## Performance Features:

- Frequency band: 5~20GHz
- Gain: 23dB
- Output P1dB: 18.5dBm
- Saturated output power: 20dBm
- Output IP3:32dBm
- Input/output return loss: 18dB/11dB
- Power supply: +5V@105mA
- Package size: 3×3mm

***Functional Diagram***

## Product Description:

CW451SP3is a GaAs MMIC driver amplifier chip with a frequency range covering 5~20GHz and an output P1dB of 18.5dBm over the entire band.

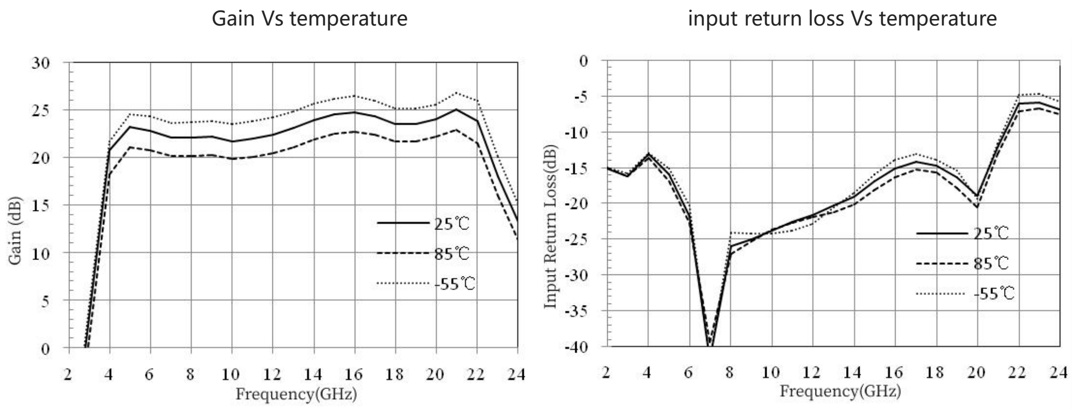
## Electrical parameters:( $T_A$=25℃，VD=+5V)

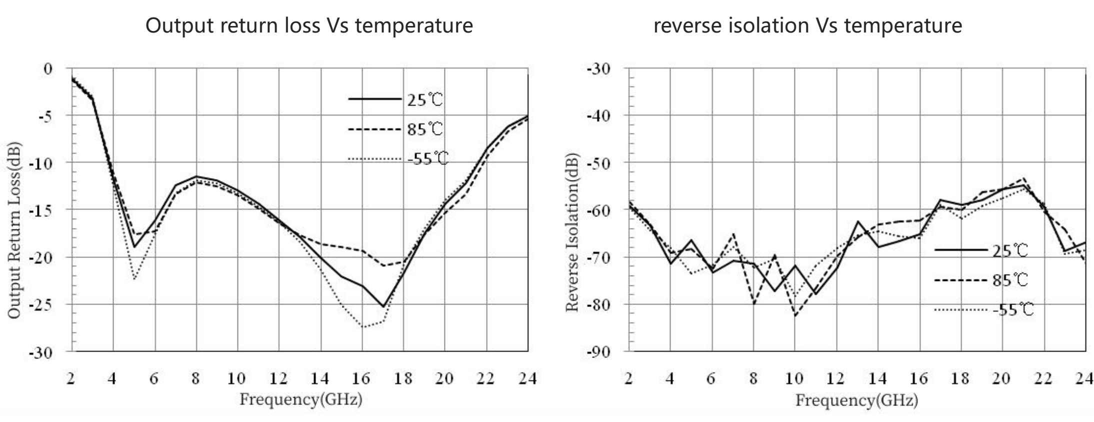
| Index | Minimum | Typical value | Maximum value | Units |
|---|---|---|---|---|
| Frequency range | | 5~20 | | GHz |
| Gain | 22 | 23 | 25 | dB |
| Output P1dB | 18.5 | - | - | dBm |
| Saturated output power | 20 | - | - | dBm |
| Output IP3 | 32 | - | - | dBm |
| Input return loss | - | 18 | - | dB |
| Output return loss | - | 11 | - | dB |

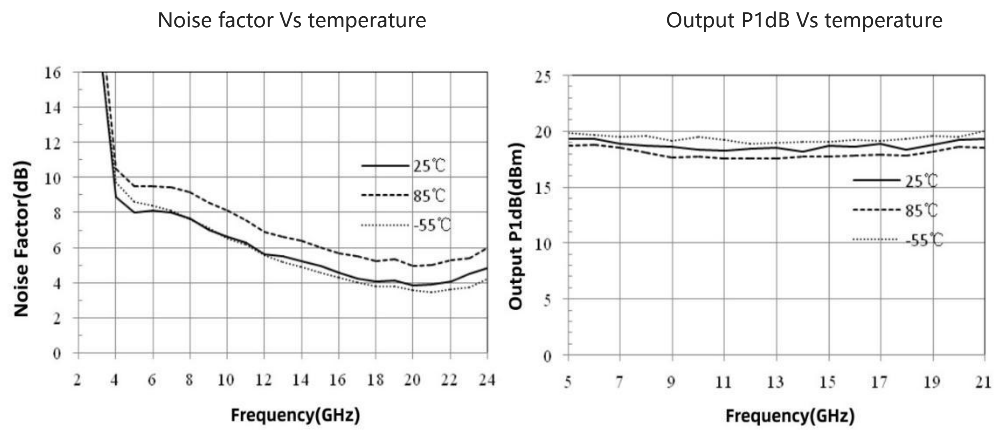
**Use limit parameters:** (Exceeding any of the above maximum limits risks permanent damage.)

| | |
|---|---|
| Input power | +10dBm |
| Voltage | +6V |
| Storage temperature | -65℃~150℃ |
| Service temperature | -55℃~125℃ |

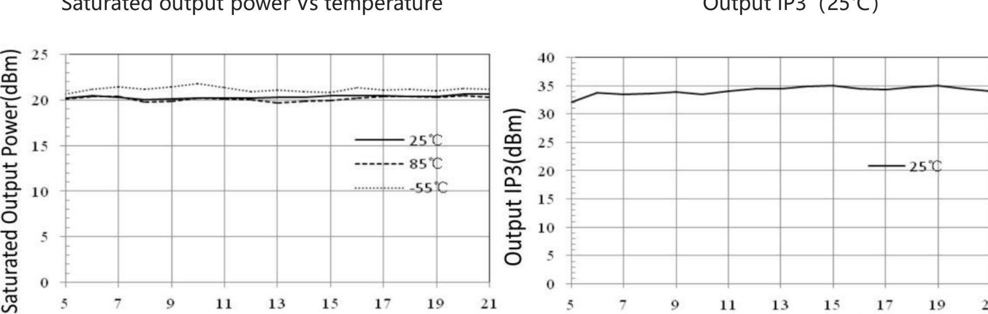
**Typical curve:**



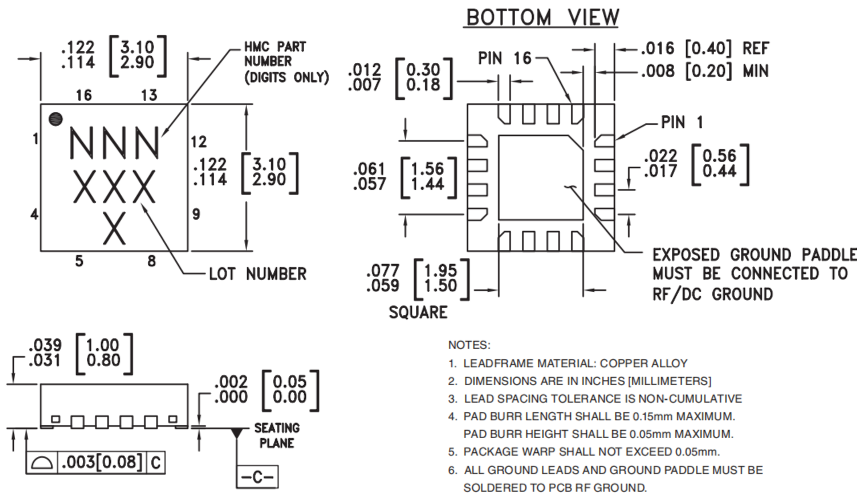



Saturated output power Vs temperature　　　　　　Output IP3（25℃）




***Outline Drawing***



## Pin Descriptions

| Pin Number | Function | Description | Interface Schematic |
|---|---|---|---|
| 1, 2, 4 - 9, 11, 12, 14, 16 | N/C | This pin may be connected to RF/DC ground. Performance will not be affected. | |
| 3 | RFIN | This pin is AC coupled and matched to 50 Ohms. | RFIN |
| 10 | RFOUT | This pin is AC coupled and matched to 50 Ohms. | RFOUT |
| 13 | Vdd2 | Power Supply Voltage for the amplifier. External bypass capacitors of 100 pF, 1,000 pF and 2.2 μF are required. | Vdd2 |
| 15 | Vdd1 | Power Supply Voltage for the amplifier. External bypass capacitors of 100 pF, 1,000 pF and 2.2 μF are required. | Vdd1 |
| | GND | Package bottom must be connected to RF/DC ground. | GND |

### Instructions:

**Note:** I/O has straight capacitance

**Storage:** The chip must be placed in a container with electrostatic protection and stored in a nitrogen environment.

**Cleaning treatment:** The bare chip must be operated and used in a purified environment. It is forbidden to use liquid cleaning agent to clean the chip.

**Electrostatic protection:** Strictly comply with the ESD protection requirements to avoid electrostatic damage to the components.

**General operation:** Use vacuum chuck or precision pointed tweezers to pick up the chip.Avoid touching the surface of the chip with tools or fingers during handling.

**Mounting operation:** The chip can be installed using AuSn solder eutectic welding or conductive adhesive bonding process.The mounting surface must be clean and flat.

**Bonding operation:** Input and output with 2 (recommended diameter of 25um gold wire) bonding wire, bonding wire length less than 250um is optimal.It is recommended to use the smallest possible ultrasonic energy.Bonding begins at the pressure point on the chip and ends at the package (or substrate).