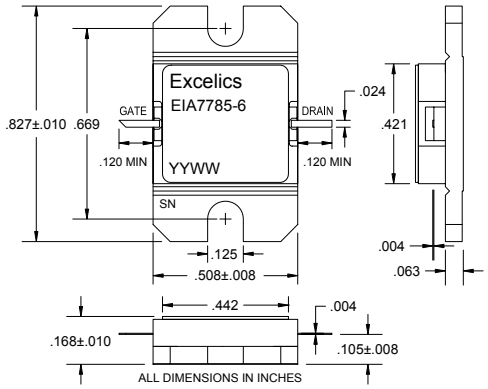
# EIA7785-6

UPDATED 11/30/2005

## 7.70-8.50 GHz 6-Watt Internally Matched Power FET

### FEATURES

- **7.70– 8.50GHz Bandwidth**
- **Input/Output Impedance Matched to 50 Ohms**
- **+38.5 dBm Output Power at 1dB Compression**
- **10 dB Power Gain at 1dB Compression**
- **36% Power Added Efficiency**
- **Hermetic Metal Flange Package**




### ELECTRICAL CHARACTERISTICS ($T_a$ = 25°C)

**Caution! ESD sensitive device.**

| SYMBOL | PARAMETERS/TEST CONDITIONS[1] | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|
| $P_{1dB}$ | Output Power at 1dB Compression f = 7.70-8.50GHz<br>$V_{DS}$ = 8 V, $I_{DSQ}$ ≈ 2000mA | 37.5 | 38.5 | | dBm |
| $G_{1dB}$ | Gain at 1dB Compression f = 7.70-8.50GHz<br>$V_{DS}$ = 8 V, $I_{DSQ}$ ≈ 2000mA | 9 | 10 | | dB |
| ΔG | Gain Flatness f = 7.70-8.50GHz<br>$V_{DS}$ = 8 V, $I_{DSQ}$ ≈ 2000mA | | | ±0.6 | dB |
| PAE | Power Added Efficiency at 1dB Compression<br>$V_{DS}$ = 8 V, $I_{DSQ}$ ≈ 2000mA f = 7.70-8.50GHz | | 36 | | % |
| $Id_{1dB}$ | Drain Current at 1dB Compression f = 7.70-8.50GHz | | 2200 | 2500 | mA |
| $I_{DSS}$ | Saturated Drain Current $V_{DS}$ = 3 V, $V_{GS}$ = 0 V | | 3900 | 4800 | mA |
| $V_P$ | Pinch-off Voltage $V_{DS}$ = 3 V, $I_{DS}$ = 39mA | | -1.0 | -2.5 | V |
| $R_{TH}$ | Thermal Resistance[3] | | 4.0 | 4.5 | °C/W |

Note: 1) Tested with 100 Ohm gate resistor. 2) S.C.L. = Single Carrier Level. 3) Overall Rth depends on case mounting.

### ABSOLUTE MAXIMUM RATING[1,2]

| SYMBOLS | PARAMETERS | ABSOLUTE[1] | CONTINUOUS[2] |
|---|---|---|---|
| Vds | Drain-Source Voltage | 12 | 8V |
| Vgs | Gate-Source Voltage | -5 | -3V |
| Ids | Drain Current | $I_{DSS}$ | 4.1A |
| Igsf | Forward Gate Current | 61.2mA | 20.4mA |
| Igsr | Reserve Gate Current | -10.2mA | -3.4mA |
| Pin | Input Power | 37.5dBm | @ 3dB Compression |
| Tch | Channel Temperature | 175 °C | 175 °C |
| Tstg | Storage Temperature | -65 to +175 °C | -65 to +175 °C |
| Pt | Total Power Dissipation | 33W | 33W |

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.