

# 8W Power Amplifier Die (9.5 – 10.5 GHz)

## ITT8506D

## ADVANCED INFORMATION

### Features

- 38% Typical Power Added Efficiency
- 50  $\Omega$  Input/Output Impedance
- Self-Aligned MSAG<sup>®</sup> MESFET Process



### Description

The ITT8506D is a three stage MMIC power amplifier fabricated using GaAsTEK's mature GaAs Self-Aligned MSAG<sup>®</sup> MESFET Process. This product is fully matched to 50 ohms on both the input and the output.

### Maximum Ratings (T<sub>A</sub> = 25 °C unless otherwise noted)

| Rating                                        | Symbol            | Value      | Unit |
|-----------------------------------------------|-------------------|------------|------|
| DC Drain Supply Voltage                       | V <sub>DD</sub>   | 12         | Vdc  |
| DC Gate Supply Voltage                        | V <sub>GG</sub>   | -4         | Vdc  |
| Power Dissipation (T <sub>BASE</sub> = 70 °C) | P <sub>DISS</sub> | -          | W    |
| RF Input Power                                | P <sub>IN</sub>   | 200        | mW   |
| Junction Temperature                          | T <sub>J</sub>    | 150        | °C   |
| Storage Temperature                           | T <sub>STG</sub>  | -40 to +85 | °C   |

### ELECTRICAL CHARACTERISTICS V<sub>DD</sub>=9.0 V, V<sub>GG</sub>=-1.8 V, T<sub>A</sub>=25 °C

| Characteristic                 | Symbol           | Min | Typ     | Max  | Unit |
|--------------------------------|------------------|-----|---------|------|------|
| Frequency                      | <i>f</i>         | 9.0 | —       | 10.0 | GHz  |
| Output Power, Saturated        | P <sub>SAT</sub> |     | 39      |      | dBm  |
| Output Power, P <sub>1dB</sub> | P <sub>1dB</sub> |     | 37      |      | dBm  |
| Power Gain                     | G <sub>P</sub>   |     | 22      |      | dB   |
| Gain Flatness Over Frequency   | -                |     | +/- 1.0 |      | dB   |
| Power Added Efficiency         | $\eta$           |     | 38      |      | %    |
| Input VSWR                     | -                |     | TBS     |      |      |
| Harmonics                      | Nf <sub>o</sub>  |     |         | -20  | dBc  |
| Spurious                       | -                |     |         | -60  | dBc  |
| Third-Order Intercept Point    | TOI              |     | TBS     |      | dBm  |