Spur	Spurious Signal	dBc		-70	-60
V _{DC}	Operation Voltage	Volt	48.0	50.0	52.0
I _{DD}	Current Consumption @ Pout=200W	Amp			20
I _{DQ}	Quiescent Current	Amp		3.0	
I _{SQ}	Current Consumption @Shutdown	mA			200

Mechanical Specification

Parameters	Value	Limit	Unit
Dimension	220 × 120 × 35	-	mm
RF Connector Input/output	SMA Female / N-type Female	-	-
DC Interface Connector	D-Sub 7W2 Male (5+2 Power)	-	-
Weight	2	Max	Kg
Cooling	External Airflow Required	-	-

Environmental Characteristics

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

Protection

Item	Specifications for Activation	Remark
Input Overdrive	+10dBm Max @ 10 sec without damage	
Load VSWR @ P _{OUT} = 200W	∞ @ all load phase and amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	
Thermal Shutdown	90 ± 5°C, Auto Recovery: 70 ± 5°C	

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

Pin No	Pin Description	Specifications	Remark
A1	VDD	+50VDC	
A2	GND	Ground	
2	Current Monitor	Analog Voltage Relative to IDD @ 20mV/100mA	
3	Temp Monitor	V _{out} =10mV/°C×Temp+500mV	
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

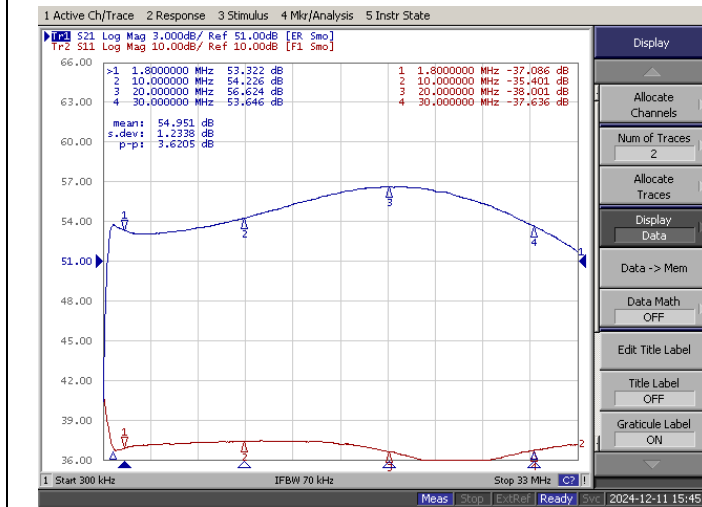
Plot 1 – Small Signal Gain

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

Reference: 51dB, 3dB/div

Bottom Curve: Input Return Loss

Reference: 20dB, 10dB/div



Plot 2 – Small Signal Gain & P_{1dB}

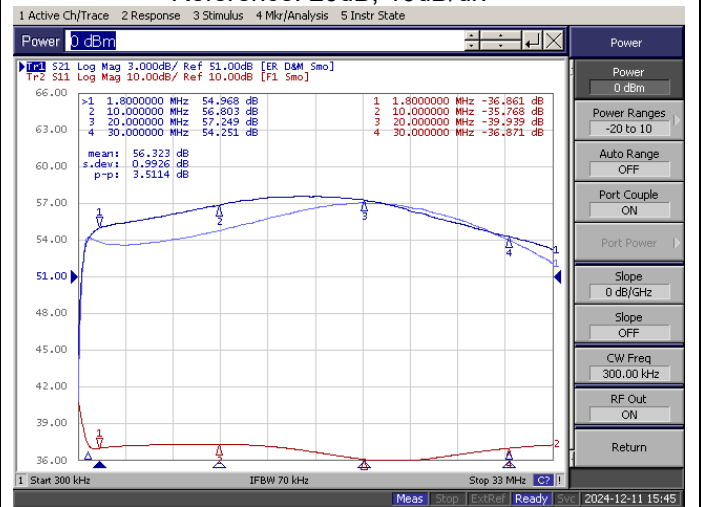
Top Curve: Small Signal Gain @ Pin= -20dBm

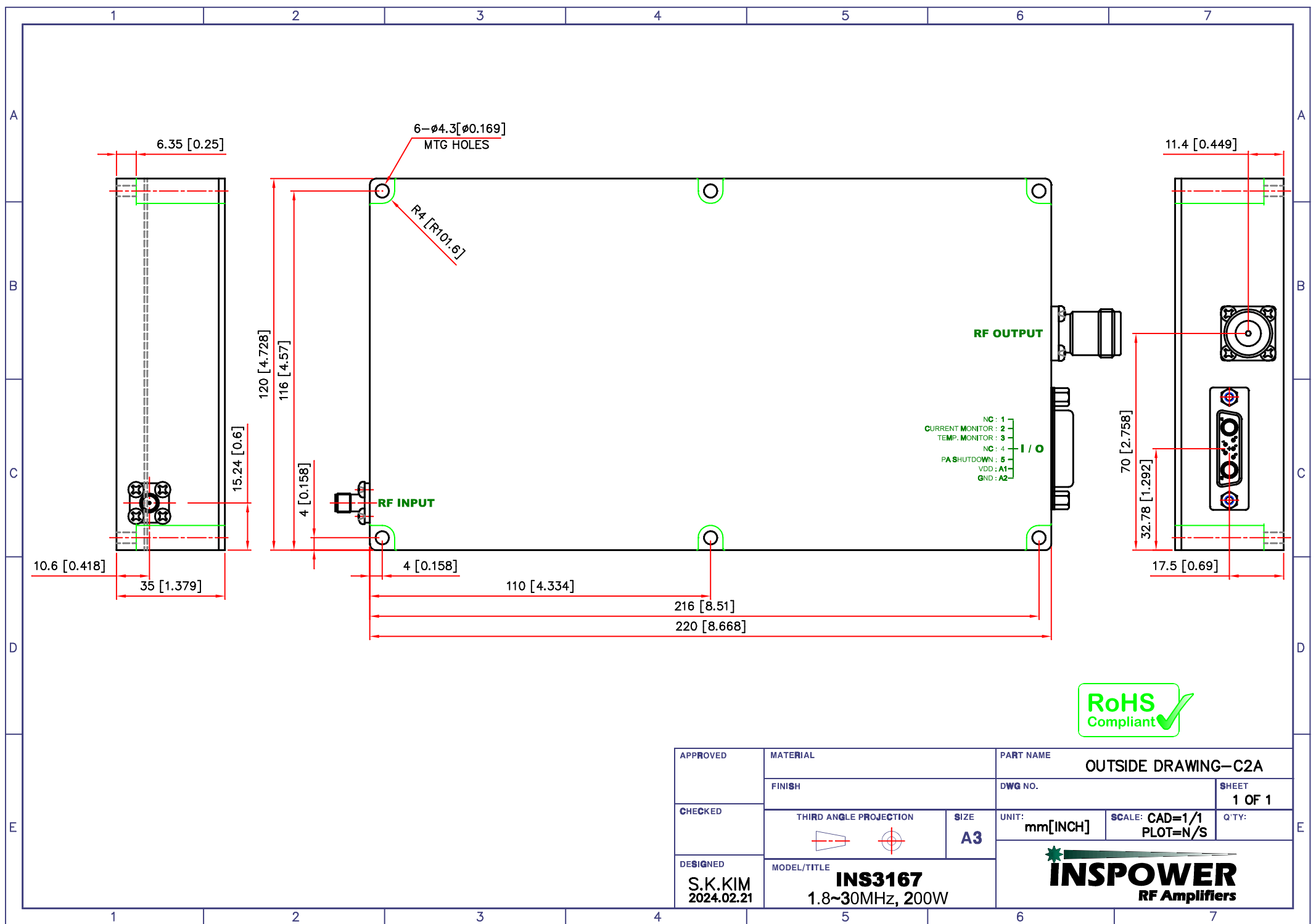
Middle Curve: Power Gain @ P_{SAT}, Pin= 0dBm

Reference: 52dB, 3dB/div

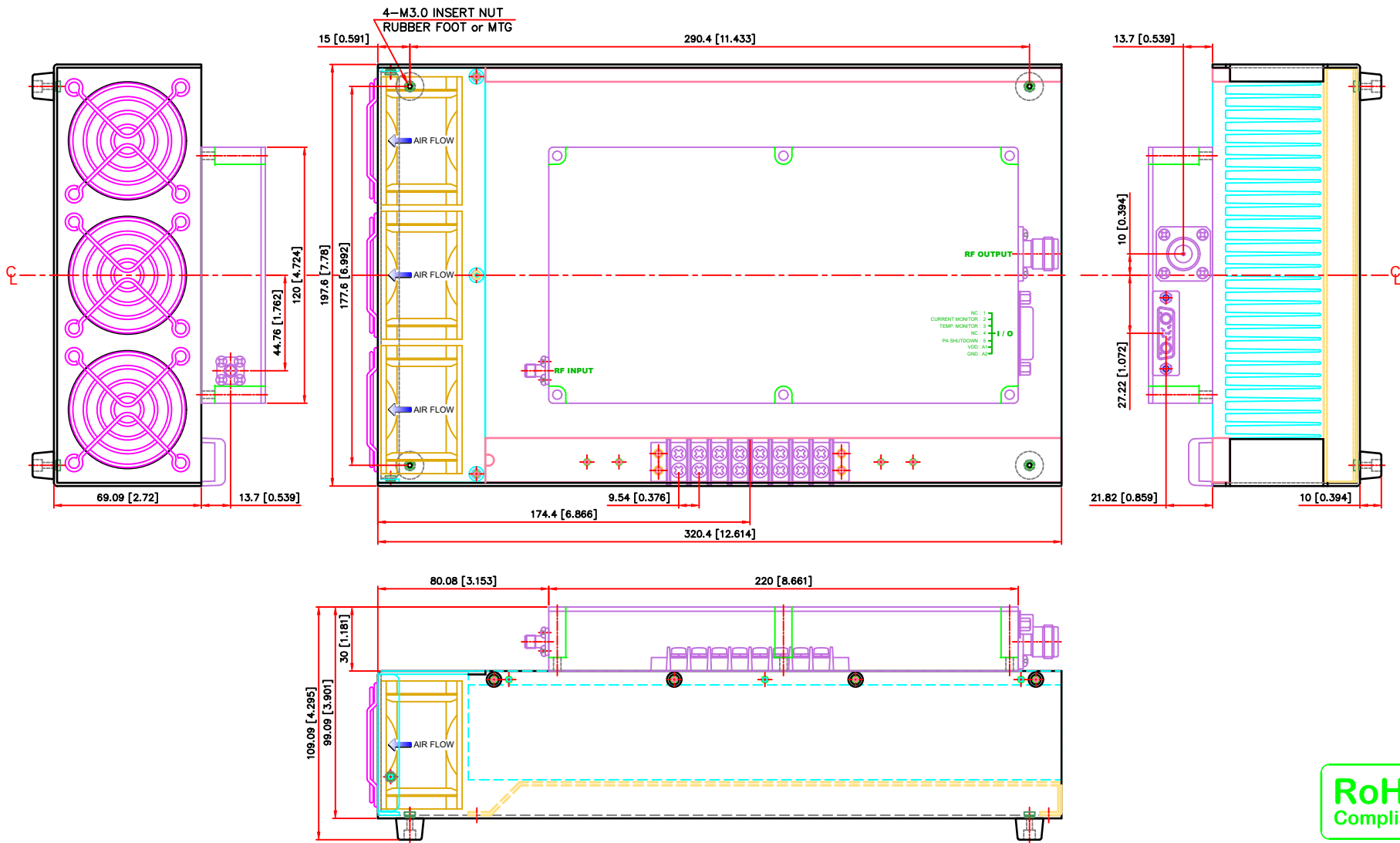
Bottom Curve: Input Return Loss

Reference: 20dB, 10dB/div





APPROVED	MATERIAL		PART NAME	
	FINISH		OUTSIDE DRAWING-C2A	
CHECKED	THIRD ANGLE PROJECTION		DWG NO.	SHEET
	SIZE		UNIT:	1 OF 1
DESIGNED	MODEL/TITLE		SCALE: CAD=1/1	Q'TY:
	S.K.KIM		PLOT=N/S	
2024.02.21		INSPOWER		
		1.8~30MHz, 200W		
		RF Amplifiers		



OUTSIDE DRAWING C1

APPROVED	MATERIAL		PART NAME OUTSIDE DRAWING C1	
	FINISH		DWG NO.	SHEET 1 OF 1
CHECKED	THIRD ANGLE PROJECTION 	SIZE A3	UNIT: mm[inch]	SCALE: CAD=1/1 PLOT=N/S
DESIGNED S.K.KIM 2024.04.25	MODEL/TITLE INS3167F 1.8~30MHz, 200W		