

TECHNICAL DATASHEET

AVBR0727H50

The AVBR0727H50 is a 100W high gain Solid State Linear High Power Amplifier. This amplifier module utilizes the latest high power RF GaN transistors and also features high efficiency and linearity, with protection functions to ensure high availability. This amplifier is suitable for Linear System and high power combination.

**Features**

- 0.7GHz-2.7GHz frequency range
- Psat 50dBm Typ, 49dBm Min
- Power gain 50dB
- 50 ohm input/output impedance
- Built-in control, monitoring and protection circuits
- Solid-state Class AB Broadband design
- Instantaneous ultra-broadband
- Suitable for CW, and Pulse
- Small and lightweight
- High reliability and ruggedness

**ELECTRICAL SPECIFICATIONS(T=25°C,DC Voltage= 28V, Load VSWR ≤ 1.2)**

Description	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	0.7		2.7	GHz
Output Power CW [ Pin= 0 dBm]	Psat	49	50		dBm
Power Gain @ Psat	Gp		50		dB
Power Gain Flatness @ Rated Psat	ΔGp		±1.3	±1.8	dB
Input Power for Rated Psat	Pin		0		dBm
Harmonics @ Pout =50W	2 <sup>nd</sup> /3 <sup>rd</sup>		-20/-25	-15/-15	dBc
Noise Figure(If Needed, Please Contact)	NF		8	10	dB
Spurious Signals@ Pout =50W	Spur		-70	-65	dBc
Input VSWR	VSWR_in		1.3	1.5	/
Output VSWR	VSWR_out		1.5	2	/
Third Order Intercept Point					
2-Tone @ 41dBm/Tone, 1MHz Space(If Needed, Please Contact)	IP3		51		dBm
Operating Voltage	VDC	26	28	30	V
Current Consumption @ Pout=90~100 W	IDD		12.5	14.5	Amp
Current Consumption @ Shutdown	ISD		0.1	0.2	Amp
Quiescent Current	IDQ		3	4	Amp
Switching Time @ 1kHz TTL, Pin = -2dBm	TON/TOFF		1	2	μs

**MECHANICAL SPECIFICATIONS**

- Cooling External Heat Sink Needed (Not Supplied)
- Length\*Width\*Height mm 180x140x25
- Weight[ Kg ] 1.5
- RF Connector Input SMA, Female
- RF Connector Output SMA, Female

Datasheet: REV A.4/09.23.2020

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## ENVIRONMENTAL SPECIFICATIONS(Design to meet)

Module Operation Temperature* <sup>1</sup>	-20	65	°C
Storage Temperature Range	-45	85	°C
Relative-Humidity		95	%
Altitude * <sup>2</sup>	N/A		
Vibration/Shock * <sup>2</sup>	N/A		

**Notes** \*1: Module Operation Temperature can be extended to -45~85 °C, Contact Sales for update.

**Notes** \*2: Altitude /Vibration are designed with considerations, but without tests and experiments.

## LIMITS

Input RF drive level without damage	Pin ≤ 10	dBm
Load VSWR @ POUT =80W	∞ @ all load phase & amplitude for duration of 1 minutes;	
Load VSWR @ POUT =100W	3:1 @ all load phase & amplitude continuous	
Thermal Degradation	90	°C

## DC INTERFACE CONNECTOR – [Hybrid D-Sub 7W2, Male]

Pin #	Description	Specifications
A1	GND	Ground
A2	VDD	28VDC
1	CURRENT SENSE	Analog voltage relative to IDD @ 100mV per Ampere
2	TEMP SENSE	Analog voltage relative to Module's Temperature @ 10 mV/°C
3	ENABLE	Amplifier Enable: TTL Logic High (3.3V) (Internally Pulled-Low)
4	GND	Ground
5	N/C	No Connection

## PLOTTED AND OTHER DATA

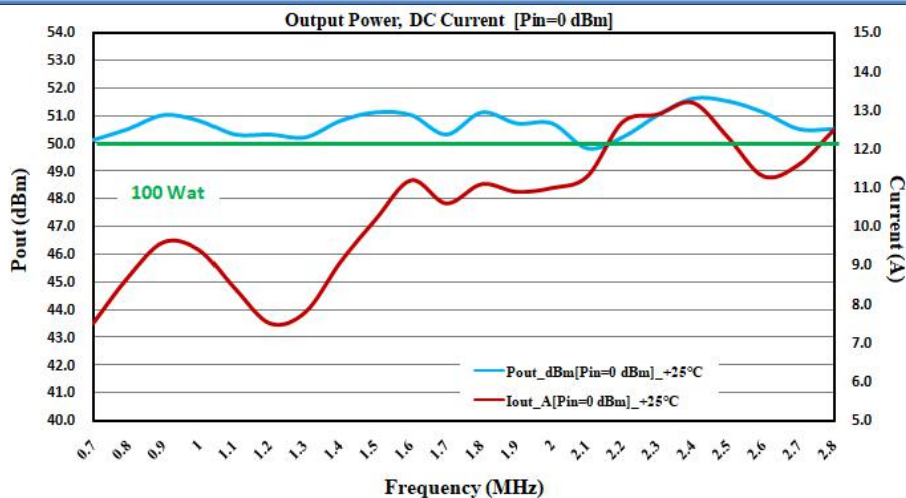
Notes:

1. Values at +25°C, sea level.
2. ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in approved ESD Workstation.
3. Heat Sink required for Proper Operation, Unit is cooled by conduction to heat sink.

### TYPICAL PERFORMANCE:

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Pout & Power Consumption [Pin=0 dBm, CW, Load VSWR≤1.2, 25°C]



Figure left: Power Gain S21 (Pin=0dBm, Load VSWR≤1.2, 25°C),For reference only.

Figure right: Small signal gain S21 (Ambient temp. Load VSWR≤1.2, 25°C),For reference only.



Figure left: Input Return Loss S11 ([Pin=-30dBm, CW, Load VSWR≤1.2, 25°C]

Figure right: Output Return Loss S22 ([Pin=-30dBm, CW, Load VSWR≤1.2, 25°C]

OUTLINE DRAWING (mm)

