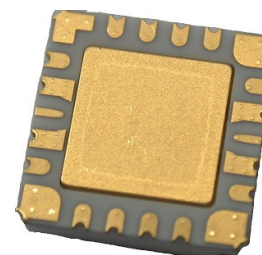


## **27 – 29.5 GHz 2W PA MMIC(Package Form)**

### **FEATURES**

- Psat : +33.0dBm
- P1dB : +32.5dBm
- IMD3 : +41.0dBc @ Pscl +20dBm
- Small Signal Gain: 13.0dB
- Bias Condition: 1800mA @ +6V



### **APPLICATIONS**

- New 5G Radio Link
- VSAT
- Sat-Com
- Point-to-Point Radio

### **DESCRIPTION**

The TC5285P is a two-stages PHEMT high power amplifier package form MMIC that operates from 27 to 29.5 GHz. The amplifier provides a typical 13 dB of gain and delivers +33 dBm of Pout. The MMIC is fabricated using Transcom's proprietary matured GaAs PHEMT process. The process features full passivation for increased performance and reliability. All devices are 100 % DC tested to assure consistent quality. Bond pads are gold plated for either thermocompression or thermosonic wire bonding. Backside gold plating is compatible with standard AuSn die-attach.

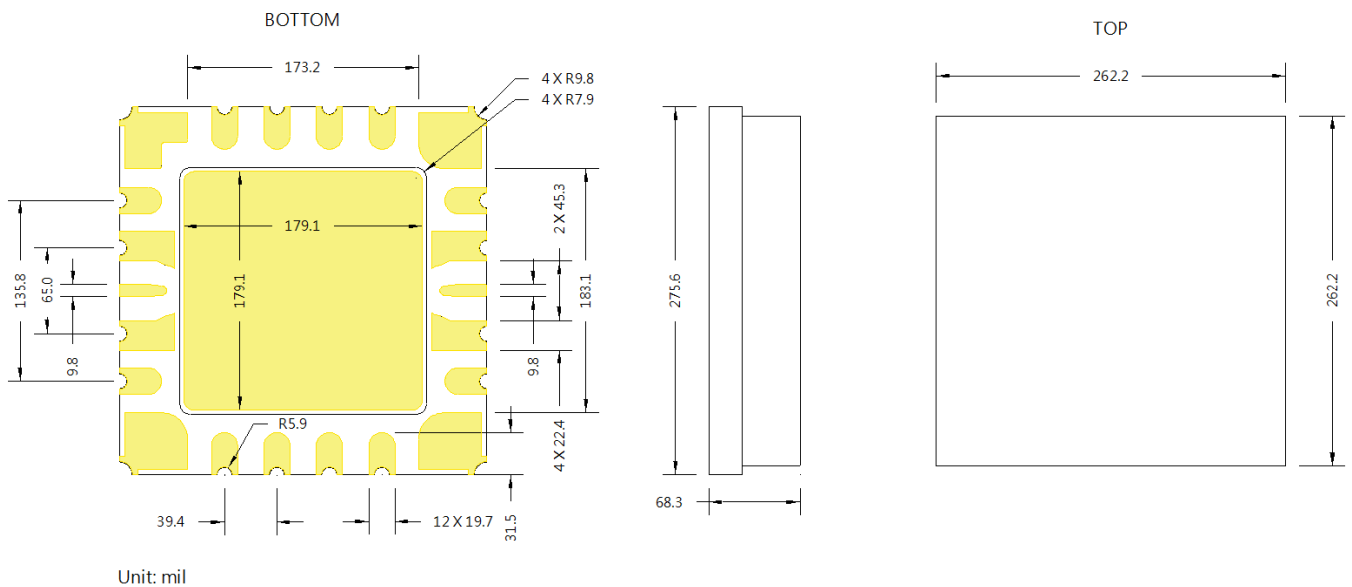
### **ELECTRICAL SPECIFICATIONS (Ta = 25 °C)**

| SYMBOL           | DESCRIPTION  | MIN | TYP   | MAX  | UNITS |
|------------------|--|-----|-------|------|-------|
| <b>FREQ</b>      | Frequency Range  | 27  |       | 29.5 | GHz   |
| <b>SSG</b>       | Small Signal Gain  |     | 13    |      | dB    |
| <b>Psat</b>      | Saturation Output Power  |     | 33.0  |      | dBm   |
| <b>P1dB</b>      | 1dB Compression Output Power   |     | 32.5  |      | dBm   |
| <b>IMD3</b>      | The Third Intermodulation level at Pout +20dBm/tone, $\Delta f=20\text{MHz}$ |     | 41.0  |      | dBc   |
| <b>I.L., IN</b>  | Input Return Loss  |     | 8     |      | dB    |
| <b>I.L., OUT</b> | Output Return Loss   |     | 10    |      | dB    |
| <b>VDD</b>       | Supply Voltage   |     | +6    |      | Volt  |
| <b>IDQ</b>       | Current Supply Without RF  |     | 1,800 |      | mA    |
| <b>IDRF</b>      | Current Supply @ Pout  |     | 2,150 |      | mA    |

## ABSOLUTE MAXIMUM RATINGS

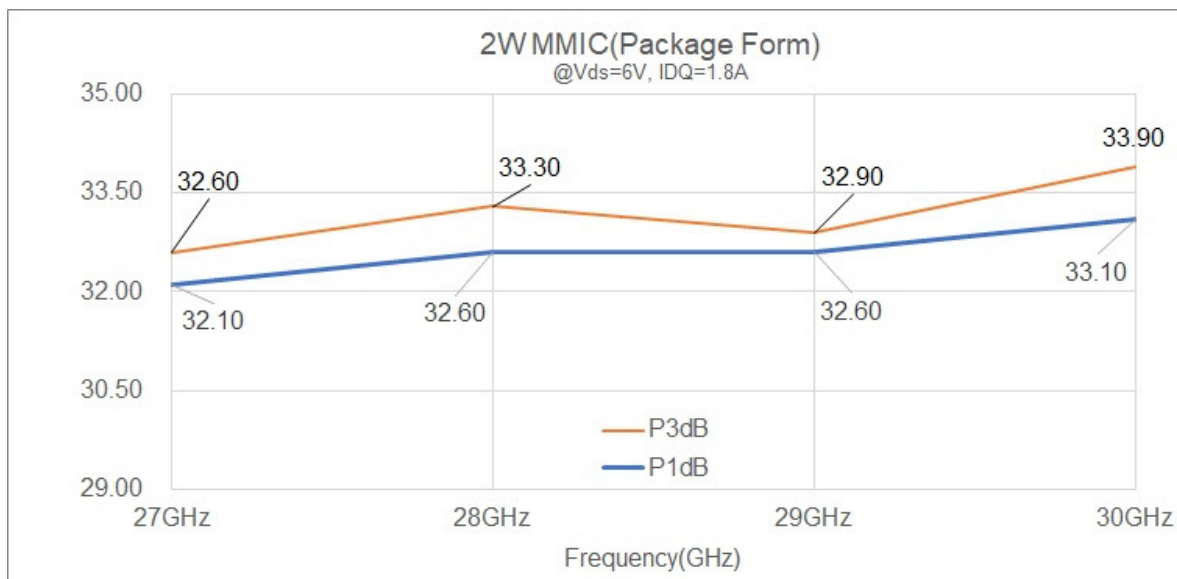
| Symbol           | Parameter              | Rating             |
|------------------|------------------------|--------------------|
| V <sub>DS</sub>  | Drain-Source Voltage   | 7.0 V              |
| I <sub>D</sub>   | Drain Current          | 2.5 A              |
| P <sub>T</sub>   | Continuous Dissipation | 18 W               |
| P <sub>in</sub>  | Input Power, CW        | +25 dBm            |
| T <sub>ch</sub>  | Channel Temperature    | +175               |
| T <sub>STG</sub> | Storage Temperature    | - 50 °C to +150 °C |

### PHYSICAL DIMENSIONS (unit : mil)

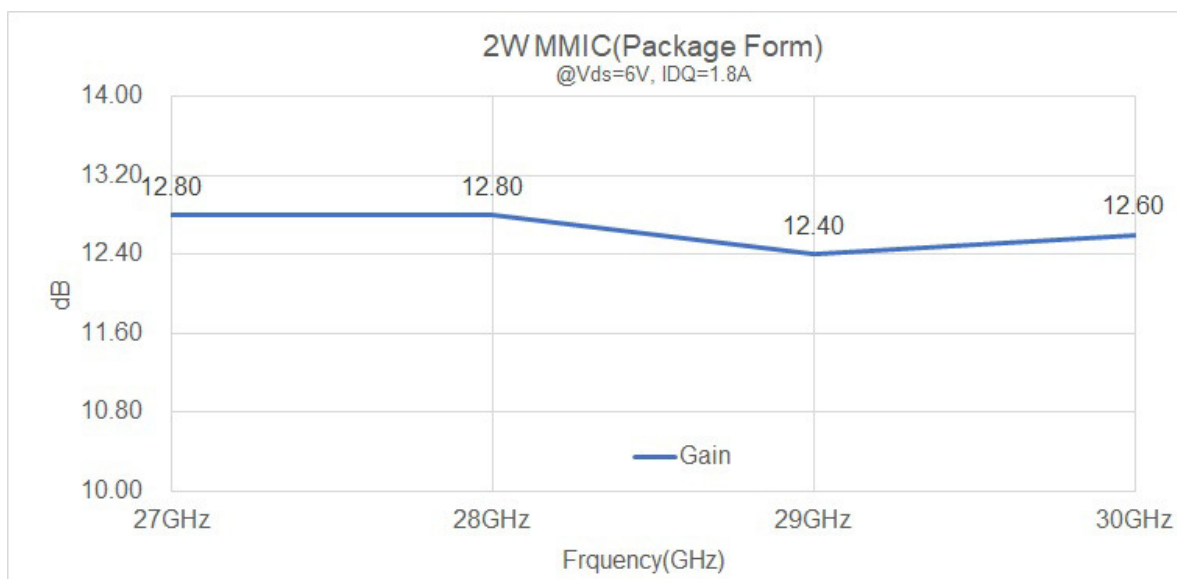


## TYPICAL CHARACTERISTICS

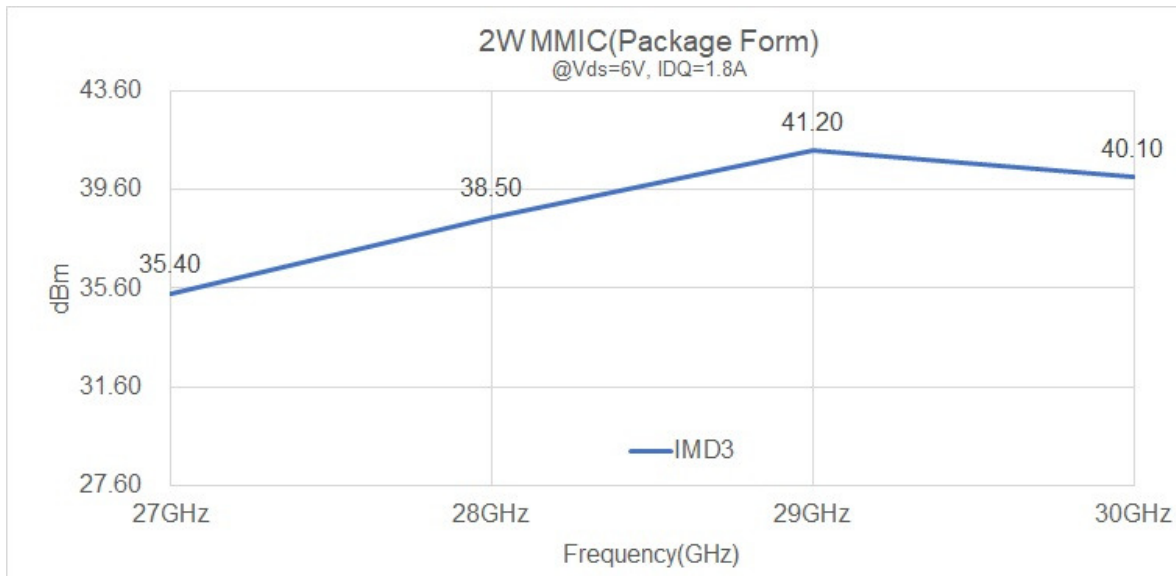
### Pout vs Freq.



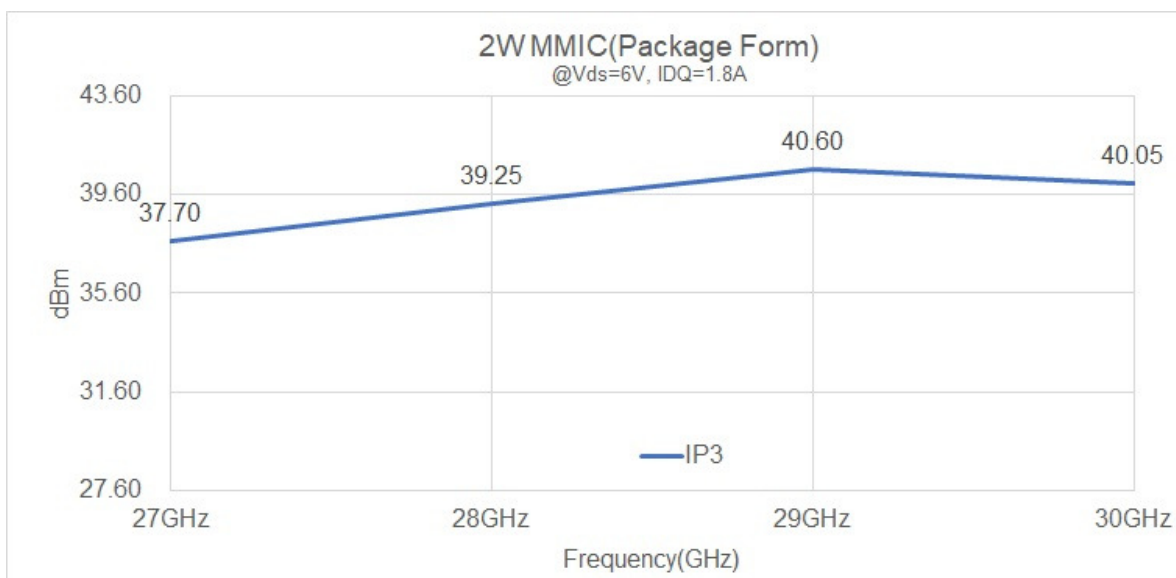
### Gain vs Freq.



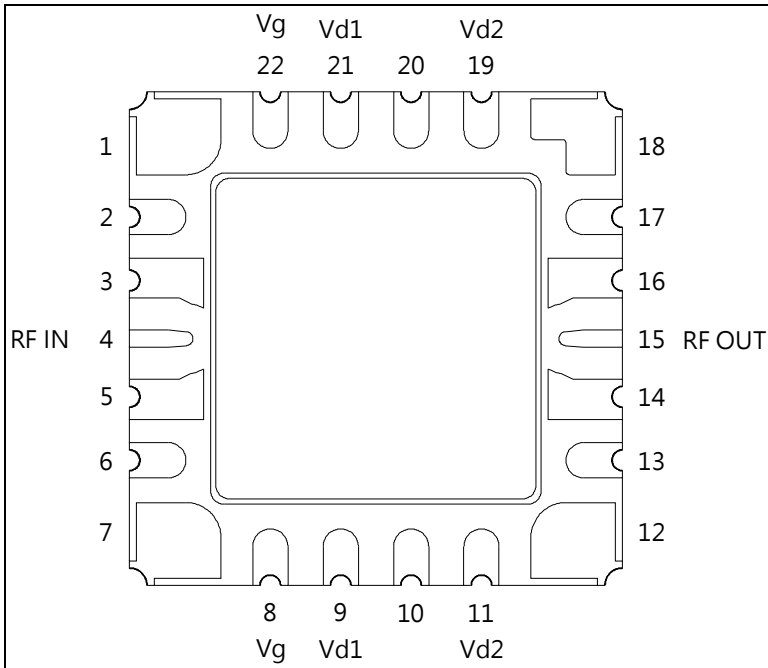
### IMD3 vs Freq (@P<sub>scl</sub> = +20dBm)



### IP3 vs Freq



## CONNECTION DIAGRAM AND PIN DESCRIPTIONS



## PIN ASSIGNMENT

| Pin No.                        | Symbol | Description   |
|--------------------------------|--------|---|
| 1-3, 5-7, 10, 12-14, 16-18, 20 | GND    | Ground.   |
| 4                              | RF IN  | RF Input, matched to 50 $\Omega$ .                            |
| 8 、 22                         | Vg     | Negative Gate voltage, connected to either pin 8 or pin 22.   |
| 9 、 21                         | Vd1    | Positive Drain voltage, connected to either pin 9 or pin 21.  |
| 11 、 19                        | Vd2    | Positive Drain voltage, connected to either pin 11 or pin 19. |
| 15                             | RF OUT | RF Output, matched to 50 $\Omega$ .                           |