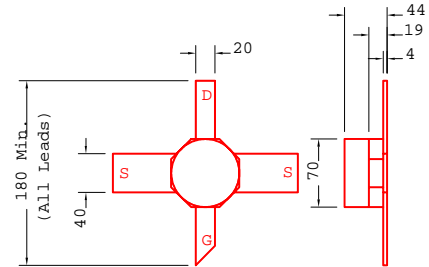


DATA SHEET
Low Distortion GaAs Power FET

- **NON-HERMETIC LOW COST CERAMIC 70mil PACKAGE**
- **+22.0dBm TYPICAL OUTPUT POWER**
- **8.0dB TYPICAL POWER GAIN AT 12GHz**
- **0.3 X 400 MICRON RECESSED “MUSHROOM” GATE**
- **Si₃N₄ PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**



All Dimensions In mils.

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

| SYMBOLS | PARAMETERS/TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|------------------------|---|------|--------------|------|------|
| P_{1dB} | Output Power at 1dB Compression V _{ds} =6V, I _{ds} =50% I _{dss} | 20.0 | 22.0 22.0 | | dBm |
| G_{1dB} | Gain at 1dB Compression V _{ds} =6V, I _{ds} =50% I _{dss} | 6.5 | 8.0 5.0 | | dB |
| PAE | Gain at 1dB Compression V _{ds} =6V, I _{ds} =50% I _{dss} | | 33 | | % |
| I_{dss} | Saturated Drain Current V _{ds} =3V, V _{gs} =0V | 60 | 105 | 160 | mA |
| G_m | Transconductance V _{ds} =3V, V _{gs} =0V | 45 | 60 | | mS |
| V_p | Pinch-off Voltage V _{ds} =3V, I _{ds} =1.0 mA | | -2.0 | -3.5 | V |
| BV_{gd} | Drain Breakdown Voltage I _{gd} =1.0mA | -10 | -15 | | V |
| BV_{gs} | Source Breakdown Voltage I _{gs} =1.0mA | -6 | -14 | | V |
| R_{th} | Thermal Resistance | | 250* | | °C/W |

 * Overall R_{th} depends on case mounting.

MAXIMUM RATINGS AT 25 °C

| SYMBOLS | PARAMETERS | ABSOLUTE ¹ | CONTINUOUS ² |
|------------------------|-------------------------|-----------------------|-------------------------|
| V_{ds} | Drain-Source Voltage | 10V | 6V |
| V_{gs} | Gate-Source Voltage | -6V | -4V |
| I_{ds} | Drain Current | I _{dss} | 75mA |
| I_{gsf} | Forward Gate Current | 10mA | 1.5mA |
| P_{in} | Input Power | 21dBm | @ 3dB Compression |
| T_{ch} | Channel Temperature | 175°C | 150 °C |
| T_{stg} | Storage Temperature | -65/175°C | -65/150 °C |
| P_t | Total Power Dissipation | 550mW | 445mW |

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.

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Phone: (408) 970-8664 Fax: (408) 970-8998 Web Site: www.excelics.com

EFA040A-70

DATA SHEET

Low Distortion GaAs Power FET

S-PARAMETERS

6V, 1/2 Idss

| FREQ (GHz) | --- S11 --- | | --- S21 --- | | --- S12 --- | | --- S22 --- | |
|---------------|-------------|--------|-------------|--------|-------------|--------|-------------|--------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 1.0 | 0.971 | -30.2 | 4.747 | 154.4 | 0.021 | 72.3 | 0.714 | -14.0 |
| 2.0 | 0.908 | -59.1 | 4.348 | 130.0 | 0.037 | 55.5 | 0.681 | -29.1 |
| 3.0 | 0.842 | -84.8 | 3.860 | 108.4 | 0.047 | 42.9 | 0.651 | -42.1 |
| 4.0 | 0.782 | -109.8 | 3.516 | 88.8 | 0.052 | 33.0 | 0.626 | -52.4 |
| 5.0 | 0.726 | -133.4 | 3.212 | 70.4 | 0.055 | 24.9 | 0.592 | -62.1 |
| 6.0 | 0.686 | -152.0 | 2.939 | 53.7 | 0.055 | 20.6 | 0.558 | -74.9 |
| 7.0 | 0.652 | -172.6 | 2.687 | 37.1 | 0.055 | 16.8 | 0.543 | -86.4 |
| 8.0 | 0.626 | 167.7 | 2.492 | 21.4 | 0.054 | 16.2 | 0.517 | -96.6 |
| 9.0 | 0.631 | 140.1 | 2.292 | 4.2 | 0.057 | 17.8 | 0.511 | -104.6 |
| 10.0 | 0.652 | 117.8 | 2.096 | -12.5 | 0.063 | 14.5 | 0.497 | -118.4 |
| 11.0 | 0.659 | 103.2 | 2.002 | -28.6 | 0.073 | 9.8 | 0.485 | -137.9 |
| 12.0 | 0.681 | 86.0 | 1.899 | -45.5 | 0.083 | 2.8 | 0.480 | -157.0 |
| 13.0 | 0.739 | 69.3 | 1.706 | -61.4 | 0.088 | -6.5 | 0.463 | -173.7 |
| 14.0 | 0.776 | 55.3 | 1.513 | -76.5 | 0.091 | -16.1 | 0.465 | 168.8 |
| 15.0 | 0.787 | 41.1 | 1.400 | -94.1 | 0.095 | -29.4 | 0.498 | 144.8 |
| 16.0 | 0.798 | 25.7 | 1.269 | -113.2 | 0.094 | -44.6 | 0.518 | 120.3 |
| 17.0 | 0.789 | 15.5 | 1.103 | -126.3 | 0.092 | -50.4 | 0.516 | 105.9 |
| 18.0 | 0.803 | 7.3 | 1.043 | -138.6 | 0.101 | -67.9 | 0.574 | 93.1 |
| 19.0 | 0.821 | -7.7 | 0.928 | -155.5 | 0.085 | -83.5 | 0.604 | 75.9 |
| 20.0 | 0.846 | -19.7 | 0.854 | -171.7 | 0.080 | -98.6 | 0.657 | 59.9 |
| 21.0 | 0.829 | -28.2 | 0.801 | 173.6 | 0.076 | -113.9 | 0.654 | 47.1 |
| 22.0 | 0.795 | -39.9 | 0.760 | 160.1 | 0.076 | -129.4 | 0.650 | 38.6 |
| 23.0 | 0.808 | -56.6 | 0.695 | 142.7 | 0.075 | -147.4 | 0.629 | 20.9 |
| 24.0 | 0.819 | -69.7 | 0.633 | 124.1 | 0.078 | -168.0 | 0.617 | 0.1 |
| 25.0 | 0.756 | -84.3 | 0.617 | 107.6 | 0.089 | 176.3 | 0.618 | -14.7 |
| 26.0 | 0.754 | -103.8 | 0.634 | 90.8 | 0.117 | 161.8 | 0.599 | -30.8 |