

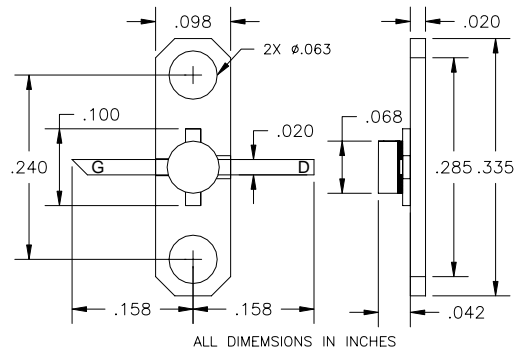


# EPA240D-100P

UPDATED 11/14/2005

## High Efficiency Heterojunction Power FET

- NON-HERMETIC 100MIL METAL FLANGE PACKAGE
- +33 dBm TYPICAL OUTPUT POWER
- 20 dB TYPICAL POWER GAIN AT 2GHz
- 0.4 X 2400 MICRON RECESSED “MUSHROOM” GATE
- Si<sub>3</sub>N<sub>4</sub> PASSIVATION
- ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY



### ELECTRICAL CHARACTERISTICS (T<sub>a</sub> = 25 °C)

| SYMBOLS                | PARAMETERS/TEST CONDITIONS  | MIN | TYP                                | MAX  | UNIT |
|------------------------|---|-----|------------------------------------|------|------|
| <b>P<sub>1dB</sub></b> | Output Power at 1dB Compression<br>V <sub>ds</sub> =8V, I <sub>ds</sub> =50% I <sub>ds</sub>            |     | f= 2GHz<br>33.0<br>f= 4GHz<br>33.0 |      | dBm  |
| <b>G<sub>1dB</sub></b> | Gain at 1dB Compression<br>V <sub>ds</sub> =8V, I <sub>ds</sub> =50% I <sub>ds</sub>                    |     | f= 2GHz<br>20.0<br>f= 4GHz<br>14.5 |      | dB   |
| <b>PAE</b>             | Power Added Efficiency at 1dB Compression<br>V <sub>ds</sub> =8 V, I <sub>ds</sub> =50% I <sub>ds</sub> |     | f=2GHz<br>55                       |      | %    |
| <b>I<sub>ds</sub></b>  | Saturated Drain Current<br>V <sub>ds</sub> =3V, V <sub>gs</sub> =0V                                     | 440 | 720                                | 940  | mA   |
| <b>G<sub>m</sub></b>   | Transconductance<br>V <sub>ds</sub> =3V, V <sub>gs</sub> =0V  | 480 | 760                                |      | mS   |
| <b>V<sub>p</sub></b>   | Pinch-off Voltage<br>V <sub>ds</sub> =3V, I <sub>ds</sub> =6mA  |     | -1.0                               | -2.5 | V    |
| <b>BV<sub>gd</sub></b> | Drain Breakdown Voltage<br>I <sub>gd</sub> =2.4mA   | -11 | -15                                |      | V    |
| <b>BV<sub>gs</sub></b> | Source Breakdown Voltage<br>I <sub>gs</sub> =2.4mA  | -7  | -14                                |      | V    |
| <b>R<sub>th</sub></b>  | Thermal Resistance (Au-Sn Eutectic Attach)  |     | 26*                                |      | °C/W |

\* Overall R<sub>th</sub> depends on case mounting.

### ABSOLUTE MAXIMUM RATING<sup>1,2</sup>

| SYMBOLS                | PARAMETERS              | ABSOLUTE <sup>1</sup> | CONTINUOUS <sup>2</sup> |
|------------------------|-------------------------|-----------------------|-------------------------|
| <b>V<sub>ds</sub></b>  | Drain-Source Voltage    | 12V                   | 8V                      |
| <b>V<sub>gs</sub></b>  | Gate-Source Voltage     | -8V                   | -3V                     |
| <b>I<sub>ds</sub></b>  | Drain Current           | I <sub>ds</sub>       | 620mA                   |
| <b>I<sub>gsf</sub></b> | Forward Gate Current    | 120mA                 | 20mA                    |
| <b>P<sub>in</sub></b>  | Input Power             | 30 dBm                | @ 3dB Compression       |
| <b>T<sub>ch</sub></b>  | Channel Temperature     | 175 °C                | 150 °C                  |
| <b>T<sub>stg</sub></b> | Storage Temperature     | -65 to +175 °C        | -65 to +150 °C          |
| <b>P<sub>t</sub></b>   | Total Power Dissipation | 6.0W                  | 5.0W                    |

Note: 1. Exceeding any of the above ratings may result in permanent damage.

2. Exceeding any of the above ratings may reduce MTTF below design goals.

Specifications are subject to change without notice.

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