

INS3006

500-2500MHz 50W Broadband GaN Power Amplifier

Description

The Model INS3006 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 the highest reliability.



Product Features

- 50 Ω RF impedance with fully integrated matching
- Saturated output power (Psat): ≥ 50 W
- Single-supply operation (28 V nominal)
- Integrated forward and reverse (FWD/REV) power monitoring
- High reliability and rugged design

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

Symbol	Parameter	Unit	Min.	Typ.	Max.
BW	Operating Frequency	MHz	500		2500
P _{SAT}	Power Output Saturated	Watt	50	60	
P _{1dB}	Power Output P1dB	Watt		20	
G _{1dB}	Power Gain	dB	47		
P _{IN}	Input Power for Rated P _{SAT}	dBm		0	3
ΔG_{SS}	Small Signal Gain Flatness	dB			± 5.0
ΔG_P	Power Gain Flatness	dB			± 2.0
S ₁₁	Input Return Loss	dB			-10
IP ₃	Third Order Intercept Point 2-Tone@37dBm/Tone, 1MHz Spacing	dBm		+52	
H	Harmonics @ Pout=100W	dB		-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		6.0	7.5
I _{BQ}	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)	200 * 90 * 28	-	mm
RF Connector Input/output	SMA Female	-	-
DC Interface Connector	D-Sub 9pin Male	-	-
Weight	1	Max	Kg
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	

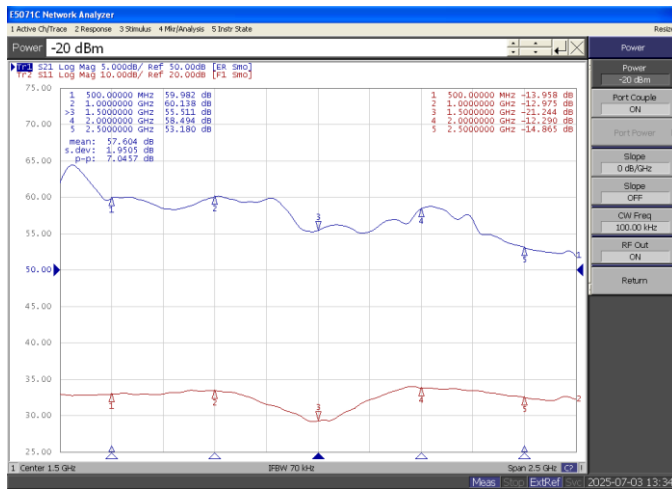
I/O Interface (D-sub 9pin Male)

Pin No	Pin Description	Specifications	Remark
1	Forward Power Monitor	RMS Detector Vout=2V±0.05V@47dBm, Slope: 50mV/dB	
2	Current Monitor	Analog Voltage Relative to IDD @ 50mV/100mA	
3	Temp Monitor	Vout=10mV/°C×Temp+500mV	
4	Forward Power Monitor	RMS Detector Vout=2V±0.05V@47dBm, Slope: 50mV/dB	
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: 50dB, 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: 50dB, 5dB/div
Bottom Curve: Input Return Loss
Reference: 20dB, 10dB/div



