

INS3119

20-520MHz 125W High Power Amplifier with Power detector

Description

The Model INS3119 is a high power, class AB solid state amplifier which utilizes LDMOS Power devices to offer broadband performance from 20 to 520MHz. Inspower's ISO9001 quality management system assures consistent performance and highest reliability.



Product Features

- Instantaneous ultra-broadband 20MHz to 520MHz
- 125 P_{SAT} min
- 50 Ω RF impedance, Fully Integrated Matching
- Small and Light weight
- High reliability and ruggedness, and High Efficiency
- Single Power Supply

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

Symbol	Parameter	Unit	Min.	Typ.	Max.
BW	Operating Frequency	MHz	20		520
P _{SAT}	Power Output CW	W	125	160	
P _{1dB}	Pout @ 1dB Gain Compression Point	W		100	
G _{1dB}	Power Gain @ 1dB Gain Compression Point	dB	51		
ΔG _{SS}	Small Signal Gain Flatness	dB			±2.0
ΔG _{SS}	Power Gain Flatness	dB			±1.5
P _{IN}	Input Power for Rated Output	dBm		0	
S11	Input Return Loss	dB			-10
NF	Noise Figure	dB		7	10
IP3	Third Order Intercept Point 2- Tones, Pout = 40dBm/Tone, Δ=100KHz	dBm		+57	
Spur	Spurious Signal	dBc		-70	-60
H	2 nd Harmonics @ 125W	dBc		-40	-15
	3 rd Harmonics @ 125W	dBc		-15	-9
V _{DC}	Operation Voltage	Volt	26.0	28.0	30.0
I _{DQ}	Quiescent Current	Amp		2.5	3
I _{DD}	Current Consumption @ 125W	Amp		10	12
T _{ON/OFF}	Switching Time	uSec			20

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Specification Ver 2.0 2024-03-10

Mechanical Specification

Parameters	Value	Unit
Dimensions (W x D x H)	185 × 80 × 27	mm
RF Connector Input/output	SMA Female	-
DC Connector	Feed Thru	-
Weight	0.65	Kg
Cooling	External Heat-sink	-

Environmental Characteristics

Symbol	Parameter	Specifications	Remark
Tc	Operating Case Temperature	-20°C to +80°C	
Tstg	Storage Temperature	-40°C to +85°C	
RH	Relative Humidity	95% (non-Condensing)	

Survivability

Item	Specifications for Activation	Remark
Input Overdrive	+10dBm	Max
Load VSWR	∞	Nom
Thermal Shutdown	85 ± 5°C Shutdown, 65 ± 5°C Auto Recovery	

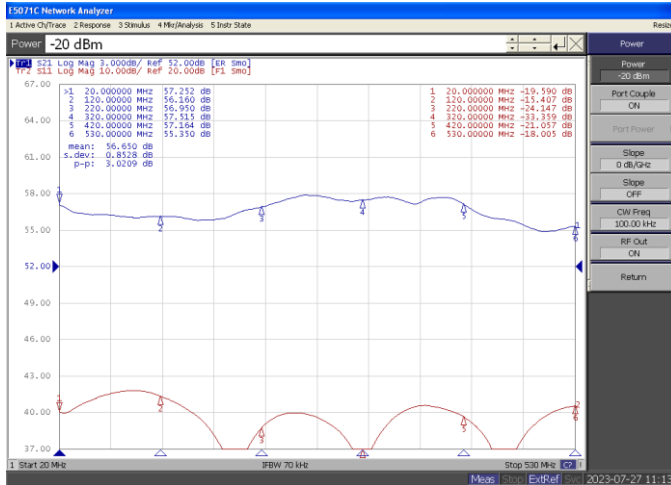
Interface Connector (Feed Thru)

Pin No	Pin Description	Specifications
FT1	+VDD	+28 VDC
FT2	Forward Power Detector	Forward Power Monitor: Log Slope Detector (AD8362) Detector Voltage ≈ 2V@51dBm Slope ≈ 0.05V/dB
FT3	Reverse Power Detector	Forward Power Monitor: Log Slope Detector (AD8362) Detector Voltage ≈ 2V@ Output port open @ Pout=51dBm Slope ≈ 0.05V/dB
FT4	Shutdown	Amplifier Enable: TTL "Low" (Logic) or Open Amplifier Disable: TTL "High" (Logic 1)
GT1	GND	Ground Turret
GT2	GND	Ground Turret

Typical Characteristics

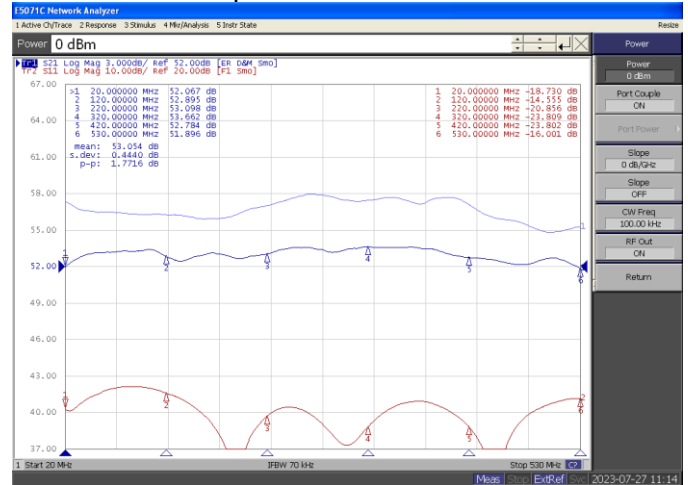
Plot 1

Top Curve: Small Signal Gain @ Pin=-20dBm
 Bottom Curve: Input Return Loss



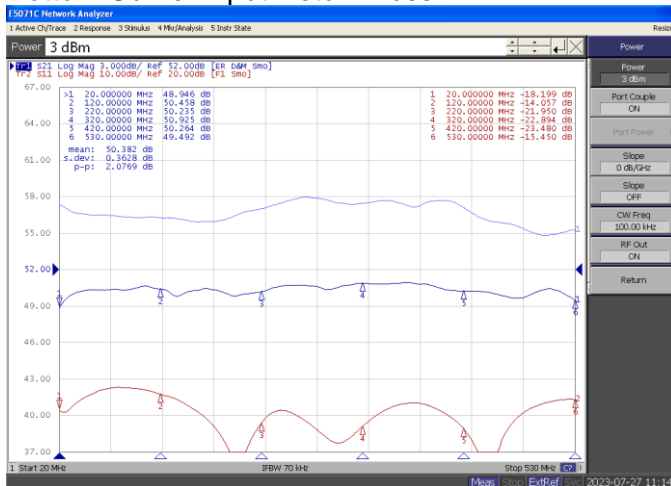
Plot 2

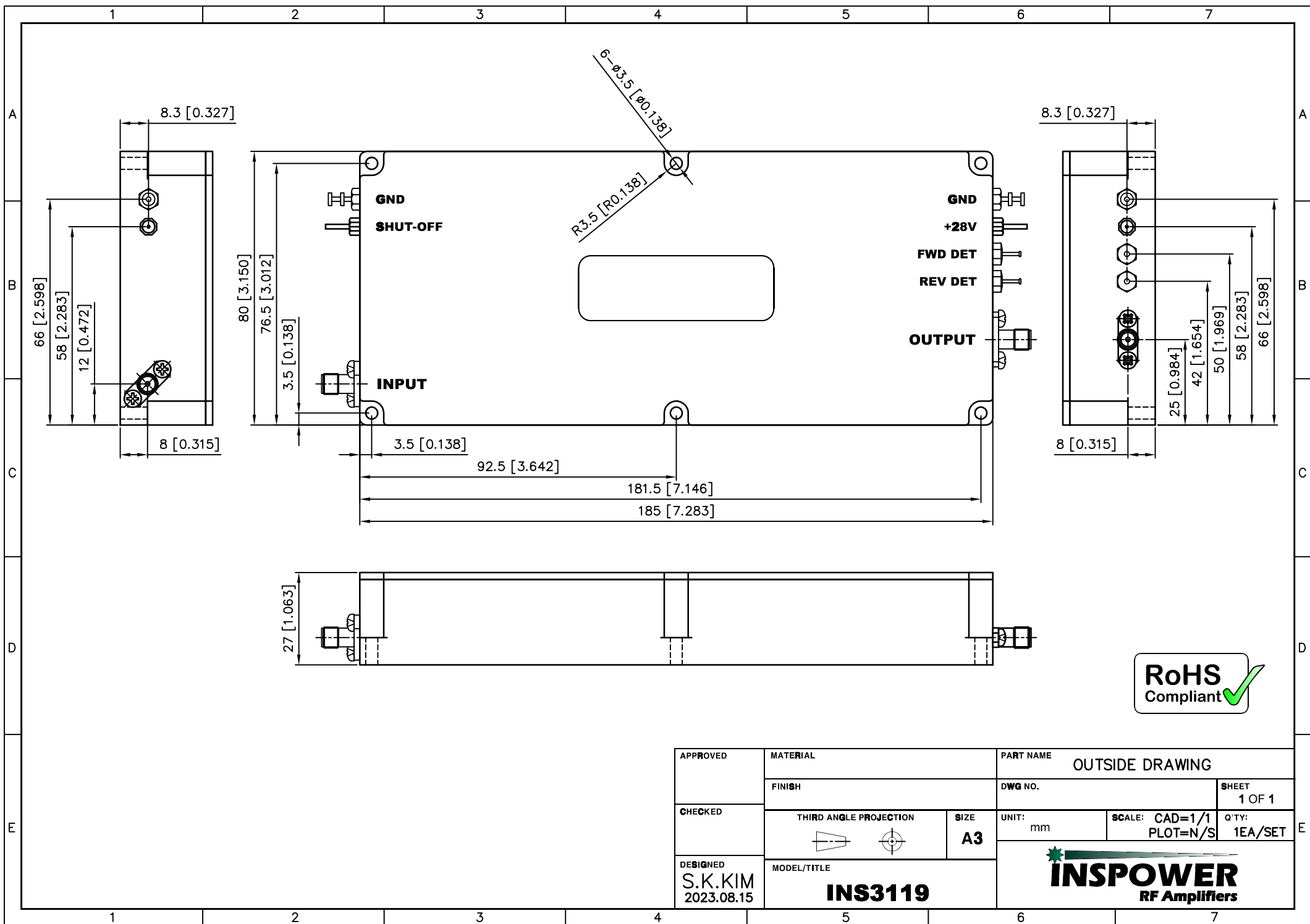
Top Curve: Small Signal Gain @ Pin=-20dBm
 Middle Curve: Power Gain @ Pin=0dBm
 Bottom Curve: Input Return Loss



Plot 3

Top Curve: Small Signal Gain @ Pin=-20dBm
 Middle Curve: Power Gain @ Pin=3dBm
 Bottom Curve: Input Return Loss





APPROVED	MATERIAL	PART NAME OUTSIDE DRAWING		
	FINISH	DWG NO.	SHEET 1 OF 1	
CHECKED	THIRD ANGLE PROJECTION	UNIT: mm	SCALE: CAD=1/1 PLOT=N/S	QTY: 1EA/SET
		SIZE A3		
DESIGNED S.K.KIM 2023.08.15	MODEL/TITLE INS3119			