

**Product Features**

- Solid-state linear amplifier design
- GaN on SiC HEMT
- Small and light weight
- Wide Band Operation 500~2500MHz
- 50 Ohm Input/Output impedance matched
- Highly reliable and rugged design
- Harsh environmental condition
- High efficiency
- 10W typical Psat

**Application**

- Broadband communication
- Broadcasting
- General purpose RF amplifier
- Linear applications in the L/S Frequency Bands

**Description**

The RUP15010-10 is designed for RF system application frequencies from 500MHz to 2.5GHz.

This Pallet Amplifier uses GaN on SiC HEMT technology which performs high breakdown voltage, high linearity, wide bandwidth and high efficiency.

**Electrical Specifications @ VDD=+28VDC, T=25°C, 50Ω System**

| PARAMETER                         | Symbol           | Min | Typ   | Max     | Unit |
|-----------------------------------|------------------|-----|-------|---------|------|
| Frequency Range                   | BW               | 500 |       | 2500    | MHz  |
| Output Power CW                   | Psat             |     | 10    |         | Watt |
| Output Power @ P3dB G.C.P         | P <sub>3dB</sub> |     | 5     |         | Watt |
| Small Signal Gain                 | SSG              | 10  | 14    |         | dB   |
| Small Signal Gain Flatness        | ΔG               |     | ± 1.5 | ± 2.0   | dB   |
| Input VSWR                        | S11              |     |       | 8.5 : 1 | -    |
| Harmonics @ P1dB G.C.P            | H                |     |       | -10     | dBc  |
| Spurious Signals                  | Spur             |     | -70   | -60     | dBc  |
| Operating Voltage                 | VDC              | 27  | 28    | 30      | Volt |
| Supply Current @ P <sub>sat</sub> | IDD              |     | 1.0   | 1.5     | Amp  |
| Supply Current @ P <sub>3dB</sub> | IDD              |     | 0.7   | 1.0     | Amp  |

\* Please DO NOT ENTER RF INPUT POWER OVER +37dBm. (to prevent the main from damaging)

**Environmental Characteristics**

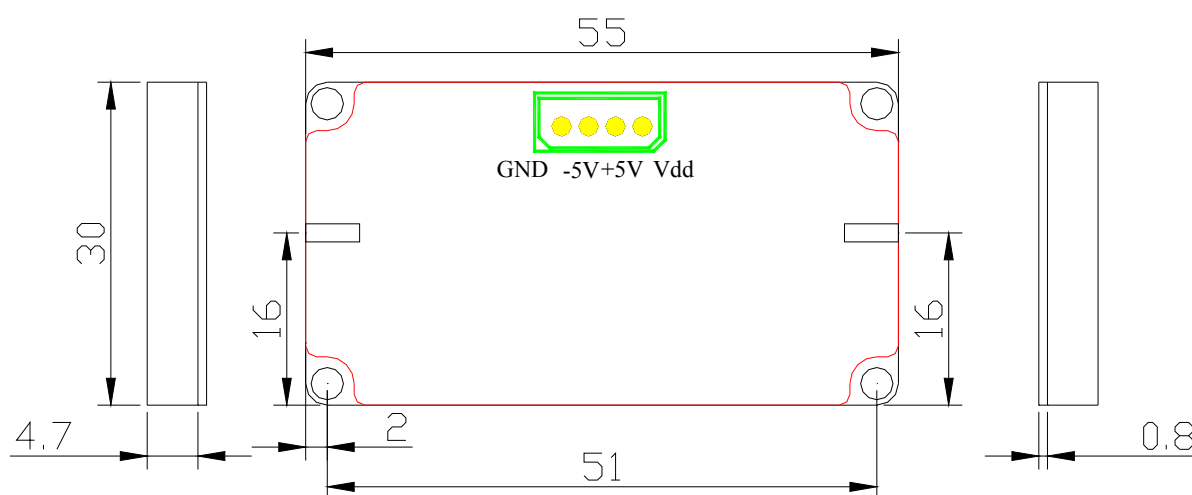
| PARAMETER                  | Symbol         | Min | Typ | Max | Unit |
|----------------------------|----------------|-----|-----|-----|------|
| Operating Case Temperature | T <sub>c</sub> | 0   |     | +70 | °C   |
| Storage Temperature        | T <sub>s</sub> | -40 |     | +85 | °C   |

**Mechanical Specifications**

| PARAMETER                | Value                        | Units | Limits |
|--------------------------|------------------------------|-------|--------|
| Dimensions ( L x W x H ) | 55.0 x 30.0 x 16.0           | mm    | Max    |
| RF Connectors In/Out     | SMA Female                   |       |        |
| Cooling                  | External Heat sink + airflow |       |        |

**Interface Connectors**

| Pin # | Description | Specifications             |
|-------|-------------|----------------------------|
| 1     | Vdd.        | +28 Drain Voltage          |
| 2     | Ref.        | +5V Op-Amp Operate Voltage |
| 3     | Vgs.        | -5V Gate Voltage           |
| 4     | GND.        | Ground                     |

**Outline Drawing**

Typical Performance Chart @ 25°C

| RFHIC RUP15010-10 Test Result |                                      |                  |                |                   |                                        |                  |                |                   |
|-------------------------------|--------------------------------------|------------------|----------------|-------------------|----------------------------------------|------------------|----------------|-------------------|
|                               | P3 Output Power, Current, Efficiency |                  |                |                   | Psat Output Power, Current, Efficiency |                  |                |                   |
| Freq.<br>[MHz]                | Output<br>[dBm]                      | Output<br>[Watt] | Current<br>[A] | Efficiency<br>[%] | Output<br>[dBm]                        | Output<br>[Watt] | Current<br>[A] | Efficiency<br>[%] |
| 500                           | 39.83                                | 9.62             | 0.54           | 61.83             | 41.05                                  | 12.74            | 0.62           | 63.23             |
| 600                           | 39.66                                | 9.25             | 0.55           | 55.76             | 40.42                                  | 11.02            | 0.57           | 56.31             |
| 700                           | 39.86                                | 9.68             | 0.58           | 58.67             | 40.60                                  | 11.48            | 0.60           | 65.41             |
| 800                           | 38.96                                | 7.87             | 0.60           | 45.43             | 42.10                                  | 16.22            | 0.97           | 44.51             |
| 900                           | 39.82                                | 9.59             | 0.69           | 46.58             | 41.19                                  | 13.15            | 0.77           | 41.84             |
| 1000                          | 40.43                                | 11.04            | 0.73           | 52.99             | 41.31                                  | 13.52            | 0.79           | 56.40             |
| 1100                          | 37.81                                | 6.04             | 0.61           | 34.08             | 42.09                                  | 16.18            | 1.04           | 38.16             |
| 1200                          | 36.87                                | 4.86             | 0.64           | 25.52             | 41.04                                  | 12.71            | 1.06           | 35.28             |
| 1300                          | 38.98                                | 7.91             | 0.74           | 37.47             | 41.07                                  | 12.79            | 0.90           | 48.51             |
| 1400                          | 35.97                                | 3.95             | 0.58           | 23.54             | 41.95                                  | 15.67            | 1.11           | 43.87             |
| 1500                          | 36.78                                | 4.76             | 0.65           | 24.79             | 42.83                                  | 19.19            | 1.46           | 33.83             |
| 1600                          | 37.73                                | 5.93             | 0.70           | 29.51             | 41.88                                  | 15.42            | 1.20           | 41.66             |
| 1700                          | 37.7                                 | 5.89             | 0.64           | 31.81             | 42.46                                  | 17.62            | 1.11           | 47.60             |
| 1800                          | 39.8                                 | 9.55             | 0.79           | 41.63             | 42.62                                  | 18.28            | 1.09           | 51.28             |
| 1900                          | 40.94                                | 12.42            | 0.85           | 50.96             | 42.37                                  | 17.26            | 1.02           | 56.45             |
| 2000                          | 40.75                                | 11.89            | 0.80           | 51.38             | 42.09                                  | 16.18            | 0.91           | 56.16             |
| 2100                          | 40.84                                | 12.13            | 0.83           | 50.78             | 41.58                                  | 14.39            | 0.88           | 53.07             |
| 2200                          | 40.81                                | 12.05            | 0.78           | 53.97             | 41.76                                  | 15.00            | 0.79           | 61.82             |
| 2300                          | 40.78                                | 11.97            | 0.76           | 54.48             | 41.50                                  | 14.13            | 0.73           | 59.98             |
| 2400                          | 40.79                                | 11.99            | 0.74           | 55.84             | 41.08                                  | 12.82            | 0.73           | 58.57             |
| 2500                          | 41.39                                | 13.77            | 0.74           | 63.98             | 41.26                                  | 13.37            | 0.71           | 63.12             |

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Typical Performance Chart @ 25°C

