

TECHNICAL DATASHEET

AVBR20180H41

The AVBR20180H41 is a 15W high gain Solid State Linear High Power Amplifier. This amplifier module utilizes the latest high power RF GaN transistors and also features built in control and monitoring, with protection functions to ensure high availability. This amplifier is suitable for high power combination and EMC testing.

Features

| | |
|--|---------------------------------------|
| 2GHz-18GHz frequency range | Solid-state Class AB Broadband design |
| Psat 41.7 dBm type | Instantaneous ultra-broadband |
| Power gain 41 dB | Suitable for CW, and UWB Signal |
| 50 ohm input/output impedance | Small and light weight |
| Built-in control, monitoring and protection circuits | High reliability and ruggedness |

ELECTRICAL SPECIFICATIONS(T=25°C,DC Voltage= 28V)

| Description | Symbol | Min | Typ | Max | Unit |
|---|-----------------|-----|---------|-------|------|
| Operating Frequency* ¹ | BW | 2 | | 18 | GHz |
| Output Power CW @Pin= 0 dBm | PSAT | 10 | 15 | | W |
| Power Gain @Pin= 0dBm | Gp | | 41 | | dB |
| Power Gain Flatness @Pin= 0dBm | ΔGp | | ± 1.5 | ± 2.5 | dB |
| Input Power for Rated PSAT | PIN | -3 | 0 | 6 | dBm |
| Harmonics @ Pin= 0 dBm | 2 nd | | 12 | 10 | dBc |
| Noise Figure(If Needed, Please Contact) | NF | | 12 | 14 | dB |
| Spurious Signals @Pin= 0dBm | Spur | | -65 | -60 | dBc |
| Input Return Loss | S11 | | | -10 | dB |
| Third Order Intercept Point 2-Tone @ 26dBm/Tone, 1MHz Spacing(If Needed, Please Contact) | IP3 | | 43 | | dBm |
| Operating Voltage | VDC | 24 | 28 | 30 | V |
| Current Consumption @ Pout= 10~15 W | IDD | | 3.5 | 4.5 | A |
| Current Quiescent ON/OFF | IDQ | | 2.2/0.1 | | A |
| Switching Time @ 1kHz TTL, PIN = 0dBm | TON/TOFF | | 1 | 2 | μs |

Note*¹: Frequency can be extended to 20GHz with delivered power degradation

MECHANICAL SPECIFICATIONS

| | |
|--|-------------|
| Cooling External Heat Sink Needed (Not Supplied) | |
| Length*Width*Height[mm] | 160*140*25 |
| Weight[Kg] | 1 |
| RF Connector Input | SMA, Female |
| RF Connector Output | SMA, Female |

Datasheet: REV A.3/09.04.2020

Unique Amplifier With Innovation

ENVIRONMENTAL SPECIFICATIONS (Design to Meet)

| | | | |
|------------------------------|-----|----|----|
| Module Operation Temperature | -40 | 80 | °C |
| Storage Temperature Range | -45 | 85 | °C |
| Relative-Humidity | N/A | | |
| Altitude | N/A | | |
| Vibration/Shock | N/A | | |

LIMITS

| | | |
|-------------------------------------|----------------------------------|-----|
| Input RF drive level without damage | $P_{in} \leq 12$ | dBm |
| Load VSWR @ POUT =8W | VSWR $\leq 5:1$ (Design to Meet) | N/A |
| Thermal Degradation | 90 | °C |

DC INTERFACE CONNECTOR – [D-sub,9 Pin, Male]

| Pin # | Description | Specifications |
|-------|----------------|---|
| 6,7 | GND | Ground along with 28V _{DC} |
| 8,9 | VDD | 28V _{DC} |
| 1 | CURRENT SENSOR | Analog voltage relative to I _{DD} @ 100mV per Ampere |
| 2 | TEMP SENSOR | 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 |

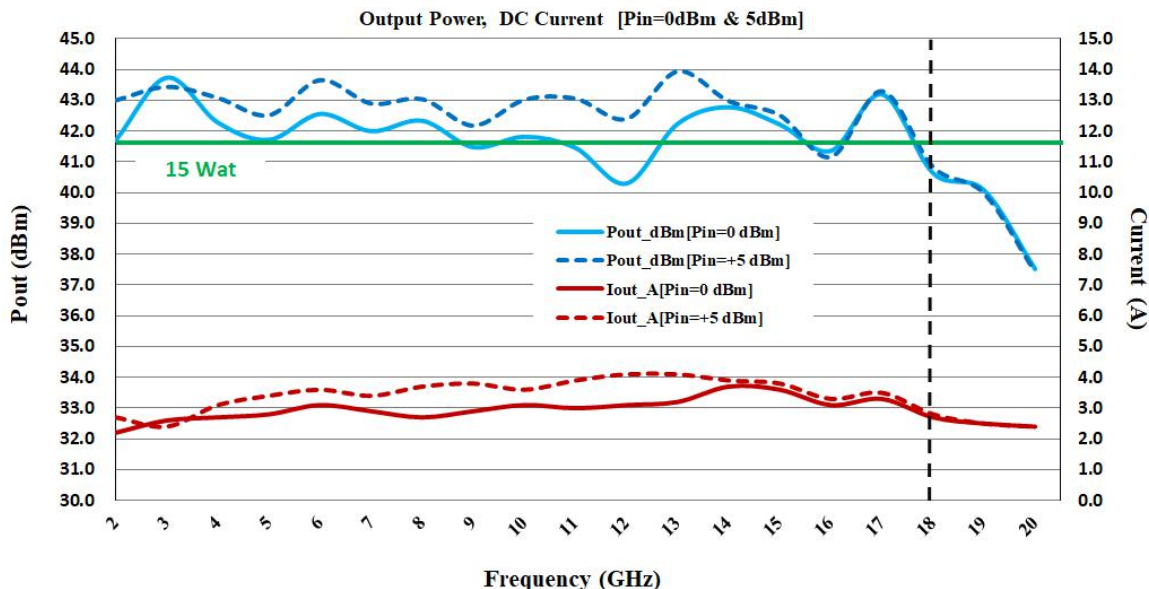
PLOTTED AND OTHER DATA

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 DATA –For Reference Only

Graph1: Output Power, DC Current @ Pin=0 & Pin=+5dBm (Ambient temp. +25±3°C, LOAD VSWR ≤ 1.3)



Graph2: Power Gain @ Pin=0 dBm (Ambient temp. +25±3°C, LOAD VSWR ≤ 1.3)



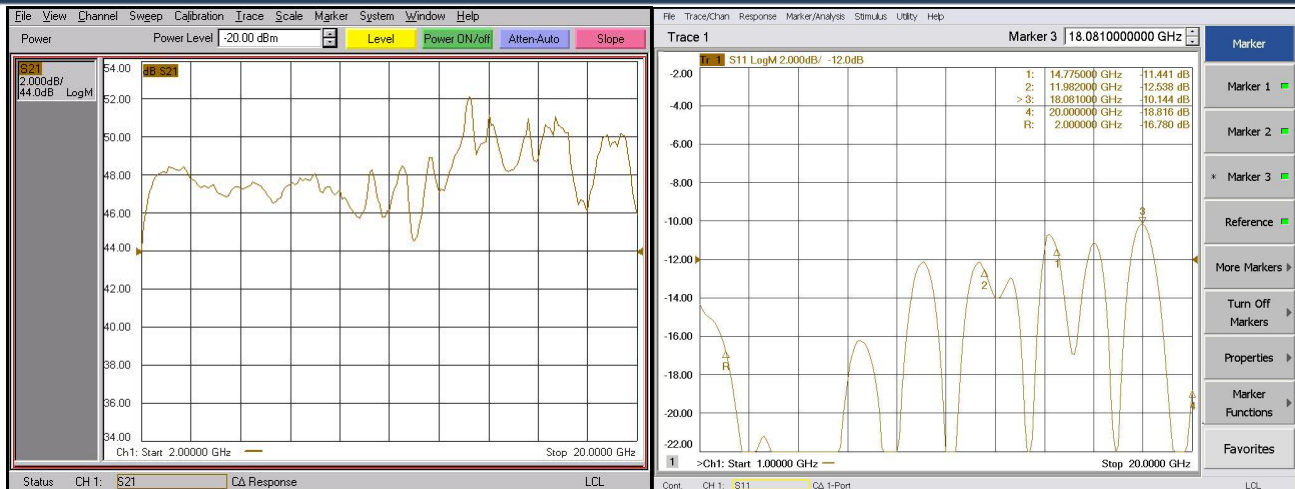


Figure left: Small signal gain @Pin=-20dBm (Ambient temp. +25±3°C, LOAD VSWR ≤ 1.3)

Figure Right: Input Return Loss@ Pin=0 dBm: (Ambient temp. +25±3°C, LOAD VSWR ≤ 1.3)



Figure left: Power Gain@ Pin=0 dBm (Ambient temp. -40±3°C)

Figure right: Power Gain@ Pin=0 dBm (Ambient temp. +80±3°C)

OUTLINE DRAWING (mm)

