

# Wideband Power Amplifier

## RWP1623200-20



### Product Features

- GaN on SiC Broadband High Power Amplifier
- 1600 ~ 2200MHz Operation Bandwidth
- Power Gain 53dB @ Pin 0dBm
- 200W Typical @ Pin 0dBm

### Applications

- Aerospace & Defense
- Military
- Electronic Warfare
- Radar
- SATCOM
- Communication
- EMI/RFI
- Jamming



### Description

The power amplifier module is designed for Broadcasting, Telecommunication, Medical and Other markets.

Operating frequency range is from 1600 ~ 2200MHz.

Gallium Nitride on SiC technology is used and attached on an aluminum sub carrier. Full in/out matching for broadband performance is already applied.

Improved thermal handling by patented technology.

### Electrical Specifications @ $V_{CC} = 50V$ ; $T_c = 45^\circ C$ ; $Z_S = Z_L = 50\Omega$

| PARAMETER                       | UNIT | MIN  | TYP       | MAX       | CONDITION         |
|---------------------------------|------|------|-----------|-----------|-------------------|
| Operating Frequency             | MHz  | 1600 | -         | 2200      | -                 |
| Power Gain @ Pin 0dBm           | dB   | 53   | 54        | -         | 1600~2200MHz      |
| Power Gain Flatness @ Pin 0dBm  | dBpp | -    | $\pm 1.0$ | $\pm 2.0$ | 1600~2200MHz      |
| Output Power @ Pin 0dBm         | dBm  | 53   | 54        | -         | 1600~2200MHz      |
| Input Return Loss               | dB   | -    | -9        | -5        | -                 |
| Supply Voltage                  | V    | -    | 50        | -         | $V_{CC}(=V_{ds})$ |
| Quiescent Current consumption   | A    | -    | 2.5       | 2.7       | -                 |
| Current Consumption @ Pin -3dBm | A    | -    | 10        | 12        | CW 1-tone         |

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### Absolute Maximum Ratings

| PARAMETER           | UNIT | RATING                |
|---------------------|------|-----------------------|
| Input RF Power      | dBm  | -5                    |
| Supply Voltage      | V    | 50                    |
| Load Mismatch Value | -    | 3 : 1 @all load phase |

\* Input Signal Condition : CW 1-Tone

### Environmental Characteristics

| PARAMETER                    | UNIT                              | MIN | TYP | MAX | SYMBOL           |
|------------------------------|-----------------------------------|-----|-----|-----|------------------|
| Operating Flange Temperature | °C                                | -10 | -   | 70  | T <sub>c</sub>   |
| Storage Temperature          | °C                                | -40 | -   | 105 | T <sub>stg</sub> |
| Vibration                    | MIL-STD-810G Method 514.6 ANNEX C |     |     |     | VI               |

### Mechanical Specifications

| PARAMETER    | UNIT | TYP                       |
|--------------|------|---------------------------|
| Dimension    | mm   | 218(L) x 109(W) x 28(H)   |
| Weight       | g    |                           |
| RF Connector | -    | RF Input : SMA Female     |
|              |      | RF Output : N-Type Female |
| DC Connector | -    | C7W2 / D-SUB / Male type  |
| Cooling      | -    | External Water Heat-sink  |

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### Typical Performance @ 45°C

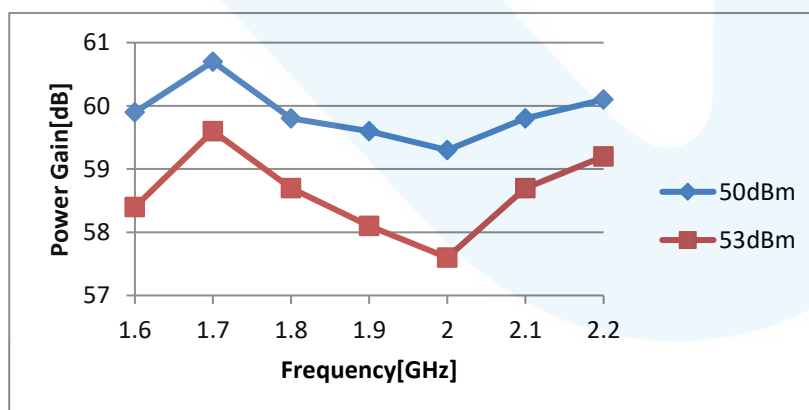
| Frequency | Gp   | Current | PAE | Harmonic             |                      |
|-----------|------|---------|-----|----------------------|----------------------|
|           |      |         |     | 2 <sup>nd</sup> Harm | 3 <sup>rd</sup> Harm |
| (MHz)     | (dB) | (A)     | (%) | (dBc)                | (dBm)                |
| 1600      | 59.9 | 6.92    | 28  | 55                   | 41                   |
| 1700      | 60.7 | 6.25    | 32  | 52                   | 45                   |
| 1800      | 59.8 | 6.18    | 32  | 46                   | 40                   |
| 1900      | 59.6 | 6.71    | 29  | 55                   | 49                   |
| 2000      | 59.3 | 7.21    | 27  | 53                   | 48                   |
| 2100      | 59.8 | 7.03    | 28  | 51                   | 53                   |
| 2200      | 60.1 | 6.54    | 30  | 54                   | 53                   |

\* Pout 50dBm

| Frequency | Gp   | Current | PAE | Harmonic             |                      |
|-----------|------|---------|-----|----------------------|----------------------|
|           |      |         |     | 2 <sup>nd</sup> Harm | 3 <sup>rd</sup> Harm |
| (MHz)     | (dB) | (A)     | (%) | (dBc)                | (dBm)                |
| 1600      | 58.4 | 10.17   | 39  | 46                   | 37                   |
| 1700      | 59.6 | 9.33    | 42  | 45                   | 43                   |
| 1800      | 58.7 | 9.35    | 42  | 42                   | 34                   |
| 1900      | 58.1 | 10.06   | 39  | 51                   | 46                   |
| 2000      | 57.6 | 10.83   | 37  | 47                   | 45                   |
| 2100      | 58.7 | 10.34   | 38  | 46                   | 42                   |
| 2200      | 59.2 | 9.79    | 40  | 48                   | 46                   |

\* Pout 53dBm

\* Spurious < 60dBc



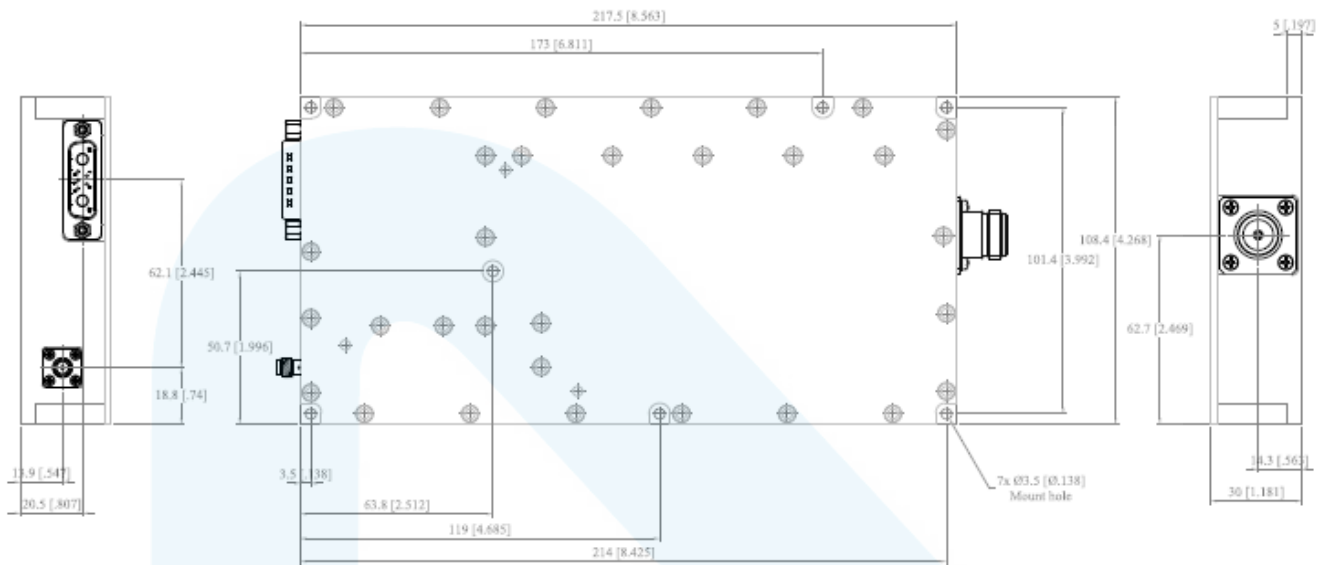
### Precautions

1. This product is designed to be used for broadband amplification. Heat generation is higher when there is RF signal in the device. Therefore, the worst case scenario is when there is RF signal.  
The temperature must be calculated properly.  
Case temperature must maintain below 70°C.
2. Thermal Grease or Metal Thermal Interface Materials are recommended for heat dissipation. An example would be spreading thermal grease on the bottom of the device.

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## Package Dimensions



| Pin Description ( C7W2 / D-SUB / Male type ) |                     |     |                                                                                                                                                                   |
|----------------------------------------------|---------------------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pin No                                       | Description         | I/O | Specifications                                                                                                                                                    |
| A1                                           | Vcc                 | I   | +50VDC                                                                                                                                                            |
| A2                                           | GND                 | I   | Ground                                                                                                                                                            |
| 1                                            | N.C                 | -   | -                                                                                                                                                                 |
| 2                                            | PA Enable           | I   | Enable : TTL "Low", Disable : TTL "High"<br>(Low : 0 ~ 1.0V, High : 4.0 ~ 5.0V)<br>Disable Status : 150mA Current consumption<br>(Turn ON Delay Time : 450mS Max) |
| 3                                            | GND                 | I   | Ground                                                                                                                                                            |
| 4                                            | N.C                 | -   | -                                                                                                                                                                 |
| 5                                            | Temperature Monitor | O   | Pout 53dBm Voltage : 900 ~ 1000mV                                                                                                                                 |

\* Recommended Screw Torque : 8.0kgf.cm ± 1 using SEMS M3 19mm Bolt

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### Revision History

| Part Number   | Release Date | Version | Modification                 | Data Sheet Status |
|---------------|--------------|---------|------------------------------|-------------------|
| RWP1623200-20 | 2026.03.27   | 0.1     | Initial release of datasheet | Preliminary       |
|               |              |         |                              |                   |
|               |              |         |                              |                   |
|               |              |         |                              |                   |
|               |              |         |                              |                   |



### Certification

This product is manufactured by a company that is certified for the AS9100D quality management system.

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