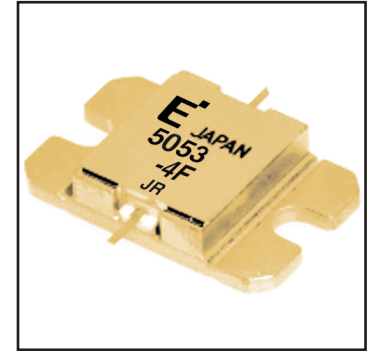


### FEATURES

- High Output Power:  $P_{1dB} = 36.5\text{dBm}$  (Typ.)
- High Gain:  $G_{1dB} = 10.5\text{dB}$  (Typ.)
- High PAE:  $\eta_{add} = 37\%$  (Typ.)
- Low  $IM_3 = -46\text{dBc}$  @  $P_o = 25.5\text{dBm}$
- Broad Band: 5.0 ~ 5.3GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed Package



### DESCRIPTION

The FLM5053-4F 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 | $P_T$     | $T_C = 25^\circ\text{C}$ | 25.0        | W                |
| Storage Temperature     | $T_{stg}$ |                          | -65 to +175 | $^\circ\text{C}$ |
| Channel Temperature     | $T_{ch}$  |                          | 175         | $^\circ\text{C}$ |

Eudyna 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 16.0 and -2.2 mA respectively with gate resistance of  $100\Omega$ .

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

| Item                                 | Symbol          | Test Conditions  | Limit |      |           | Unit                      |
|--------------------------------------|-----------------|--|-------|------|-----------|---------------------------|
|                                      |                 |  | Min.  | Typ. | Max.      |                           |
| Saturated Drain Current              | $I_{DSS}$       | $V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$   | -     | 1950 | 2900      | mA                        |
| Transconductance                     | $g_m$           | $V_{DS} = 5\text{V}, I_{DS} = 1100\text{mA}$   | -     | 1000 | -         | mS                        |
| Pinch-off Voltage                    | $V_p$           | $V_{DS} = 5\text{V}, I_{DS} = 90\text{mA}$   | -1.0  | -2.0 | -3.5      | V                         |
| Gate Source Breakdown Voltage        | $V_{GSO}$       | $I_{GS} = -90\mu\text{A}$  | -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>$f = 5.0 \sim 5.3 \text{GHz},$<br>$Z_S = Z_L = 50 \text{ohm}$ | 35.5  | 36.5 | -         | dBm                       |
| Power Gain at 1dB G.C.P.             | $G_{1dB}$       |  | 9.5   | 10.5 | -         | dB                        |
| Drain Current                        | $I_{dsr}$       |  | -     | 1100 | 1300      | mA                        |
| Power-added Efficiency               | $\eta_{add}$    |  | -     | 37   | -         | %                         |
| Gain Flatness                        | $\Delta G$      |  | -     | -    | $\pm 0.6$ | dB                        |
| 3rd Order Intermodulation Distortion | $IM_3$          | $f = 5.3 \text{GHz}, \Delta f = 10 \text{MHz}$<br>2-Tone Test<br>$P_{out} = 25.5\text{dBm}$ S.C.L.                         | -44   | -46  | -         | dBc                       |
| Thermal Resistance                   | $R_{th}$        | Channel to Case  | -     | 5.0  | 6.0       | $^\circ\text{C}/\text{W}$ |
| Channel Temperature Rise             | $\Delta T_{ch}$ | $10\text{V} \times I_{dsr} \times R_{th}$  | -     | -    | 80        | $^\circ\text{C}$          |

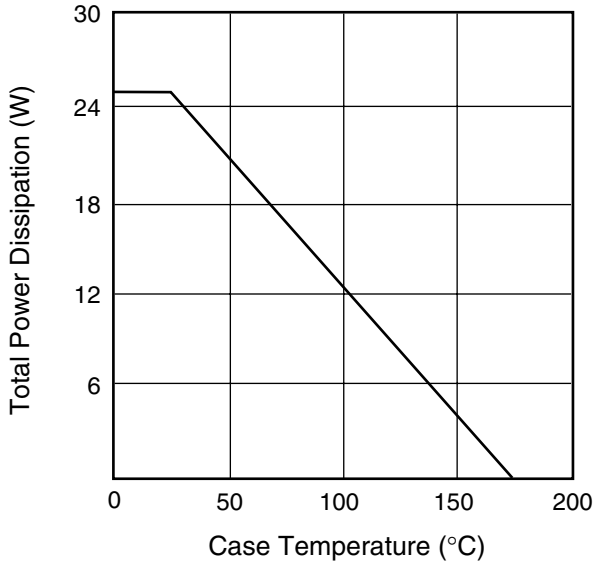
CASE STYLE: IB

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

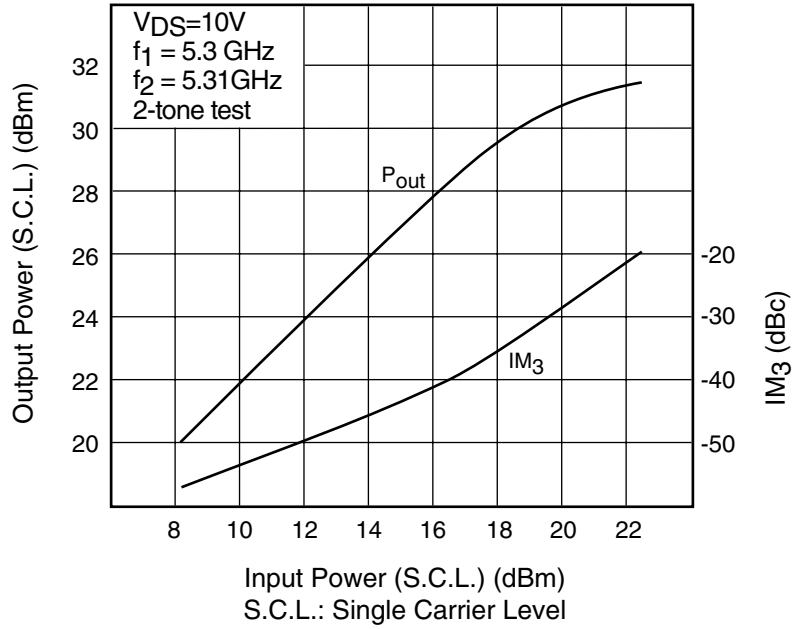
# FLM5053-4F

## C-Band Internally Matched FET

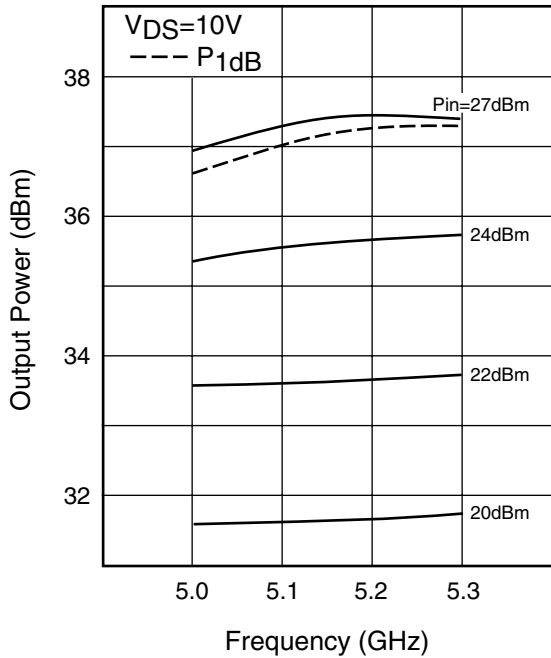
**POWER DERATING CURVE**



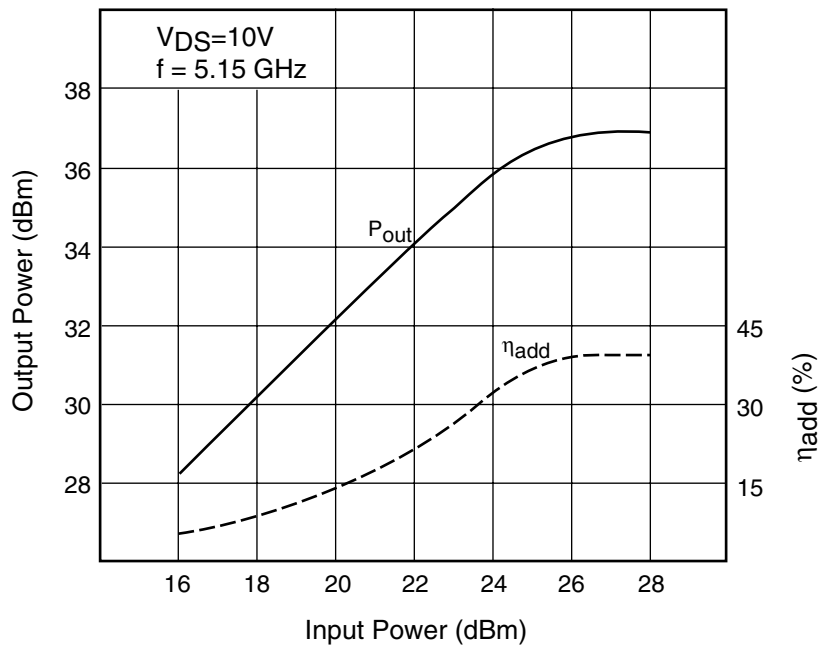
**OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER**

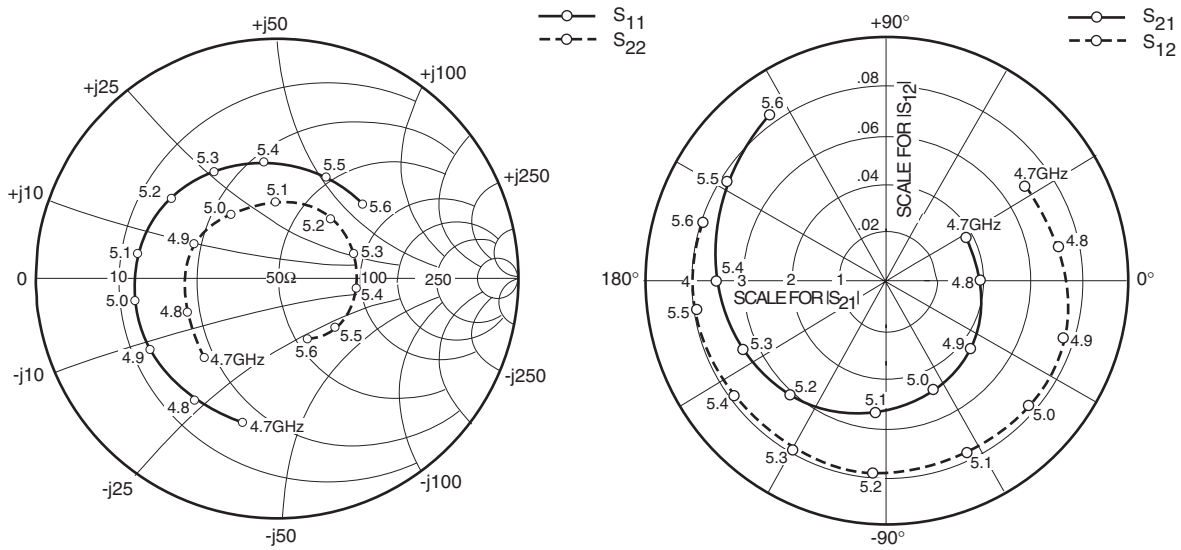


**OUTPUT POWER vs. FREQUENCY**



**OUTPUT POWER vs. INPUT POWER**





### S-PARAMETERS

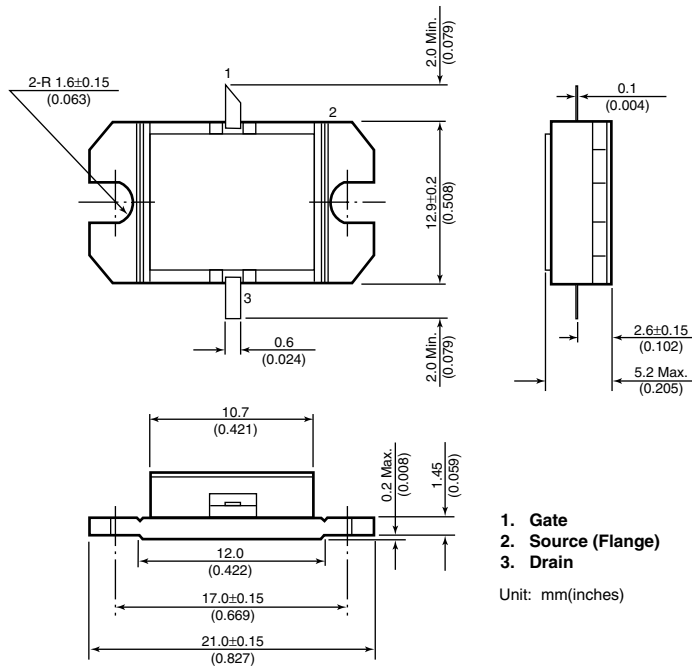
$V_{DS} = 10V, I_{DS} = 1100mA$

| FREQUENCY<br>(MHZ) | S11  |        | S21   |        | S12  |        | S22  |        |
|--------------------|------|--------|-------|--------|------|--------|------|--------|
|                    | MAG  | ANG    | MAG   | ANG    | MAG  | ANG    | MAG  | ANG    |
| 4700               | .462 | -131.8 | 3.416 | 33.4   | .037 | 27.3   | .627 | -103.4 |
| 4800               | .412 | -159.5 | 3.587 | 11.0   | .039 | 0.0    | .622 | -123.3 |
| 4900               | .352 | 158.7  | 3.774 | -19.2  | .044 | -39.5  | .612 | -150.6 |
| 5000               | .323 | 126.1  | 3.873 | -42.0  | .048 | -68.2  | .603 | -170.5 |
| 5100               | .313 | 91.5   | 3.945 | -65.1  | .054 | -95.3  | .585 | 170.2  |
| 5200               | .319 | 47.8   | 3.996 | -95.9  | .062 | -130.4 | .546 | 142.8  |
| 5300               | .329 | 17.9   | 4.008 | -118.6 | .066 | -155.0 | .513 | 120.9  |
| 5400               | .331 | -9.2   | 4.026 | -141.9 | .071 | -179.2 | .484 | 97.1   |
| 5500               | .316 | -41.4  | 3.971 | -172.6 | .078 | 149.2  | .466 | 64.4   |
| 5600               | .289 | -63.7  | 3.944 | 164.0  | .083 | 126.2  | .466 | 40.0   |

# FLM5053-4F

## C-Band Internally Matched FET

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



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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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