

Description

The Model INS2192 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 400 to 430MHz. Inspower's ISO9001 quality management system assures consistent performance and highest reliability.

Product Features

- 100W Minimum Output Power at P_{SAT}
- Integrated Output Isolator
- Integrated Output Low Pass Filter for Harmonic Suppression
- Built-in monitoring functions for Forward Power and Reverse Power
- Single Supply Operation, Nominal Voltage 28V

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

Symbol	Parameter	Unit	Min.	Typ.	Max.
BW	Frequency of Operation	MHz	400		430
P_{SAT}	Power Output Saturated	Watt	100	130	
P_{1dB}	Power Output P1dB	Watt	80		
G_{1dB}	Power Gain	dB	50		
P_{IN}	Input Power for Rated P_{SAT}	dBm		0	3
ΔG_{SS}	Small Signal Gain Flatness	dB			± 1.0
ΔG_P	Power Gain Flatness	dB			± 1.0
S11	Input VSWR				1.5:1
IMD3	Inter Modulation Distortion 40dBm/Total @2-tone, Channel Spacing 100KHz	dBc		-30	
H	Harmonics @ Pout = 100W	dBc		-67	-60
Spur	Spurious Signal	dBc		-70	-60
V_{DC}	Operation Voltage	Volt	26.0	28.0	30.0
VSD	Current Consumption @ Shutdown			0.2	
IDQ	Quiescent Current	A		1.0	1.5
ID	Current Consumption @ Pout = 100W	A		10	12

Mechanical Specification

Parameters	Value	Unit
Dimensions (W x D x H)	230 *95 * 27	mm
RF Connector Input/output	SMA Female	
DC & I/O Connector	D-Sub 9Pin Male	
Weight	0.8	Kg
Cooling	External Heat-Sink	

Environmental Characteristics (Design to Meet)

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

Protection

Item	Specifications for Activation	Remark
Input Overdrive	+7dBm Max	
Output Protection	Mismatch Protected with Output Isolator	
High VSWR Shutdown	6:1 Max (Return Loss = 3dB)	Pout=44dBm Min
Over Temperature Shutdown	+85 °C ±5 °C Shutdown, +65 °C ±5 °C Auto-recover	

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

Pin No	Pin Description	Specifications
1	Forward Power Monitor	RMS detector Vout=2V±0.05 @ 50dBm, Slope: 50 mV/dB
2	Reverse Power Monitor	RMS detector Vout=2V±0.05 @ 50dBm, Slope: 50 mV/dB
3	VSWR Fail Alarm	Normal: TTL Logic Low (0V) , Alarm: TTL Logic High(+5V)
4	Over Temperature Alarm	Normal: TTL Logic Low (0V), Alarm: TTL Logic High(+5V)
5	Enable/Disable	Enable: Active Low (GND) Disable: High +5V or Open status *Pulled-up @ 5V with 10k ohm
6,7	VDD	+28VDC
8,9	GND	Ground

Typical Characteristics @ +28VDC, 25°C

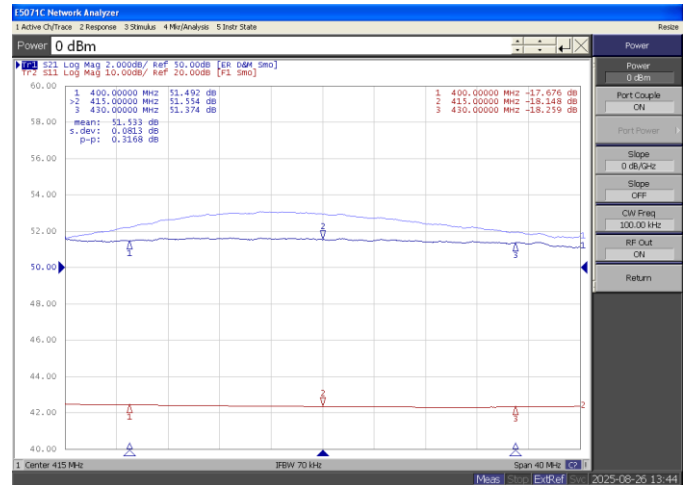
Plot 1: Small Signal Gain

Top Curve: Small Signal Gain @ Pin= -20dBm
Reference: 50dB, 2dB/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: 50dB, 2dB/div
Bottom Curve: Input Return Loss
Reference: 20dB, 10dB/div



Plot 4: BroadBand Gain, 2nd Harmonic

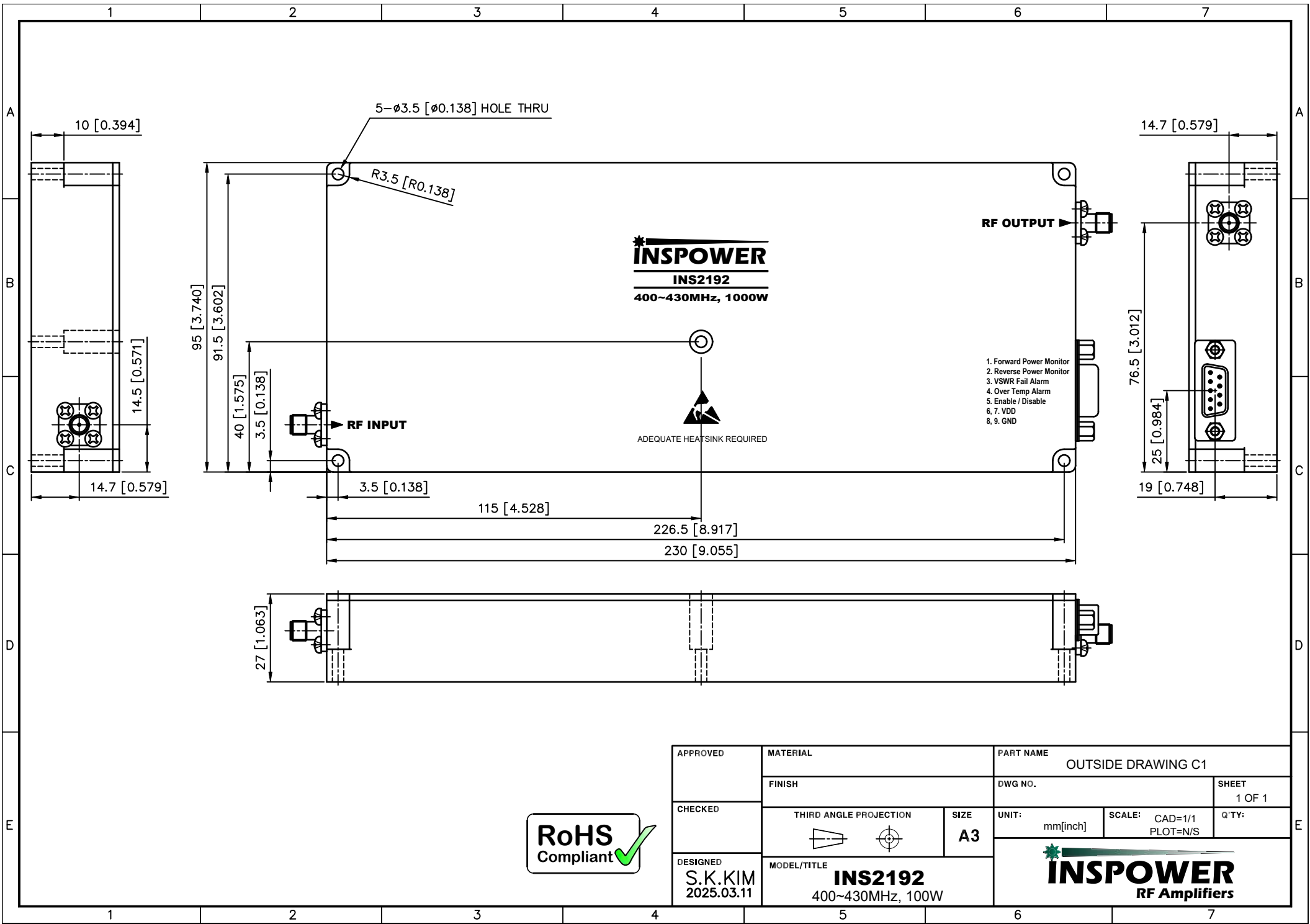
Top Curve: Small Signal Gain @ Pin= -0dBm
Reference: 15dB, 10dB/div



Plot 4: BroadBand Gain, 3rd Harmonic

Top Curve: Small Signal Gain @ Pin= 0dBm
Reference: 15dB, 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 2025.03.11		MODEL/TITLE		 INSPOWER RF Amplifiers	
		INS2192 400~430MHz, 100W			