

INS2004

1800-2000MHz 100W Power Amplifier

Description

The Model INS2004 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 1800 to 2000MHz. Inspower's ISO9001 quality management system assure consistent performance and highest reliability.

Product Features

- 50Ω RF impedance, Fully Integrated Matching
- 100W Output at P1
- Single Supply Operation : Nominally 27V
- Built-in monitoring functions
- High reliability and ruggedness



Electrical Specifications

Symbol	Parameter	Unit	Min.	Typ.	Max.
BW	Frequency of Operation	MHz	1800		2000
P1	Pout @ P1, CW	dBm	50		
G	Small Signal Gain @ 1900MHz	dB	49.5	50	50.5
Gain Flatness	Over 100MHz, Pout=P1dB	dB			±1.0
S11	Input VSWR				1.5:1
Spur	Spurious Signal	dBc		-70	-60
H	Harmonics @P1dB	dBc		-45	
VDC	Operation Voltage	V	26.0	27.0	28.0
ID	Current Consumption @P1	A		10	12.0

Mechanical Specification

Parameters	Value	Unit
Dimensions (W x D x H)	140 * 125 * 25	mm
RF Connector Input/output	SMA Female	
DC Interface Connector	D-Sub 3W3 Male	
I/O Connector	D-Sub 9Pin Male	
Weight	1	Kg
Cooling	External Heat-Sink	

Environmental Characteristics

Parameters	Specifications	Remark
Operating Temperature Range	-20°C to +60°C Ambient	
Storage Temperature Range	-40°C to +85°C	
Operating Humidity	95% Non-Condensing	
Vibration	Bellcore TR-NWT-000063 (1m/s*s 10~150Hz)/2G	

Protection

Item	Specifications for Activation	Remark
Output Protection	Mismatch Protected with Isolator	
Protection Function	High VSWR shutdown, High Temp Shutdown	

DC Power Connector (D-Sub 3W3 Male)

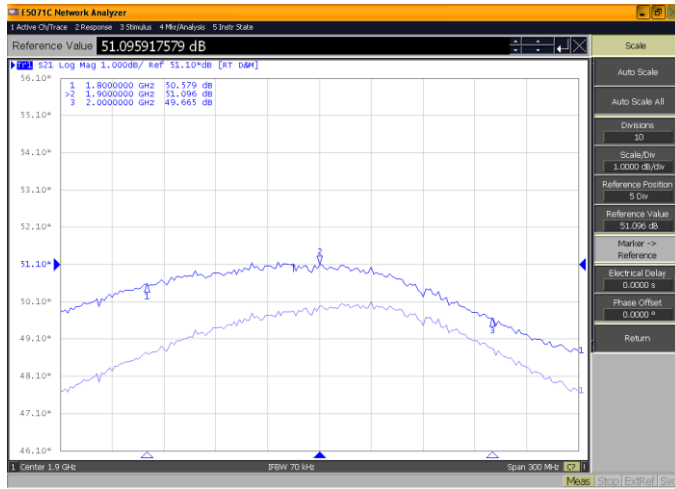
Pin No	Function	Specifications	Remark
A1	VCC	+27VDC	
A2	GND	GND	
A3	NC	Not Connect	

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

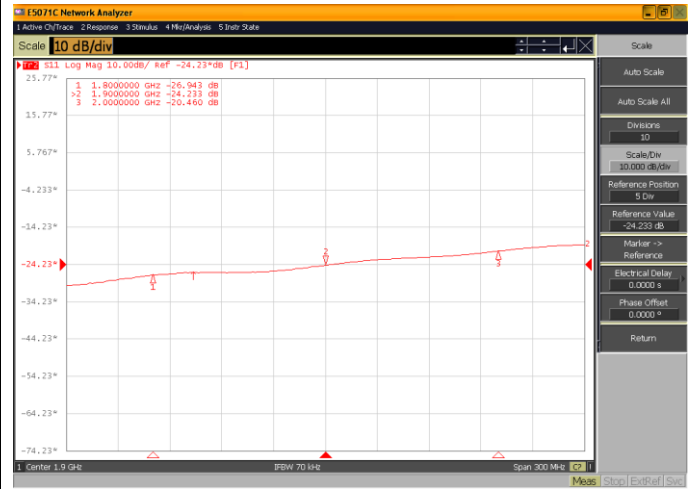
Pin No	Pin Description	Specifications
1	GND	GND
2	Over Power Alarm & Shutdown	Not used.
3	VSWR Fail Alarm & Shutdown	High +5V TTL Output @VSWR 3:1 *Shutdown Start level : Over reflected power 25W **Shutdown Time: 2sec after antenna cable disconnect at 100W
4	Do not connect	Manufacturer Use (Temperature monitor)
5	Over temperature alarm & shutdown	High +5V TTL Output @Case Temperature 85°C±5.0 Auto Restart @ Case Temperature 65°C±5.0
6	Enable	Enable : Active low(GND) Disable: +5V High or Open status *Current is 1mA **Method is pull-up
7	Do not connect	Reserved
8	Forward Power Monitor	4V±0.1V@50dBm, 0.1V±0.01/dB *Detector is AD8362 (RMS Detector) **Power Monitor Range (1V~4V)
9	Reverse Power Monitor	0.2V~1V@10W~100W

Typical Characteristics

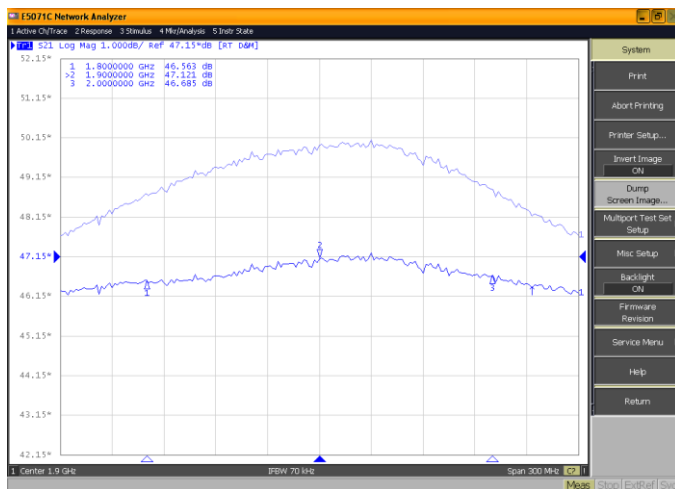
Plot1
 Blurred line: Small Signal Gain @ Pin= -20dBm
 Dark line: Power Gain @PG, Pin= -1.1dBm
 Reference: 51.10dB, 1dB/div



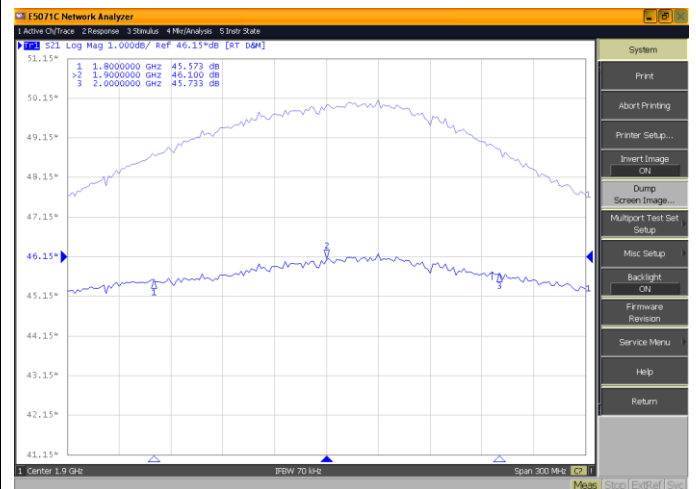
Plot2
 Top Curve: Input Return Loss
 Reference: -24.63dB, 10dB/div

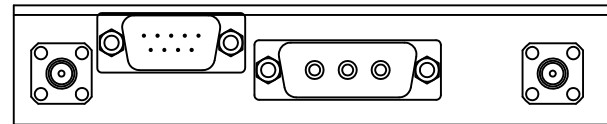
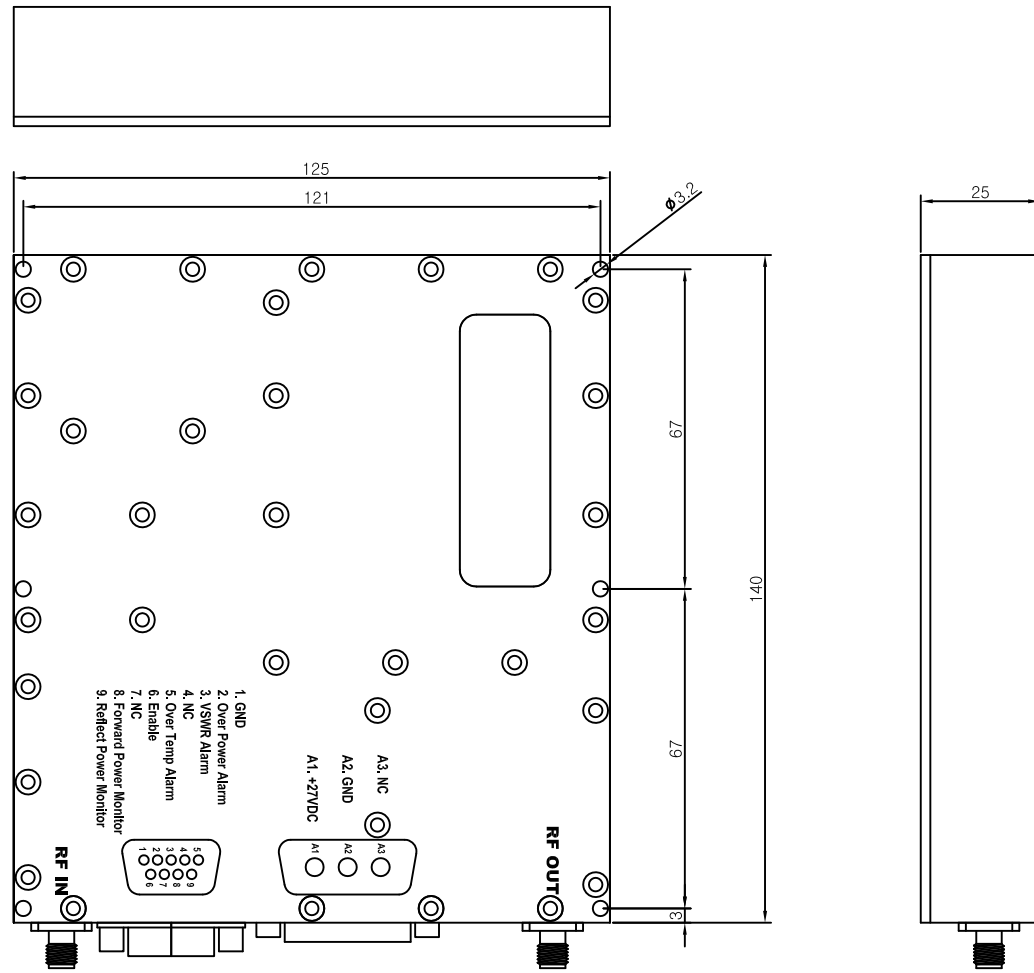


Plot3
 Blurred line: Small Signal Gain @ Pin= -20dBm
 Dark line: Power Gain @PG, Pin= 5.0dBm
 Reference: 47.03dB, 1dB/div



Plot4
 Blurred line: Small Signal Gain @ Pin= -20dBm
 Dark line: Power Gain @Psat, Pin= 6.0dBm
 Reference: 47.03dB, 1dB/div





APPROVED S.K.Kim 2017.8.21	MATERIAL A6061	PART NAME OUTSIDE DRAWING	
CHECKED	FINISH ☆White-CHROMATE(Cr ³⁺)	DWG NO.	SHEET 1 OF 1
DESIGNED K.M.Jang 2017.8.21	THIRD ANGLE PROJECTION 	SIZE A3	UNIT: mm SCALE: CAD=1/1 PLOT=N/S Q'TY:
MODEL/TITLE INS i1800-2000-100			