INS3117

500-3000MHz 40W Broadband GaN Power Amplifier

INSPOWER
RF Amplifiers

Description

The Model INS3117 is a high power, class AB solid state amplifier which utilizes the latest GaN Technology to offer broadband performance from 500 to 3000MHz. Inspower's ISO9001 quality management system assures consistent performance and the highest reliability.

Product Features

- 50Ω RF impedance, Fully Integrated Matching
- 40W 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		3000
P_{SAT}	Power Output Saturated	Watt	30	40	
P_{1dB}	Power Output P1dB	Watt		15	
G_{1dB}	Power Gain	dB	44	46	
P_{IN}	Input Power for Rated P_{SAT}	dBm			0
ΔG_P	Power Gain Flatness	dB			±3.0
S11	Input Return Loss	dB			-10
IP_3	Third Order Intercept Point 2-Tone@ 34dBm/Tone, 1MHz Spacing	dBm		+52	
H	Harmonics @Pout=30W	dBc		-20	
Spur	Spurious Signal	dBc		-70	-60
V_{DC}	Operation Voltage	Volt	26.0	28.0	33.0
I_{DD}	Current Consumption @Pout=40W	Amp		4.5	5.5
I_{DQ}	Quiescent Current	Amp		1	1.5
I_{SQ}	Current Consumption @ Shutdown	mA		100	
$T_{ON/OFF}$	Switching Time	uSec		2	5

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Mechanical Specification

Parameters	Value	Limit	Unit
Dimension (W × D × H)	135 * 75 * 25	-	mm
RF Connector Input/output	SMA Female	-	-
DC Interface Connector	D-Sub 9pin Male	-	-
Weight	0.45	Max	Kg
Cooling	External Heat-sink	-	-
Plating	Yellow Chromate Plating		

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	Temp Monitor	Vout=10mV/°C×Temp+500mV	
2	Current Monitor	Analog Voltage Relative to IDD @ 50mV/100mA	
3	Forward Power Monitor	Vout=1.4V±0.05V @ 45dBm, Slope: 37mV/dB	
4	VDD	+28VDC	
5	VDD	+28VDC	
6	Reverse Power Monitor	Vout=1.4V±0.05V @ 45dBm, Slope: 37mV/dB	
7	Enable	Enable: TTL "0" Disable: TTL"1" = 3.3-5V or Open	Active Low Pull-up @ 5V with 10Kohm
8	GND	Ground	
9	GND	Ground	

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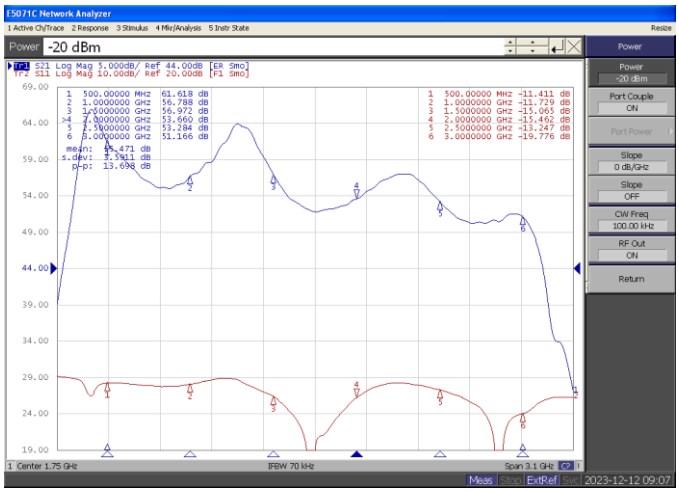
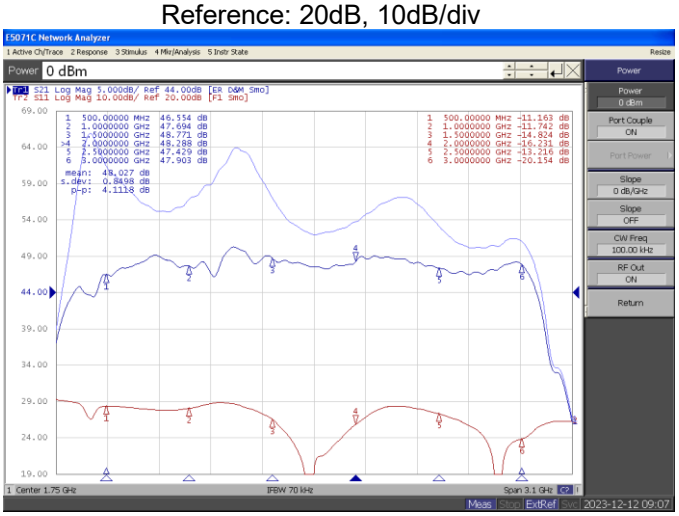
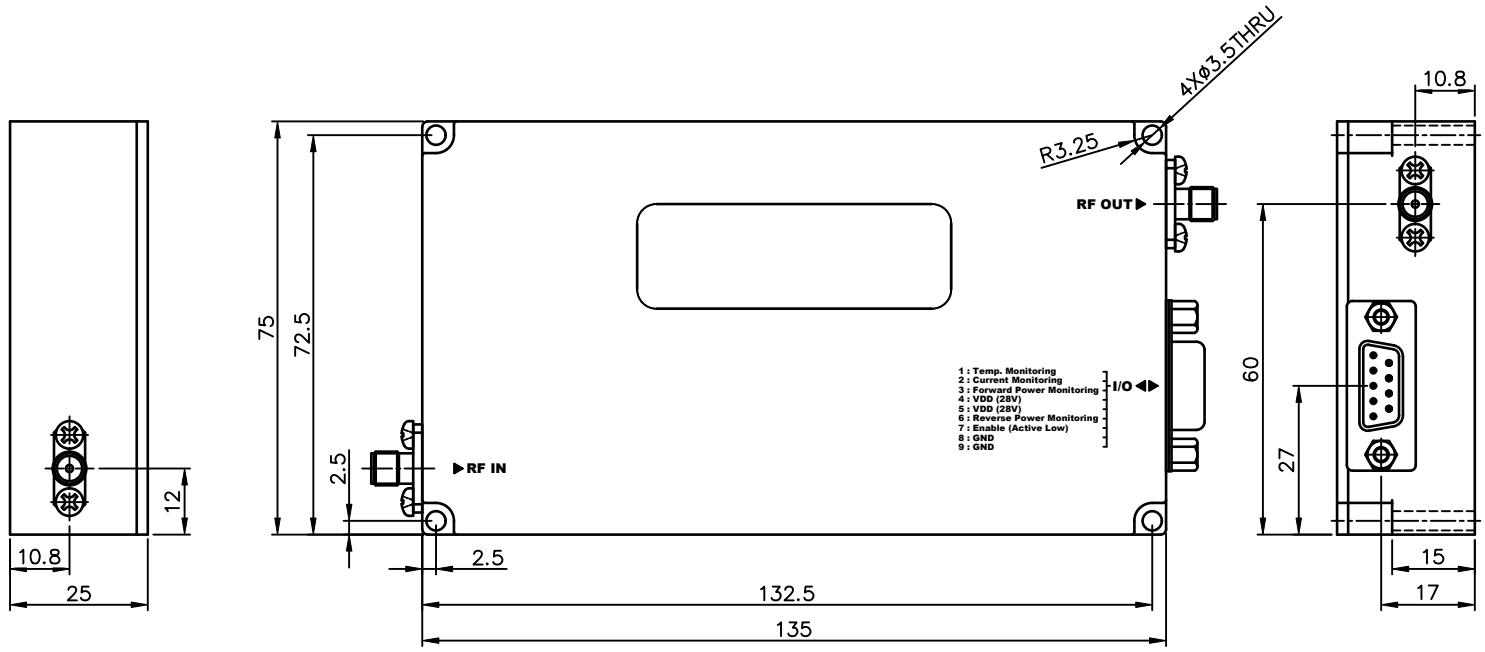
Typical Characteristics @ +28VDC, 25°C

Plot 1 – Small Signal Gain
Top Curve: Small Signal Gain @ Pin= -20dBm
Reference: 44dB, 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: 44dB, 5dB/div
Bottom Curve: Input Return Loss
Reference: 20dB, 10dB/div





RoHS Compliant

APPROVED	MATERIAL	PART NAME	OUTSIDE DRAWING
	FINISH	DWG NO.	SHEET 1 OF 1
CHECKED	THIRD ANGLE PROJECTION / SIZE A3	UNIT: mm	SCALE: CAD=1/1 PLOT=N/S / Q'TY: 1EA/SET
DESIGNED S.K.KIM 2023.05.31	MODEL/TITLE **INS3117** (500-3000MHz, 30W)	INSPOWER RF Amplifiers	