

Description

The Model INS3009 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 | 500 | | 2500 |
| P _{SAT} | Power Output Saturated | Watt | 100 | 125 | |
| 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 | | | ±3.0 |
| ΔG _P | Power Gain Flatness | dB | | | ±2.0 |
| S11 | 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 | | 11.5 | 14 |
| I _{DQ} | Quiescent Current | Amp | | 2.5 | 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

| 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 | |

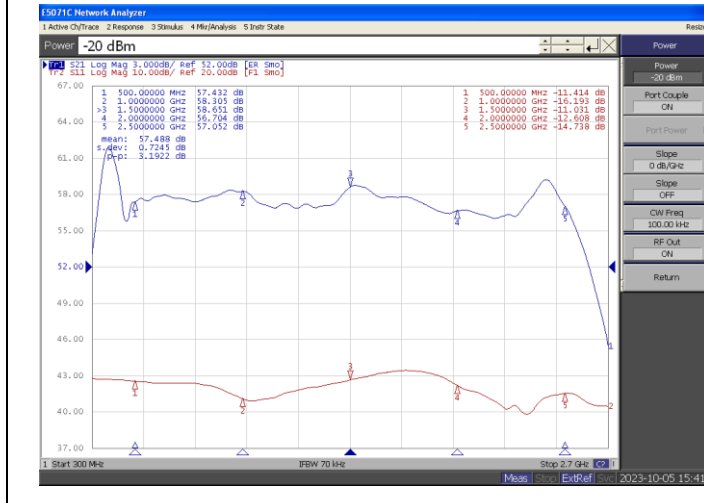
I/O Interface (D-sub 9pin Male)

| Pin No | Pin Description | Specifications | Remark |
|--------|-----------------|--|--------|
| 1 | NC | Not Connected | |
| 2 | Current Monitor | Analog Voltage Relative to IDD @ 25mV/100mA | |
| 3 | Temp Monitor | $V_{out}=10mV/^{\circ}C \times Temp + 500mV$ | |
| 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

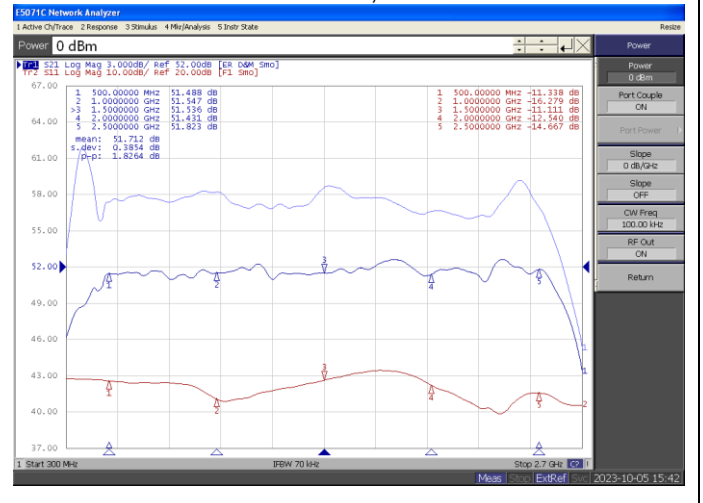
Plot 1 – Small Signal Gain

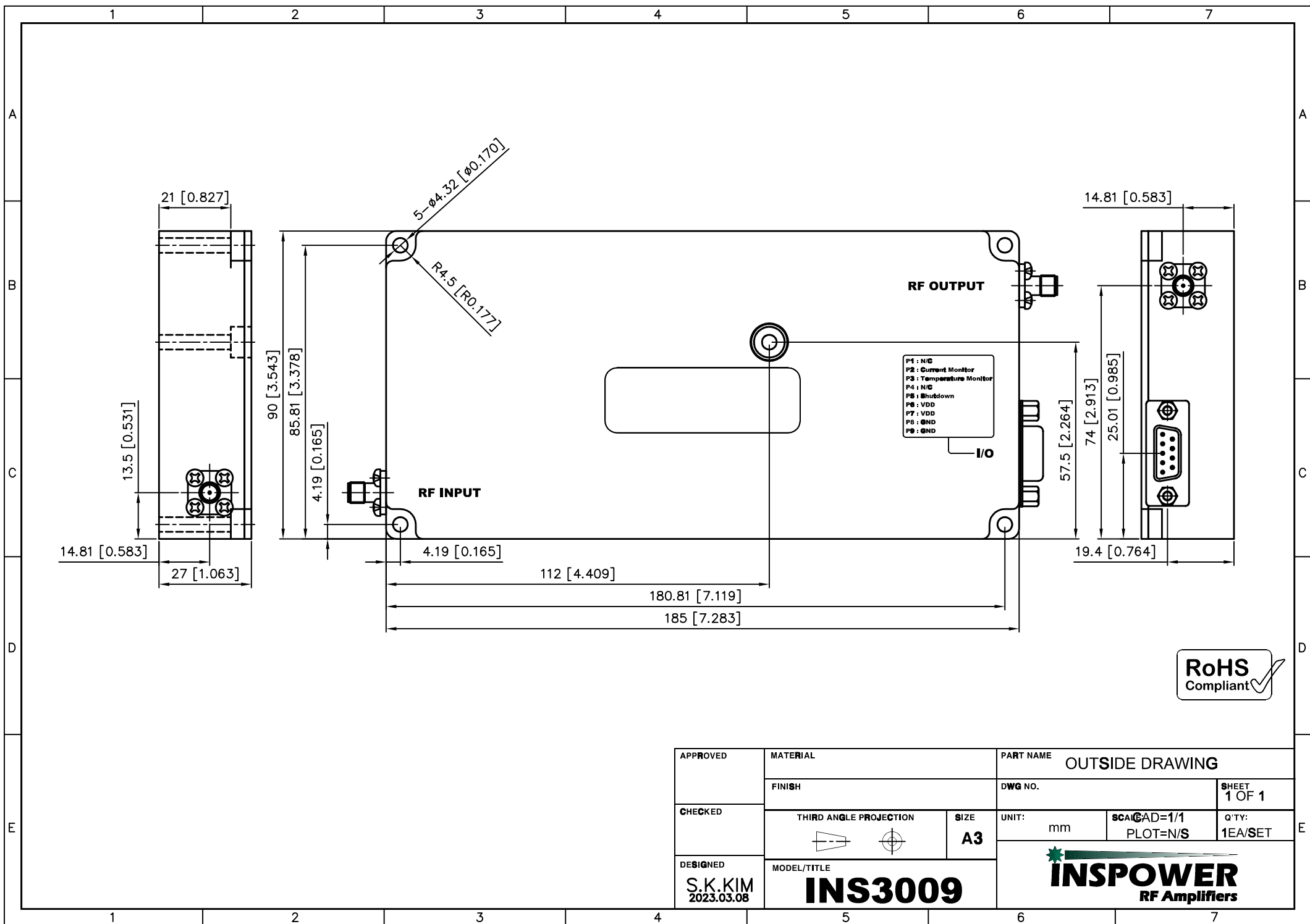
Top Curve: Small Signal Gain @ Pin= -20dBm
 Reference: 52dB, 3dB/div
 Bottom Curve: Input Return Loss
 Reference: 20dB, 10dB/div



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





RoHS
Compliant

| | | | | |
|-----------------------|------------------------|-----------------|---------------|--------|
| APPROVED | MATERIAL | PART NAME | | |
| | FINISH | OUTSIDE DRAWING | | |
| CHECKED | THIRD ANGLE PROJECTION | DWG NO. | SHEET | |
| | | UNIT: mm | SCALE: AD=1/1 | 1 OF 1 |
| DESIGNED | SIZE | PLOT=N/S | Q'TY: | |
| | | | 1EA/SET | |
| S.K.KIM 2023.03.08 | MODEL/TITLE | | | |
| | INS3009 | | | |