HZ3002700-200NA1

200W-Solid State Broadband High Power Amplifier

Description

The HZ3002700-200NA1 is a highly reliable amplifier.It employs ultra-wideband GaN transistors that can output 200 watts of power within the 300MHz to 2700MHz frequency range while maintaining relevant RF performance.In contrast to traditional CW amplifiers,this amplifier can amplify spread-spectrum signals,with an instantanneous bandwidth of up to 200 MHz. When paired with the appropriate SDR digital excitation source,it can produce excellent jamming performance on remote control,data transmission,and positioning signals.Therefore,this amplifier is particularly suitable for use in wireless communication interference systems in the U,L,and S bands,including but not limited to mobile phones,radio stations,and drones.

Application and Feature

- Utilizing third-generation GaN transistors
- Ultra-wide working bandwidth and instant bandwidth
- Excellent reliability
- Features temperature detection,standing-wave detection,and protection functions
- RS485 serial interface for monitoring and control [note1]

Specifications of Products

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Electrical Specifications					
Parameter	**Min**	**Typ**	**Max**	**Unit**	**Test Condition**
Operating frequency	300		2700	MHz	
Instant bandwidth			200	MHz	Broadband signal,such as OFDM signal
Output power (Psat)	160	200		W	CW signal
Gain (small signal)	44		54	dB	Measured with VNA in swept frequency mode at -20dBm. Input power calibrated/measured at the amplifier input port.
Gain flatness (small signal)	-4		4	dB	Test condition the same as Gain
Gain adjustment range [note1]	20			dB	Test condition the same as Gain
Input RF power range	0		8	dBm	
Gain adjustment step size [note1]	0.5			dB	Test condition the same as Gain
Noise figure			20	dB	
Input VSWR			1.8		Measured with VNA in swept frequency mode at -20dBm. Input power calibrated/measured at the amplifier input port.
Spurious		-60		dBc	CW signal at the output power of 200W. Spurious defined as any non-harmonic amplifier output. Spurious measured in a 1kHz resolution bandwidth,10kHz video bandwidth.Specifications apply at offsets of greater than or equal to ±10kHz from the RF carrier. Maximum measurement frequency is 8GHz
Harmonics(2^{nd}, 3^{nd})	-10			dBc	CW signal source at output power of 200W
Operating voltage	24	28	32	V	Note:Output power capabilities and gain will vary with voltage
Operating current		29	36	A	CW signal source at output power of 200W
PA Enable/Disable time			10	μs	Measurement with of 200W CW

Electrical Specifications					
Parameter	**Min**	**Typ**	**Max**	**Unit**	**Test Condition**
					output.Rise and fall time of amplifier output envelope recorded.Rise and fall times at 10%-90% of the output power in linear scale.PA Enable/ Disable signal set to 10kHz repetition rate and 50% duty cycle

Alarm and Protection	
Parameter	**Introductions**
Over temperature	When the temperature exceeds 80°C±5°C，the amplifier PIN12 will outputs +5V voltage and the amplifier will automatically shut down; When the temperature drops below 70°C±5°C, the amplifier will automatically turn on.
Over VSWR	When the output port of the amplifier is open or short,the amplifier PIN13 will outputs +5V voltage and the amplifier shut down,the status will be locked . The alarm state will be cleared once pin 6 transmits a pulse signal
Over voltage [note1]	The amplifier PIN2 will outputs +5V voltage and the amplifier shut down when the voltage exceeds 32V,the status will be locked. The alarm state will be cleared once pin 6 transmits a pulse signal
Over current [note1]	The amplifier PIN3 will outputs +5V voltage and the amplifier shut down when the current exceeds 38A.,the status will be locked. The alarm state will be cleared once pin 6 transmits a pulse signal

Environmental Specifications				
Parameter	**Min**	**Typ**	**Max**	**Unit**
Operating temperature	-40		+60	℃

Storage temperature	-55		+85	℃
Relative Humidity (non-condensing)			+95	%
Altitude	MIL-STD-810F Method 500.4			
Vibration/Shock	Pass MIL-STD-810F - Method 514.5/516.5 – Proc I			

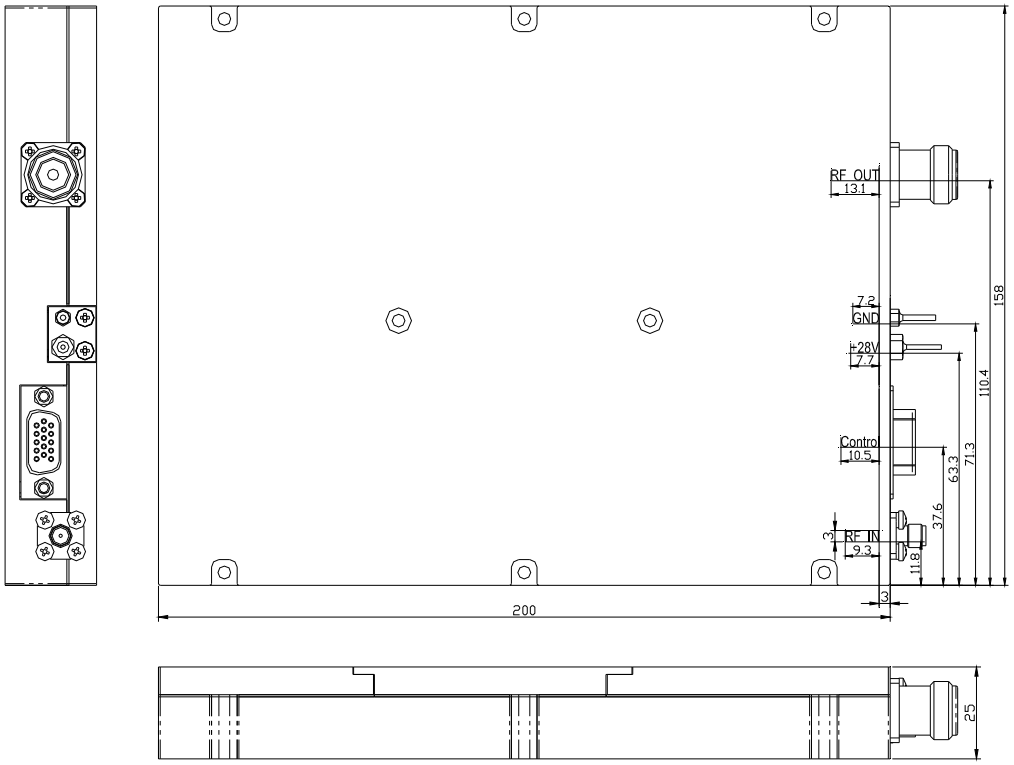
Mechanical Specifications		
Parameter	**Value**	**Unit**
Dimension	200 x 158x 25	mm
Weight	1.4	kg
RF Connectors In/Out	Input: SMA-F Output: N-F	-
Control Connector	D-Sub 15-Pin Female	-
Power Supply Connector	Pull-core Capacitance	-
Cooling	External Heat sink	-

DC Interface Connector		
PIN#	**Description**	**Specification**
Grounding Post	GND	Ground Return
Pull-core Capacitance	VDD	Supply Voltage:+24V~32V,+28V Nominal
1	RS485 (-) [note1] [note2]	Serial Communication Bus
2	Voltage Alarm [note1]	Alarm(5V), the amplifier shut down when the voltage exceeds 32V,the status will be locked.
3	Current Alarm [note1]	Alarm(5V), the amplifier shut down when the current exceeds 38A.,the status will be locked.
5	Attenuator setting [note1]	Voltage input in the range of 0.5-3.0VDC, 0.5VDC corresponds with minimum attenuation, 3.0VDC is maximum attenuation.
6	Alarm Reset	If the alarm has been triggered,input an extermal pulse singal to reset it (0V ~ 0.7V is the low level, 3.3V ~ 5V is the high level)
7	Pr	Reversed RF Power Indicator (0~3V)
8	RS485 (+)	Serial Communication Bus

DC Interface Connector		
PIN#	**Description**	**Specification**
	[note1] [note2]	
10	Pf	Forward RF Power Indicator (0~3V)
11	PA_EN	PA on :0V ~ 0.7V or the Hanging PA off :Input 3.3V ~ 5V
12	TA	Alarm(5V), when the temperature exceeds 80℃±5℃ and the amplifier shutdown
13	VA	Alarm(5V), When the output port of the amplifier is open or short, the amplifier will shutdown.
14	Tc	Analog voltage relative to Unit's Temperature @ 10mV/℃ ($0.50V_{offset}$); (Meausred-0.50)/0.01=X℃, Example: (1.00V-0.50)/0.01= 50℃
4,9,15	NC	

[note1]：This function is optional, and the optional model number is HZ3002700-200NA2.
[note2]：This function is optional, and the optional model number is HZ3002700-200NA2.
The RS485 master-slave communication function can be used to monitor the operational parameters of the power amplifier module, such as voltage, current, output power, and standing wave, and it can also be used to set the control parameters of the power amplifier in real time, such as power amplifier on/off, gain adjustment, power adjustment, and alarm reset.

Outline Drawing


RF_OUT
13.1
7.2
GND
+28V
7.7
Contro
10.5
RF_IN
9.3
3
158
110.4
71.3
63.3
37.6
11.8
3
200
25