HZ30512-100

100W-Solid State Broadband High Power Amplifier

Description

The HZ30512-100 is a highly reliable amplifier which is guaranteed to deliver 100 watts of power within the 30MHz to 512MHz frequency range and related RF performance under specified temp and environmental conditions. When paired with the appropriate SDR source,it can do the jamming perfectly. This amplifier is suitable for use in defend systems in the V and U bands It utilizes the latest high power RF GaN transistors, with protection functions to ensure high availability.

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

Specifications of Products

Electrical Specifications					
Parameter	**Min**	**Typ**	**Max**	**Unit**	**Test Condition**
Operating frequency	30		512	MHz	
Instant bandwidth			200	MHz	Broadband signal,such as OFDM signal
Output power (Psat)	80	100		W	CW signal
Gain (small signal)	41		51	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
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

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Electrical Specifications					
Parameter	**Min**	**Typ**	**Max**	**Unit**	**Test Condition**
					100W. 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 100W
Operating voltage	24	28	32	V	Note:Output power capabilities and gain will vary with voltage
Operating current		14.5	18	A	CW signal source at output power of 100W
PA Enable/Disable time			10	μs	Measurement with of 100W CW 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℃±5℃，the amplifier PIN12 will DC Interface Connector ally shut down; When the temperature drops below 70℃±5℃, 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 20A.,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	160 x 120 x 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]	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 20A.,the status will be locked.
5	Attenuator setting	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
7	Pr	Reversed RF Power Indicator (0~3V)
8	RS485 (+) [note1]	Serial Communication Bus
10	Pf	Forward RF Power Indicator (0~3V)
11	PA_EN	PA on :0V or the Hanging PA off :Input 3.3V or 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/℃ ($0.50V_{offset}$); (Vmeausred-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 HZ30512-100.

Outline Drawing