

Description

The Model INS3153 is a high power, class AB solid state amplifier which utilizes the latest GaN Technology to offer broadband performance from 20 to 1000MHz. Inspower's ISO9001 quality management system assures consistent performance and the highest reliability.

Product Features

- 50Ω RF impedance, Fully Integrated Matching
- 50W 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	20		1000
P _{SAT}	Power Output Saturated	Watt	50	60	
P _{1dB}	Power Output P1dB	Watt		30	
G _{1dB}	Power Gain	dB	47		
P _{IN}	Input Power for Rated P _{SAT}	dBm		0	3
ΔG _{SS}	Small Signal Gain Flatness	dB			±3.0
ΔG _P	Power Gain Flatness	dB			±2.0
S11	Input Return Loss	dB			-10
IMD IP ₃	Two Tone Intermodulation @37dBm/Tone, 1MHz Spacing	dBc		+47	
H	Harmonics @Pout=30W	dB		-35	-20
Spur	Spurious Signal	dBc		-70	-60
V _{DC}	Operation Voltage	Volt	26.0	28.0	30.0
I _{DD}	Current Consumption @Pout=50W	Amp		8	8.5
I _{DQ}	Quiescent Current	Amp		1.5	2.0
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)	162.56 *86.36 * 27 [6.4 * 3.4 * 1.1]	-	mm [inch]
RF Connector Input/output	SMA Female	-	-
DC Interface Connector	D-Sub 9pin Male	-	-
Weight	700	Max	gram
Cooling	External Heat-sink	-	-

Environmental Characteristics

Parameters	Specifications	Remark
Operating Case Temperature Range	-40°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	
Load VSWR	∞ :1	
Thermal Degradation	85°C Typ	

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

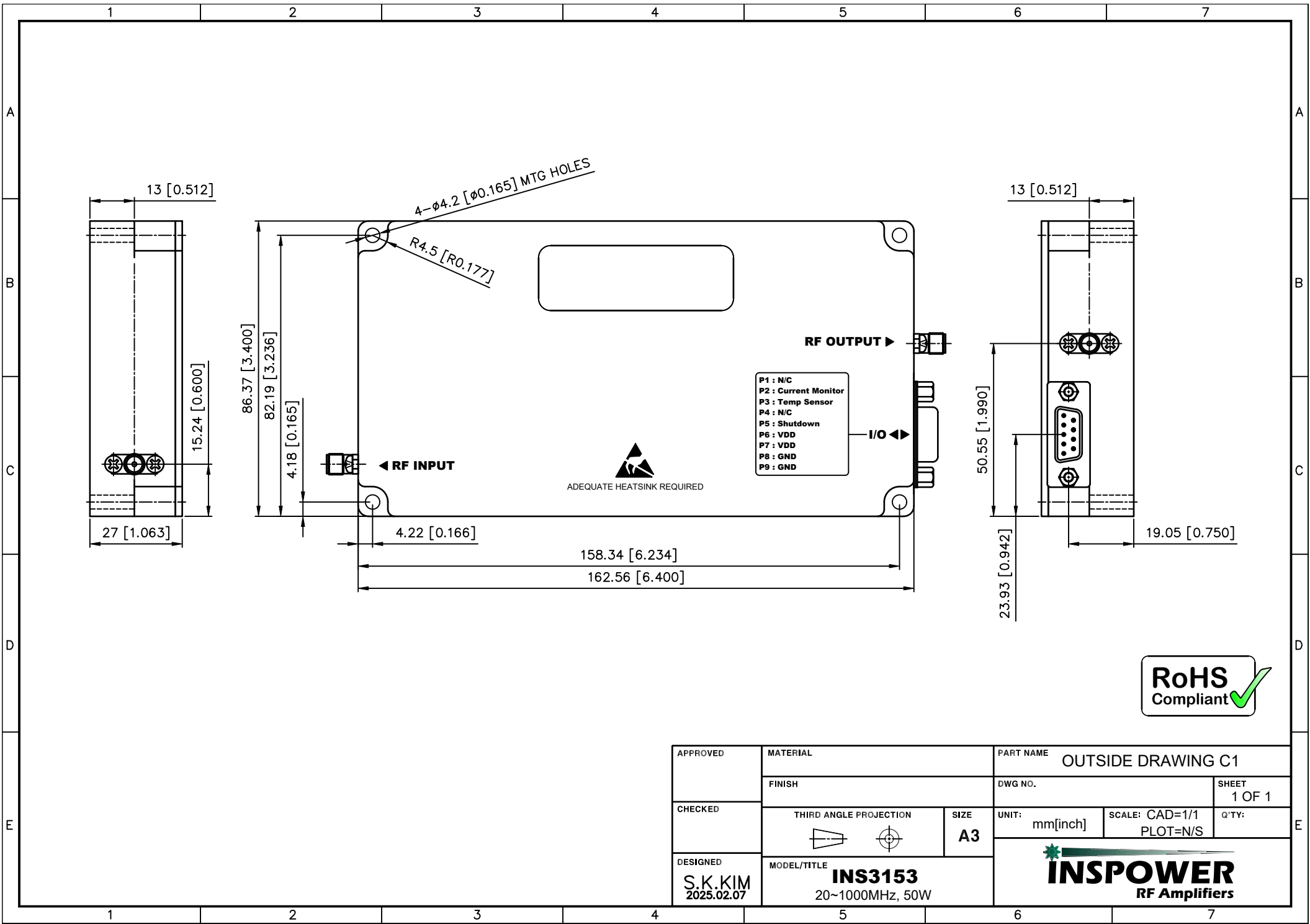
Top Curve: Small Signal Gain @ Pin= -20dBm
Reference: 55dB, 3dB/div
Bottom Curve: Input Return Loss
Reference: 20dB, 10dB/div



Plot 2 – Small Signal Gain & P_{SAT}

Top Curve: Small Signal Gain @ Pin= -20dBm
Middle Curve: Power Gain @ P_{SAT}, Pin= 0dBm
Reference: 55dB, 3dB/div
Bottom Curve: Input Return Loss
Reference: 20dB, 10dB/div





APPROVED	MATERIAL		PART NAME		
	FINISH		OUTSIDE DRAWING C1		
CHECKED	THIRD ANGLE PROJECTION		DWG NO.		SHEET
			UNIT: mm[inch]		1 OF 1
DESIGNED	SIZE		SCALE: CAD=1/1		Q'TY:
	A3		PLOT=N/S		
S.K.KIM 2025.02.07	MODEL/TITLE		 INSPOWER RF Amplifiers		
	INS3153 20~1000MHZ, 50W				