

## Product Features

5.7-7.7GHz(C band)

110W CW @28V, 140W CW@32V

30% Drain Efficiency@28V

50ohm in and out, 40\*40mm, screw down

Linear or saturated use

Device used: NL7508HS\*2

## Applications

5G Power amplifier

C band Satcom

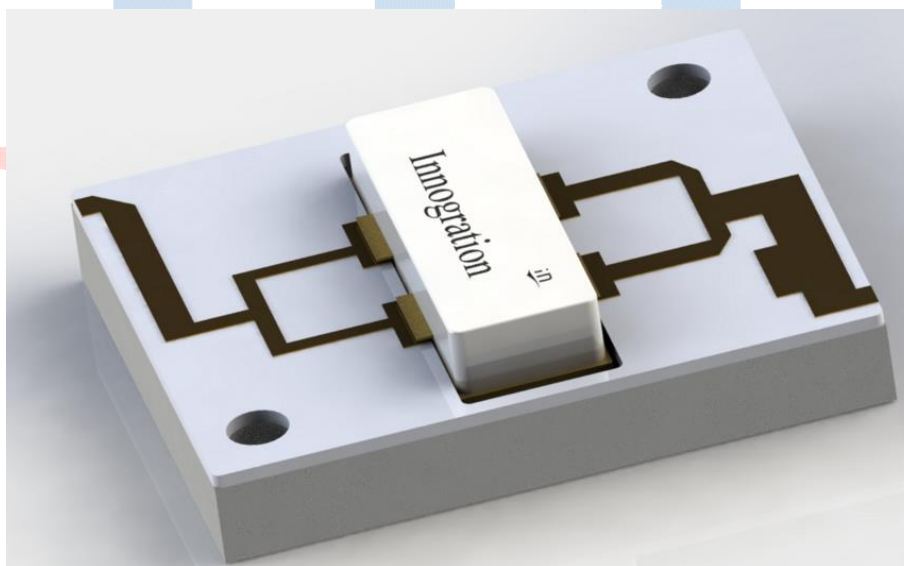
ISM

Point to point

Radio link

## Description

The GMPA5777-100H is designed for 5G or satcom, test and measurement and other ISM applications at 5700-7700MHz. This Amplifier pallet is suitable for use in linear and saturated applications. Featured by its tiny size 40\*40mm, and 50ohm fully matched at input and output, drop-in placement by screwing it down and 100% RF test, it enables easier power combination to reach higher power with high production yield as part of customer's power amplifier system.



**Electrical Specifications @VCC=28V, T=25°C, 50Ωsystem**

| PARAMETER             | UNIT | MIN  | TYP   | MAX  | SYMBOL          |
|-----------------------|------|------|-------|------|-----------------|
| Operating Frequency   | MHz  | 5700 | -     | 7700 | fo              |
| Operating Bandwidth   | MHz  | 2000 |       | -    | OBW             |
| Pulse CW Output Power | W    | 100  | 110   | -    | Pout            |
| Power Gain            | dB   |      | 5.5   | -    | G <sub>P</sub>  |
| Gain Flatness         | dB   | -    | ±0.75 | -    | G <sub>F</sub>  |
| Input Return Loss     | dB   | -    | -     | -10  | S <sub>11</sub> |
| Operating Voltage     | V    | -    | 28    | 36   | V <sub>DS</sub> |
| Quiescent Current     | mA   | -    | 100   | -    | I <sub>DQ</sub> |
| Efficiency@Psat       | %    | 30   |       | -    | Eff             |

**Environmental Characteristics**

| PARAMETER                          | UNIT | MIN | TYP | MAX | SYMBOL |
|------------------------------------|------|-----|-----|-----|--------|
| Operating Case Temperature         | °C   | -20 | -   | 85  | Ta     |
| Storage Temperature                | °C   | -40 |     | 100 | Tstg   |
| Relative humidity w/o condensation | %    | -   | -   | 95  | RH     |

**Mechanical Specifications**

| PARAMETER             | UNIT | VALUE                               |
|-----------------------|------|-------------------------------------|
| Dimensions(L × W × H) | mm   | 40×40×6 (including device soldered) |
| Weight                | g    | 100                                 |
| RF Input Connector    | -    | N/A                                 |
| RF Output Connector   | -    | N/A                                 |
| Cooling               | -    | External Heat-sink                  |

## Typical performance

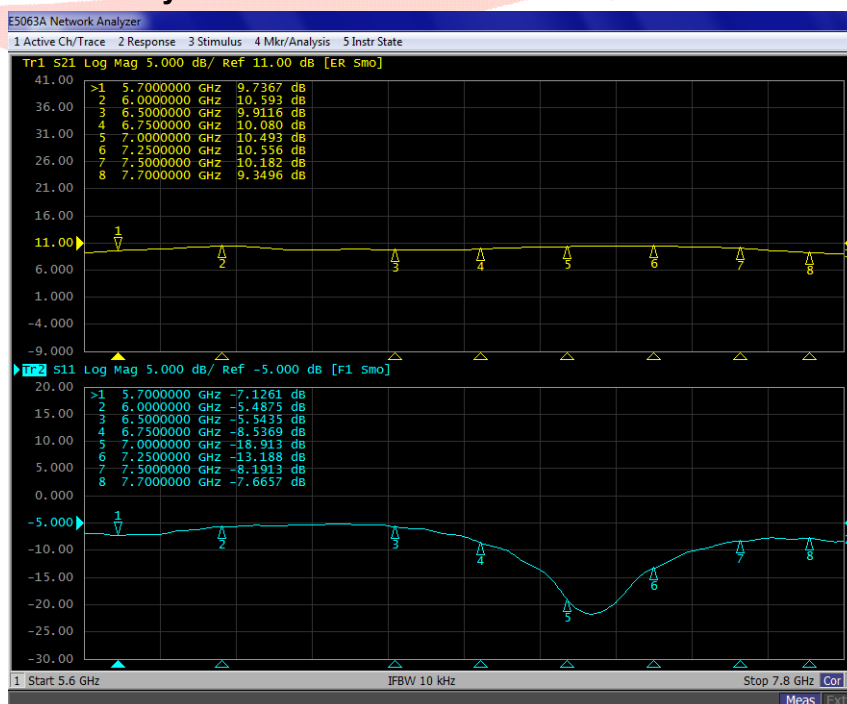
- CW performance:  $V_{ds}=+28V$ ,  $I_{DQ}=100mA$ ,  $T=25^{\circ}C$

| Freq(MHz) | Pin(dBm) | Psat(dBm) | Psat(W) | Ids(A) | Gain(dB) | Eff(%) |
|-----------|----------|-----------|---------|--------|----------|--------|
| 5700      | 45.2     | 51.2      | 130.9   | 10.00  | 6.0      | 46.8   |
| 5800      | 45.3     | 51.4      | 138.0   | 10.30  | 6.1      | 47.9   |
| 5900      | 45.6     | 51.6      | 144.5   | 10.90  | 6.0      | 47.4   |
| 6000      | 45.5     | 51.5      | 139.6   | 10.87  | 6.0      | 45.9   |
| 6100      | 45.6     | 51.0      | 124.5   | 10.60  | 5.4      | 41.9   |
| 6200      | 45.4     | 50.8      | 118.9   | 11.10  | 5.4      | 38.2   |
| 6300      | 45.5     | 51.1      | 127.4   | 11.50  | 5.6      | 39.5   |
| 6400      | 45.6     | 51.2      | 130.3   | 11.55  | 5.6      | 40.3   |
| 6500      | 45.4     | 51.0      | 125.9   | 11.70  | 5.7      | 38.4   |
| 6600      | 45.3     | 51.0      | 124.5   | 11.90  | 5.7      | 37.4   |
| 6700      | 45.4     | 51.2      | 130.3   | 12.82  | 5.8      | 36.3   |
| 6800      | 45.6     | 51.1      | 127.4   | 13.70  | 5.5      | 33.2   |
| 6900      | 45.5     | 51.3      | 133.4   | 14.00  | 5.8      | 34.0   |
| 7000      | 45.3     | 51.6      | 144.5   | 14.60  | 6.4      | 35.4   |
| 7100      | 45.3     | 51.9      | 153.1   | 14.75  | 6.6      | 37.1   |
| 7200      | 45.5     | 52.0      | 158.5   | 14.70  | 6.5      | 38.5   |
| 7300      | 45.7     | 51.9      | 154.9   | 14.50  | 6.2      | 38.1   |
| 7400      | 45.6     | 51.8      | 151.4   | 14.20  | 6.2      | 38.1   |
| 7500      | 45.5     | 51.4      | 138.0   | 13.50  | 5.9      | 36.5   |
| 7600      | 45.6     | 50.9      | 123.0   | 13.10  | 5.3      | 33.5   |
| 7700      | 45.7     | 50.5      | 112.2   | 12.80  | 4.8      | 31.3   |

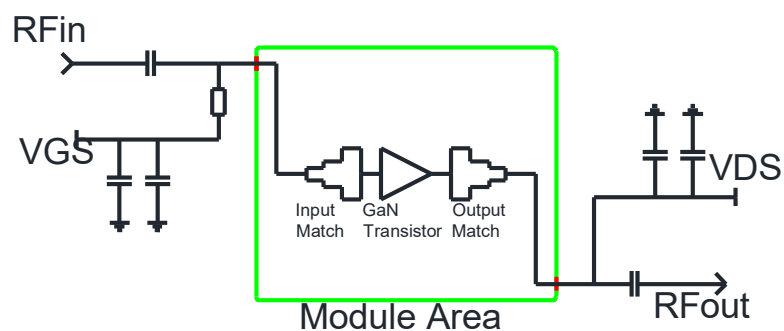
- CW performance:  $V_{ds}=+28V$ ,  $IDQ=100mA$ ,  $T=25^{\circ}C$

| Freq(MHz) | Pin(dBm) | Psat(dBm) | Psat(W) | Ids(A) | Gain(dB) | Eff(%) |
|-----------|----------|-----------|---------|--------|----------|--------|
| 5700      | 45.2     | 51.2      | 130.9   | 10.00  | 6.0      | 46.8   |
| 5800      | 45.3     | 51.4      | 138.0   | 10.30  | 6.1      | 47.9   |
| 5900      | 45.6     | 51.6      | 144.5   | 10.90  | 6.0      | 47.4   |
| 6000      | 45.5     | 51.5      | 139.6   | 10.87  | 6.0      | 45.9   |
| 6100      | 45.6     | 51.0      | 124.5   | 10.60  | 5.4      | 41.9   |
| 6200      | 45.4     | 50.8      | 118.9   | 11.10  | 5.4      | 38.2   |
| 6300      | 45.5     | 51.1      | 127.4   | 11.50  | 5.6      | 39.5   |
| 6400      | 45.6     | 51.2      | 130.3   | 11.55  | 5.6      | 40.3   |
| 6500      | 45.4     | 51.0      | 125.9   | 11.70  | 5.7      | 38.4   |
| 6600      | 45.3     | 51.0      | 124.5   | 11.90  | 5.7      | 37.4   |
| 6700      | 45.4     | 51.2      | 130.3   | 12.82  | 5.8      | 36.3   |
| 6800      | 45.6     | 51.1      | 127.4   | 13.70  | 5.5      | 33.2   |
| 6900      | 45.5     | 51.3      | 133.4   | 14.00  | 5.8      | 34.0   |
| 7000      | 45.3     | 51.6      | 144.5   | 14.60  | 6.4      | 35.4   |
| 7100      | 45.3     | 51.9      | 153.1   | 14.75  | 6.6      | 37.1   |
| 7200      | 45.5     | 52.0      | 158.5   | 14.70  | 6.5      | 38.5   |
| 7300      | 45.7     | 51.9      | 154.9   | 14.50  | 6.2      | 38.1   |
| 7400      | 45.6     | 51.8      | 151.4   | 14.20  | 6.2      | 38.1   |
| 7500      | 45.5     | 51.4      | 138.0   | 13.50  | 5.9      | 36.5   |
| 7600      | 45.6     | 50.9      | 123.0   | 13.10  | 5.3      | 33.5   |
| 7700      | 45.7     | 50.5      | 112.2   | 12.80  | 4.8      | 31.3   |

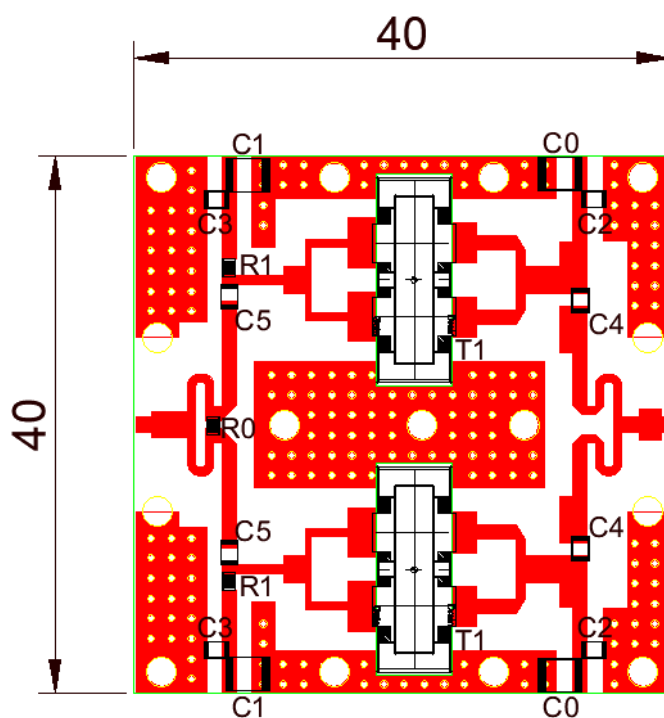
- S21/S11 from network analyzer  $V_{DS}=28V$   $V_{GS}=-3.23V$   $IDQ=800mA$



## Evaluation board Block Diagram



## Evaluation board outline

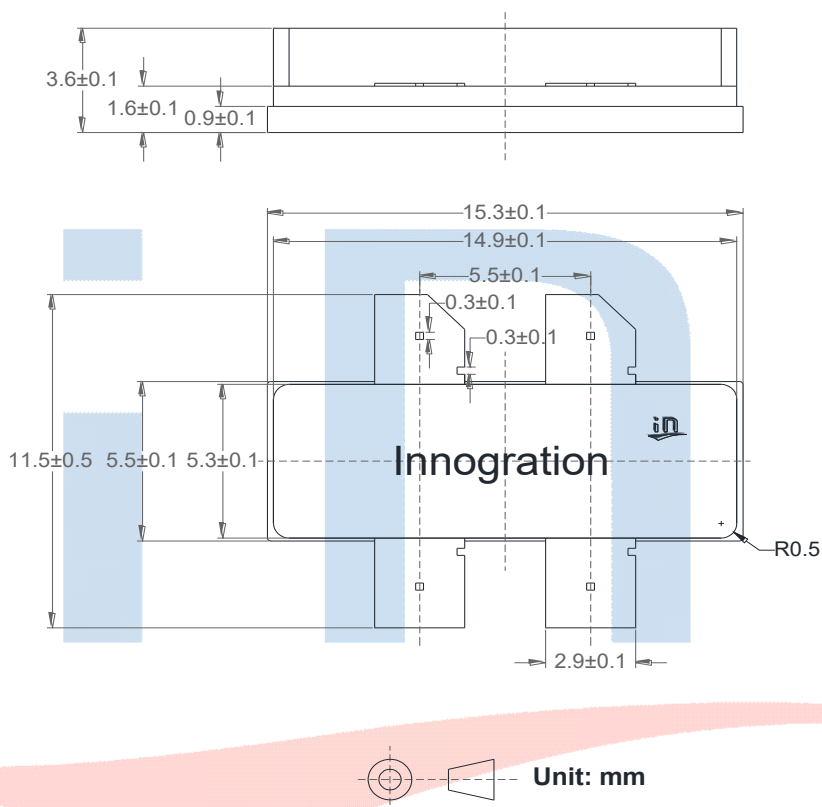


| Reference Designator | Description         | Quantity |
|----------------------|---------------------|----------|
| C0, C1               | 10uF/100V, 1210     | 4        |
| C2, C3, C4, C5       | 2.4 pF, 0805        | 8        |
| T1                   | NL7508HS            | 2        |
| R0                   | 100 $\Omega$ , 0603 | 1        |
| R1                   | 10 $\Omega$ , 0603  | 2        |
| PCB                  | Rogers TC350, 20mil |          |

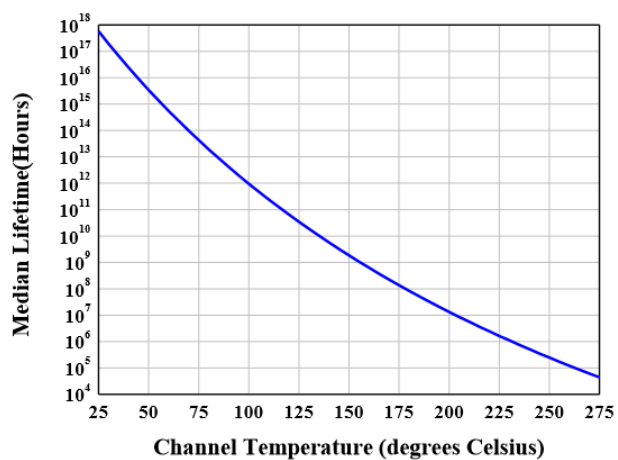
**Transistor information: NL7508HS**



**Earless Flanged Ceramic Package; 4 leads**



**Figure 2: Median Lifetime vs. Channel Temperature of NL7508HS**





**Revision History**

Document revision history

| Date      | Revision | Datasheet Status      |
|-----------|----------|-----------------------|
| 2025/9/30 | Rev 1.0  | Preliminary Datasheet |
|           |          |                       |
|           |          |                       |

Application data based on RXT-25-30



**Disclaimers**

Specifications are subject to change without notice. Innograti**on** believes the information contained within this data sheet to be accurate and reliable. However, no responsibility is assumed by Innograti**on** for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Innograti**on** . Innograti**on** makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose.“Typical” parameters are the average values expected by Innograti**on** in large quantities and are provided for information purposes only. These values can and do vary in different applications and actual performance can vary over time. All operating parameters should be validated by customer’s technical experts for each application. Innograti**on** products are not designed, intended or authorized for use as components in applications intended for surgical implant into the body or to support or sustain life, in applications in which the failure of the Innograti**on** product could result in personal injury or death or in applications for planning, construction, maintenance or direct operation of a nuclear facility. For any concerns or questions related to terms or conditions, pls check with Innograti**on** and authorized distributors

Copyright © by Innograti**on** (Suzhou) Co.,Ltd.