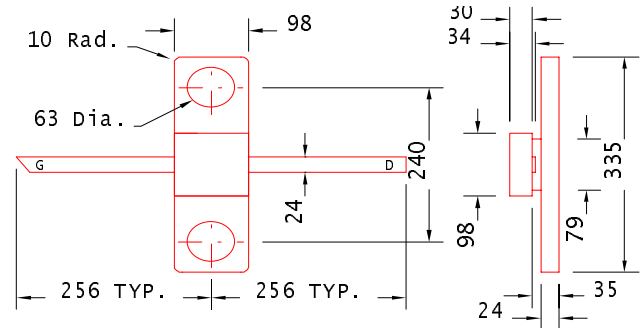


DATA SHEET
Low Distortion GaAs Power FET

- HERMETIC 100mil CERAMIC FLANGE PACKAGE
- +26.0dBm TYPICAL OUTPUT POWER
- 7.5dB TYPICAL POWER GAIN AT 12GHz
- 0.3 X 800 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} =8V, I _{ds} =50% I _{ds} f=12GHz | 24.0 | 26.0 | | dBm |
| G_{1dB} | Gain at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{ds} f=12GHz | 6.0 | 7.5 | | dB |
| PAE | Power Added Efficiency at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{ds} f=12GHz | | 32 | | % |
| I_{ds} | Saturated Drain Current V _{ds} =3V, V _{gs} =0V | 130 | 210 | 300 | mA |
| G_m | Transconductance V _{ds} =3V, V _{gs} =0V | 90 | 120 | | mS |
| V_p | Pinch-off Voltage V _{ds} =3V, I _{ds} =2.0mA | | -2.0 | -3.5 | V |
| BV_{gd} | Drain Breakdown Voltage I _{gd} =1.0mA | -12 | -15 | | V |
| BV_{gs} | Source Breakdown Voltage I _{gs} =1.0mA | -7 | -14 | | V |
| R_{th} | Thermal Resistance | | 58* | | °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 | 12V | 8V |
| V_{gs} | Gate-Source Voltage | -8V | -4V |
| I_{ds} | Drain Current | I _{ds} | 250mA |
| I_{gsf} | Forward Gate Current | 20mA | 4mA |
| P_{in} | Input Power | 25dBm | @ 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 | 2.5 W | 2.0W |

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.

EFA080A-100F

DATA SHEET

Low Distortion GaAs Power FET

S-PARAMETERS

8V, 1/2 Idss

| FREQ (GHz) | --- S11 --- | | --- S21 --- | | --- S12 --- | | --- S22 --- | |
|---------------|-------------|--------|-------------|--------|-------------|--------|-------------|--------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 1.0 | 0.959 | -47.5 | 6.007 | 149.5 | 0.028 | 54.7 | 0.450 | -32.8 |
| 2.0 | 0.898 | -81.6 | 5.050 | 119.7 | 0.042 | 38.4 | 0.446 | -53.9 |
| 3.0 | 0.854 | -104.9 | 4.182 | 97.3 | 0.050 | 26.7 | 0.442 | -68.6 |
| 4.0 | 0.817 | -126.2 | 3.635 | 78.0 | 0.054 | 17.3 | 0.442 | -80.0 |
| 5.0 | 0.785 | -147.2 | 3.268 | 59.5 | 0.059 | 8.8 | 0.426 | -89.3 |
| 6.0 | 0.761 | -163.3 | 2.964 | 42.1 | 0.063 | 1.0 | 0.378 | -104.4 |
| 7.0 | 0.738 | 179.2 | 2.690 | 24.1 | 0.065 | -8.3 | 0.357 | -124.2 |
| 8.0 | 0.718 | 163.2 | 2.414 | 6.9 | 0.064 | -16.5 | 0.366 | -145.0 |
| 9.0 | 0.731 | 140.3 | 2.132 | -10.6 | 0.064 | -24.6 | 0.395 | -150.2 |
| 10.0 | 0.753 | 125.5 | 1.913 | -26.3 | 0.067 | -31.4 | 0.401 | -158.8 |
| 11.0 | 0.742 | 121.7 | 1.826 | -41.3 | 0.074 | -39.8 | 0.403 | 178.4 |
| 12.0 | 0.707 | 115.5 | 1.752 | -56.8 | 0.083 | -47.6 | 0.430 | 162.0 |
| 13.0 | 0.709 | 96.7 | 1.655 | -72.8 | 0.093 | -57.3 | 0.425 | 160.0 |
| 14.0 | 0.708 | 77.6 | 1.567 | -90.4 | 0.106 | -69.1 | 0.375 | 151.1 |
| 15.0 | 0.680 | 65.4 | 1.509 | -110.8 | 0.125 | -85.0 | 0.394 | 120.4 |
| 16.0 | 0.658 | 53.2 | 1.419 | -130.8 | 0.144 | -99.9 | 0.436 | 102.6 |
| 17.0 | 0.664 | 42.2 | 1.354 | -148.0 | 0.173 | -111.8 | 0.430 | 103.8 |
| 18.0 | 0.654 | 33.6 | 1.316 | -167.6 | 0.223 | -127.5 | 0.436 | 97.7 |
| 19.0 | 0.623 | 26.4 | 1.216 | 171.4 | 0.277 | -146.8 | 0.500 | 80.0 |
| 20.0 | 0.697 | 15.6 | 1.201 | 151.3 | 0.380 | -167.1 | 0.566 | 72.0 |