

Description

The Model INS3180 is a high power, class AB solid state amplifier which utilizes the latest GaN Technology to offer broadband performance from 500 to 6000MHz. Inspower's ISO9001 quality management system assures consistent performance and highest reliability.

Product Features

- 50 Ω RF impedance, Fully Integrated Matching
- 10W Minimum Saturated Output
- Single Supply Operation: Nominally 28V
- Built-in monitoring functions
- High reliability and ruggedness

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

Symbol	Parameter	Unit	Min.	Typ.	Max.
BW	Operating Frequency	MHz	500		6000
P _{SAT}	Power Output Saturated	Watt	10	15	
P _{1dB}	Power Output P1dB	Watt		5	
G _P	Power Gain	dB	40		
P _{IN}	Input Power for Rated P _{SAT}	dBm		0	3
Δ G _{SS}	Small Signal Gain Flatness	dB			± 10.0
Δ G _P	Power Gain Flatness	dB			± 3.0
S ₁₁	Input Return Loss	dB			-10
IP ₃	Third Order Intercept Point 2-Tone@33dBm/Tone, 1MHz Spacing	dBm		+48	
H	Harmonics @Pout=10W	dBc		-20	
Spur	Spurious Signal	dBc		-70	-60
V _{DC}	Operation Voltage	Volt	26.0	28.0	30.0
I _{DD}	Current Consumption @Pout=10W	Amp			4.0
I _{DQ}	Quiescent Current	Amp		2.0	2.5
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

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 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

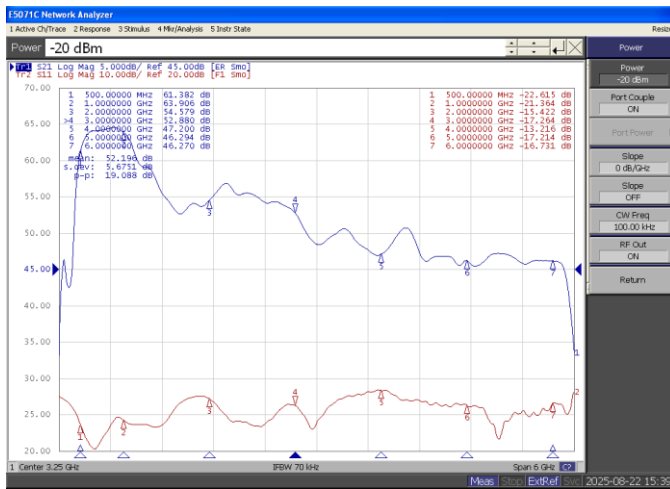
Plot 1 – Small Signal Gain

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

Reference: 45dB, 5dB/div

Bottom Curve: Input Return Loss

Reference: 20dB, 10dB/div



Plot 2 – Small Signal Gain & P_{SAT}

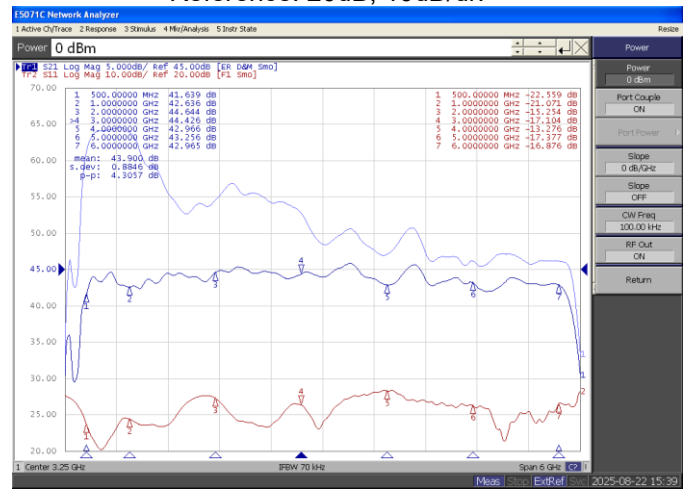
Top Curve: Small Signal Gain @ Pin= -20dBm

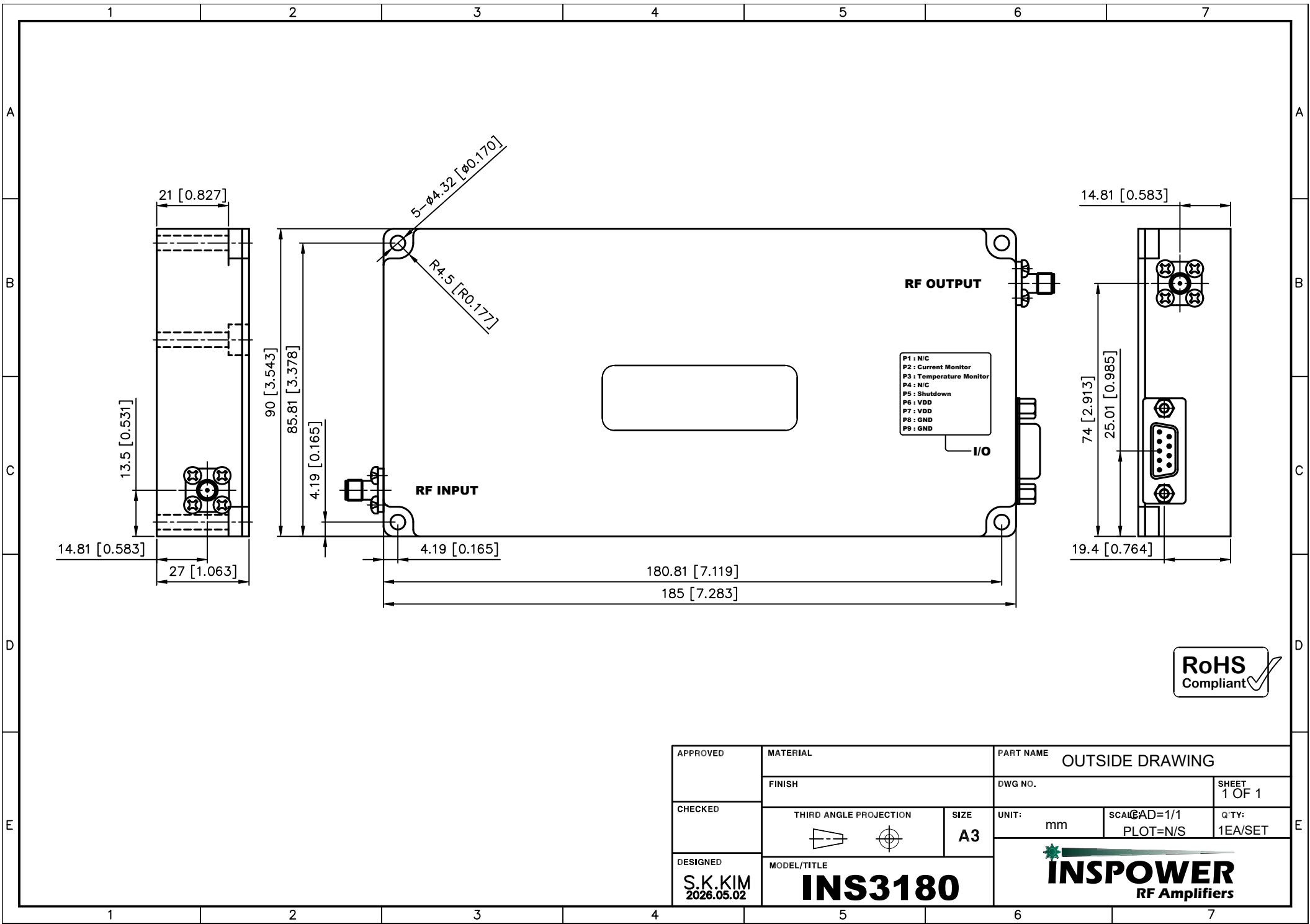
Middle Curve: Power Gain @ P_{SAT}, Pin= 0dBm

Reference: 45dB, 5dB/div

Bottom Curve: Input Return Loss

Reference: 20dB, 10dB/div





APPROVED	MATERIAL		PART NAME OUTSIDE DRAWING		
	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		 INSPOWER RF Amplifiers		
	S.K.KIM 2026.05.02				
		INS3180			