

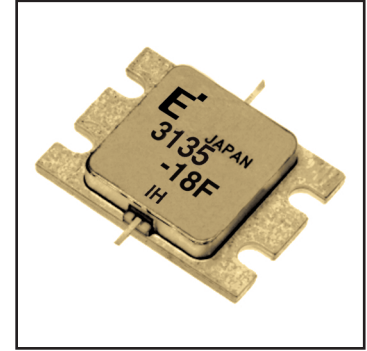
### FEATURES

- High Output Power:  $P_{1dB} = 43.0\text{dBm}$  (Typ.)
- High Gain:  $G_{1dB} = 10.5\text{dB}$  (Typ.)
- High PAE:  $\eta_{add} = 37\%$  (Typ.)
- Low  $IM_3 = -45\text{dBc}$  @  $P_o = 32.0\text{dBm}$
- Broad Band: 3.1 ~ 3.5GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed Package

### DESCRIPTION

The FLM3135-18F is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 ohm system.

Eudyna's stringent Quality Assurance Program assures the highest reliability and consistent performance.



### ABSOLUTE MAXIMUM RATING (Ambient Temperature $T_a=25^\circ\text{C}$ )

| Item                    | Symbol    | Condition                | Rating      | Unit             |
|-------------------------|-----------|--------------------------|-------------|------------------|
| Drain-Source Voltage    | $V_{DS}$  |                          | 15          | V                |
| Gate-Source Voltage     | $V_{GS}$  |                          | -5          | V                |
| Total Power Dissipation | $P_T$     | $T_c = 25^\circ\text{C}$ | 83.3        | W                |
| Storage Temperature     | $T_{stg}$ |                          | -65 to +175 | $^\circ\text{C}$ |
| Channel Temperature     | $T_{ch}$  |                          | 175         | $^\circ\text{C}$ |

Fujitsu recommends the following conditions for the reliable operation of GaAs FETs:

1. The drain-source operating voltage ( $V_{DS}$ ) should not exceed 10 volts.
2. The forward and reverse gate currents should not exceed 26.0 and -11.6 mA respectively with gate resistance of 25 $\Omega$ .

### ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a=25^\circ\text{C}$ )

| Item                                 | Symbol          | Test Conditions  | Limit  |      |           | Unit                      |
|--------------------------------------|-----------------|--|--|------|-----------|---------------------------|
|                                      |                 |  | Min.   | Typ. | Max.      |                           |
| Saturated Drain Current              | $I_{DSS}$       | $V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$   | -  | 7.5  | 11.2      | A                         |
| Transconductance                     | $g_m$           | $V_{DS} = 5\text{V}, I_{DS} = 4800\text{mA}$   | -  | 8000 | -         | mS                        |
| Pinch-off Voltage                    | $V_p$           | $V_{DS} = 5\text{V}, I_{DS} = 480\text{mA}$  | -0.5   | -1.5 | -3.0      | V                         |
| Gate Source Breakdown Voltage        | $V_{GSO}$       | $I_{GS} = -480\mu\text{A}$   | -5.0   | -    | -         | V                         |
| Output Power at 1dB G.C.P.           | $P_{1dB}$       | $V_{DS} = 10\text{V},$<br>$I_{DS} = 0.55 I_{DSS}$ (Typ.),<br>$f = 3.1 \sim 3.5 \text{GHz},$<br>$Z_S = Z_L = 50 \text{ohm}$ | 42.0   | 43.0 | -         | dBm                       |
| Power Gain at 1dB G.C.P.             | $G_{1dB}$       |  | 9.5  | 10.5 | -         | dB                        |
| Drain Current                        | $I_{dsr}$       |  | -  | 4800 | 6000      | mA                        |
| Power-added Efficiency               | $\eta_{add}$    |  | -  | 37   | -         | %                         |
| Gain Flatness                        | $\Delta G$      |  | -  | -    | $\pm 0.6$ | dB                        |
| 3rd Order Intermodulation Distortion | $IM_3$          |  | $f = 3.5 \text{GHz}, \Delta f = 10 \text{MHz}$<br>2-Tone Test<br>$P_{out} = 32.0\text{dBm S.C.L.}$ | -42  | -45       | -                         |
| Thermal Resistance                   | $R_{th}$        | Channel to Case  | -  | 1.6  | 1.8       | $^\circ\text{C}/\text{W}$ |
| Channel Temperature Rise             | $\Delta T_{ch}$ | $10\text{V} \times I_{dsr} \times R_{th}$  | -  | -    | 80        | $^\circ\text{C}$          |

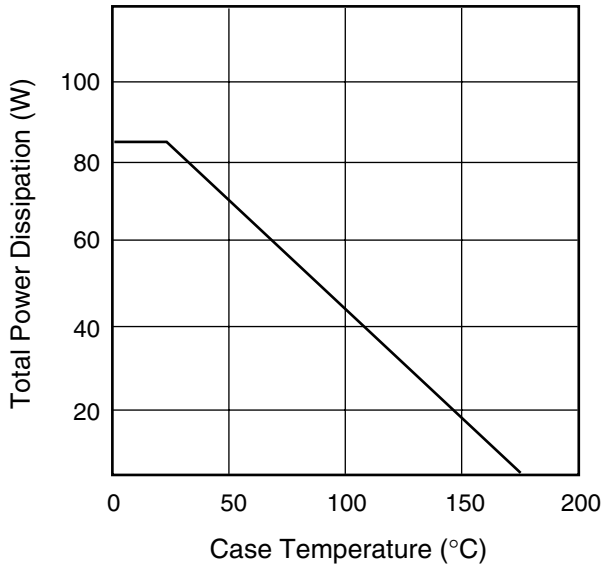
CASE STYLE: IK

G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level

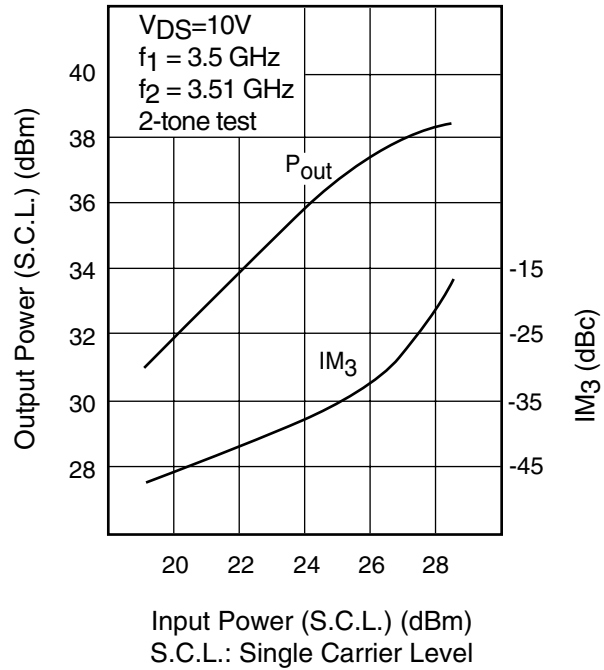
# FLM3135-18F

## C-Band Internally Matched FET

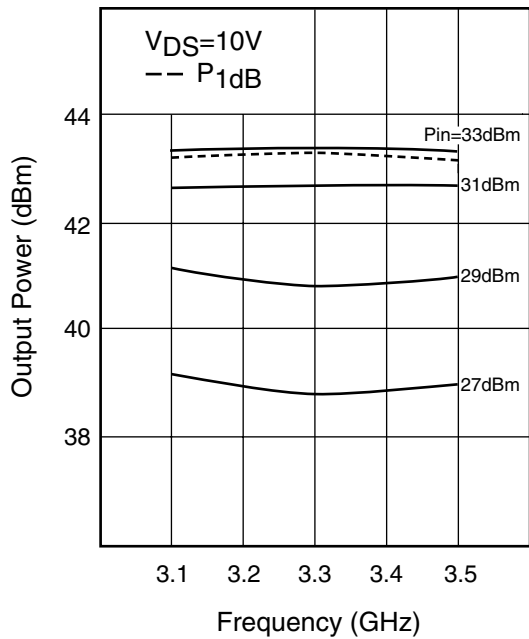
**POWER DERATING CURVE**



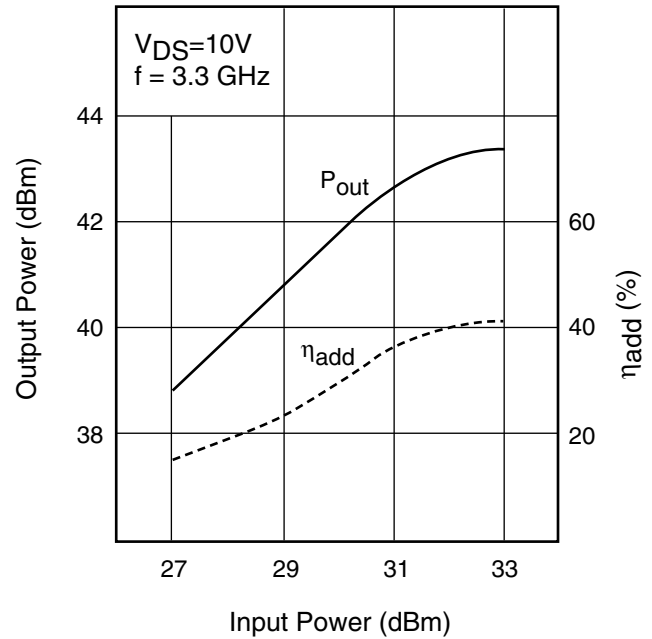
**OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER**

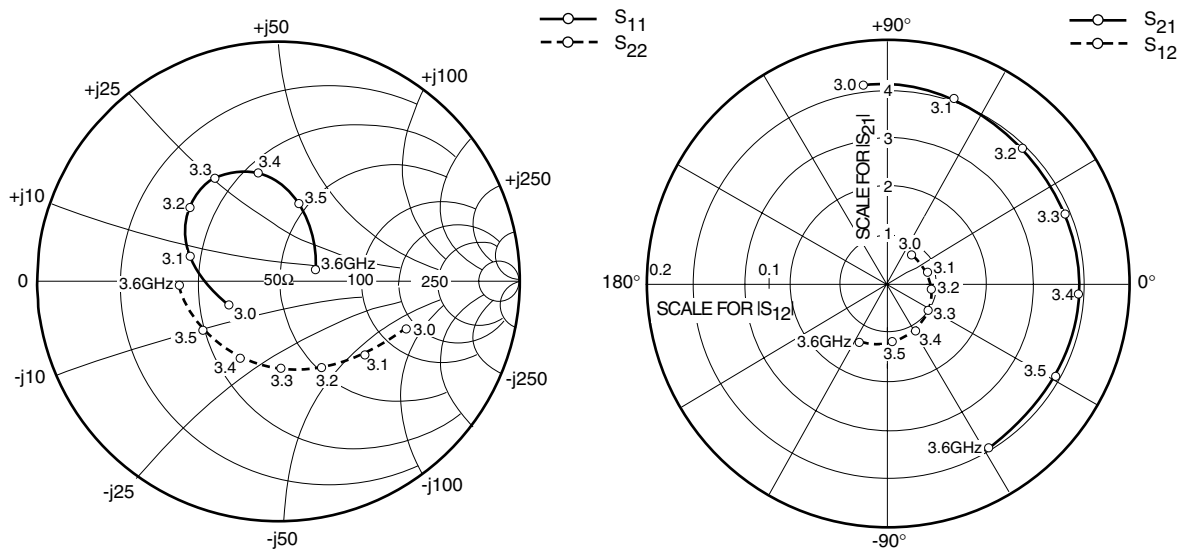


**OUTPUT POWER vs. FREQUENCY**



**OUTPUT POWER vs. INPUT POWER**





### S-PARAMETERS

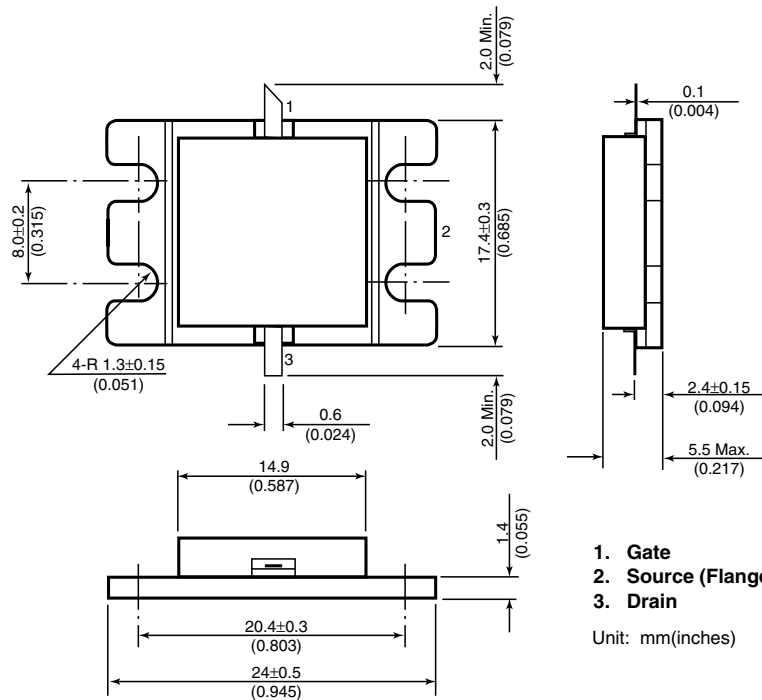
$V_{DS} = 10V, I_{DS} = 4800mA$

| FREQUENCY<br>(MHZ) | S11  |        | S21   |       | S12  |        | S22  |        |
|--------------------|------|--------|-------|-------|------|--------|------|--------|
|                    | MAG  | ANG    | MAG   | ANG   | MAG  | ANG    | MAG  | ANG    |
| 3000               | .226 | -154.6 | 4.095 | 97.7  | .031 | 50.8   | .560 | -19.9  |
| 3100               | .380 | 165.3  | 4.052 | 70.3  | .034 | 17.9   | .466 | -40.8  |
| 3200               | .474 | 141.1  | 3.947 | 45.1  | .035 | -7.0   | .396 | -63.4  |
| 3300               | .498 | 121.2  | 3.896 | 21.3  | .040 | -33.4  | .357 | -88.8  |
| 3400               | .455 | 100.8  | 3.907 | -3.0  | .045 | -60.0  | .353 | -117.4 |
| 3500               | .335 | 74.4   | 3.966 | -29.1 | .047 | -86.0  | .377 | -146.8 |
| 3600               | .159 | 16.6   | 3.965 | -58.7 | .053 | -116.1 | .415 | -177.5 |

# FLM3135-18F

## C-Band Internally Matched FET

### Case Style "IK" Metal-Ceramic Hermetic Package



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#### CAUTION

Eudyna Devices Inc. products contain **gallium arsenide (GaAs)** which can be hazardous to the human body and the environment. For safety, observe the following procedures:

- Do not put this product into the mouth.
- Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.
- Observe government laws and company regulations when discarding this product. This product must be discarded in accordance with methods specified by applicable hazardous waste procedures.

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