The MB013015G474728 is a 50W high gain Solid State Narrow band 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 satellite jamming and Satcom. The amplifier comes with an industry leading warranty.

## Features

13.5GHz-15.5GHz frequency range

Psat 47dBm type, 46.5dBm Min.

Power gain 47dB

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℃,DC Voltage= 28V, Load VSWR ≤ 1.2)

| Description | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Operating Frequency | BW | 13.5 | | 15.5 | GHz |
| Output Power CW@ Pin=0dBm | Psat | 45 | 50 | | W |
| Power Gain @ Pin=0dBm | Gp | 47 | 48 | | dB |
| Power Gain Flatness @ Pin=0dBm | ΔGp | | ±0.5 | ±1.0 | dB |
| Input Power for Rated PSAT | $P_{IN}$ | -3 | 0 | | dBm |
| Harmonics @ Pin=0dBm** | 2$^{nd}$ /3$^{rd}$ | | | -40 | dBc |
| Noise Figure | NF | | N/A | | dB |
| Spurious Signals@ Pin=0dBm | Spur | | | -60 | dBc |
| Input Return Loss | S11 | | | -10 | dB |
| Third Order Intercept Point*** 2-Tone @ 40dBm/Tone, 100kHz Spacing | IP3 | | N/A | | dBc |
| Operating Voltage | $V_{DC}$ | 26 | 28 | 30 | V |
| Current Consumption @ Pout= 45W~55W | IDD | | 8 | 9.5 | A |
| Switching Time @ 1kHz TTL, Pin=0dBm | $T_{ON}$/$T_{OFF}$ | | 2 | 3 | µs |

**Note**\*\*: 3$^{rd}$ harmonics is not tested.

**Note**\*\*\*: IP3 or IMD3 data, please contact sales engineer.

## MECHANICAL SPECIFICATIONS

Cooling External: Heat Sink Needed

Length∗Width∗Height: 170*165*25 mm

Weight: 2.6 Ib

RF Connector Input: SMA, Female

RF Connector Output: SMA, Female

**Elite RF LLC**
1700 Tower Dr, Hanover Park, IL 60133, USA
Call us for customer service/technical support at: 847-592-6350
Email: sales@eliterf.com Web: www.eliterfllc.com

Rev 1: 03/14/2024
Specifications subject to change, consult sales for latest information

## ENVIRONMENTAL SPECIFICATIONS (Design to Meet)

| | | | |
|---|---|---|---|
| Module Operation Temperature*1 | -20 | 65 | ℃ |
| Storage Temperature Range | -25 | 70 | ℃ |
| Relative-Humidity | N/A | | |
| Altitude*2 | N/A | | |
| Vibration/Shock*2 | N/A | | |

**Notes** *1**:** Module Operation Temperature can be extended to -45~80℃, Contact Sales for update.

**Notes** *1**:** Should Supply Adequate Heat Dissipation, Enough Fan and Heat-Sink is necessary during the Temp Test.

**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 =25W | VSWR≤5:1[Design To Meet] | N/A |
| Load VSWR @ POUT =50W | VSWR≤3:1[Design To Meet] | N/A |
| Thermal Degradation | 85°C Graceful Degradation | ℃ |

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

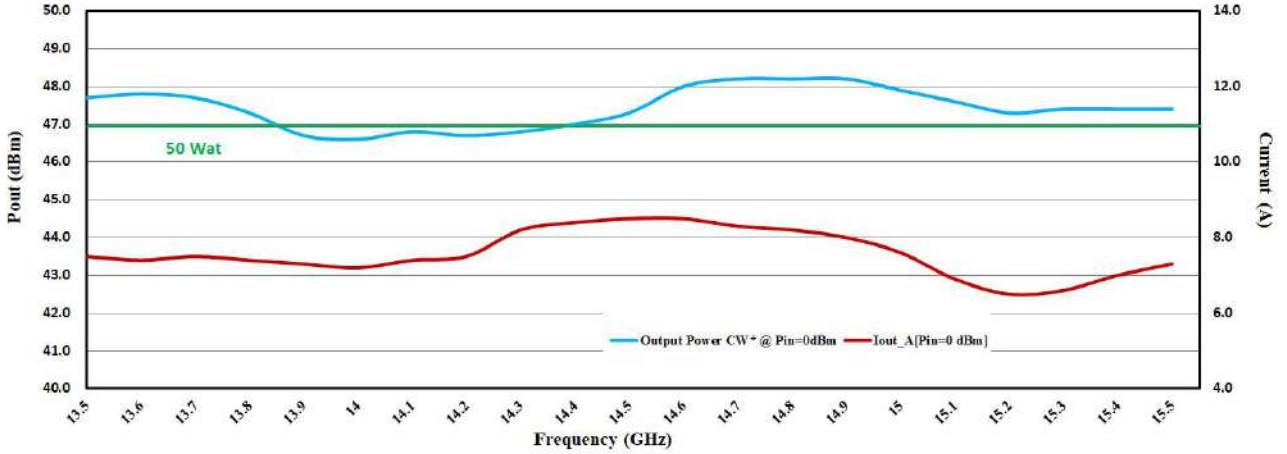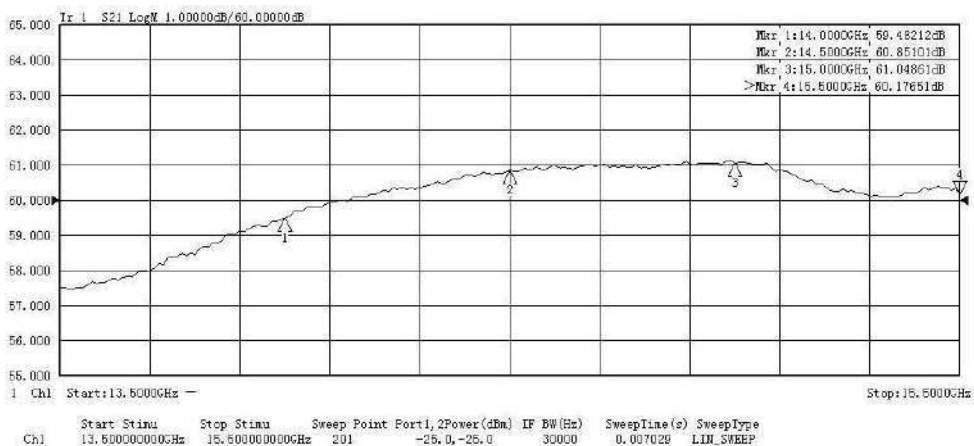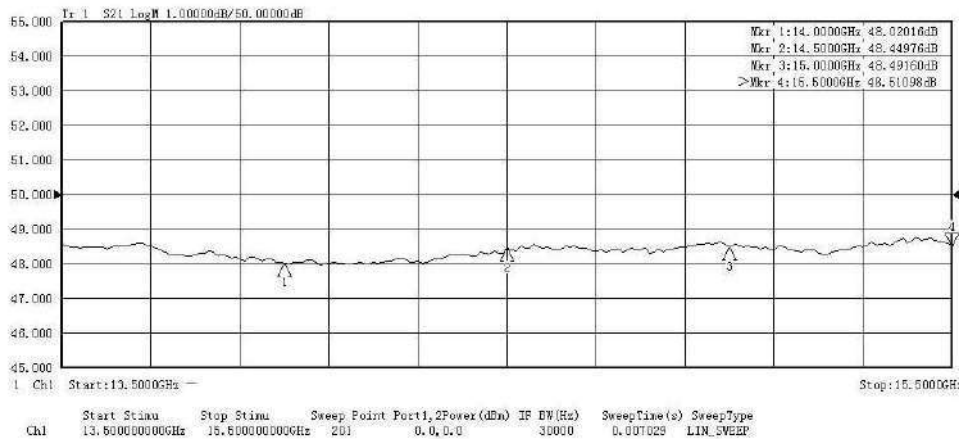| Pin # | Description | Specifications |
|---|---|---|
| A1 | GND | Ground |
| A2 | VDD | 28VDC |
| 1 | CURRENT SENSE | Analog voltage relative to IDD @ 100mV per Ampere |
| 2 | TEMP SENSE | Analog voltage relative to Module's Temperature @ 10 mV/°C |
| 3 | ENABLE | Amplifier Enable: TTL Logic High (3.3V)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

## PLOTTED AND OTHER DATA

Notes:

1. Values at +25℃，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.

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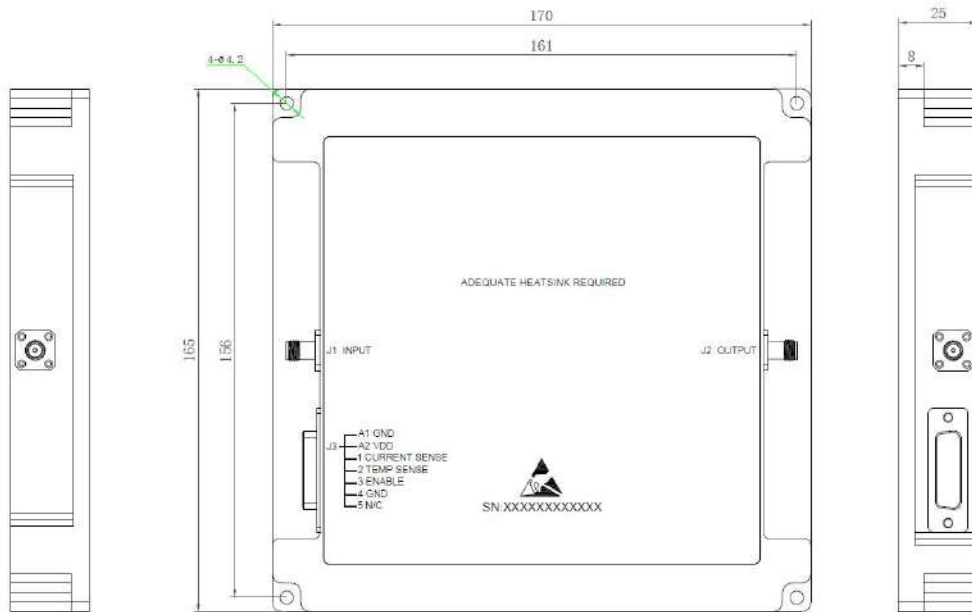**TYPICAL PERFORMANCE DATA [Volume Shipment product data for Reference]**

**Pout and Current [Pin=0dBm Load VSWR ≤ 1.2],    (Normal temp. +25±3℃)**



**S21@ Pin=0 dBm(figure up ), S11@Pin=-25dBm(figure down) : (Ambient temp. +25±3℃, DC Voltage= 28V, Load VSWR ≤ 1.2)**

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## OUTLINE DRAWING [mm]



## Side View [3D]