

### FEATURES

- High Output Power:  $P_{1dB} = 39.5\text{dBm}$  (Typ.)
- High Gain:  $G_{1dB} = 9.0\text{dB}$  (Typ.)
- High PAE:  $\eta_{add} = 35\%$  (Typ.)
- Low  $IM_3 = -46\text{dBc}$  @  $P_o = 28.5\text{dBm}$
- Broad Band: 7.1 ~ 7.9GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed Package

### DESCRIPTION

The FLM7179-8F 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 | $P_T$     | $T_C = 25^\circ\text{C}$ | 42.8        | 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:

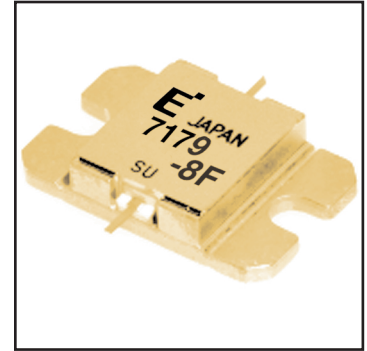
1. The drain-source operating voltage ( $V_{DS}$ ) should not exceed 10 volts.
2. The forward and reverse gate currents should not exceed 32.0 and -4.4 mA respectively with gate resistance of 100 $\Omega$ .

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

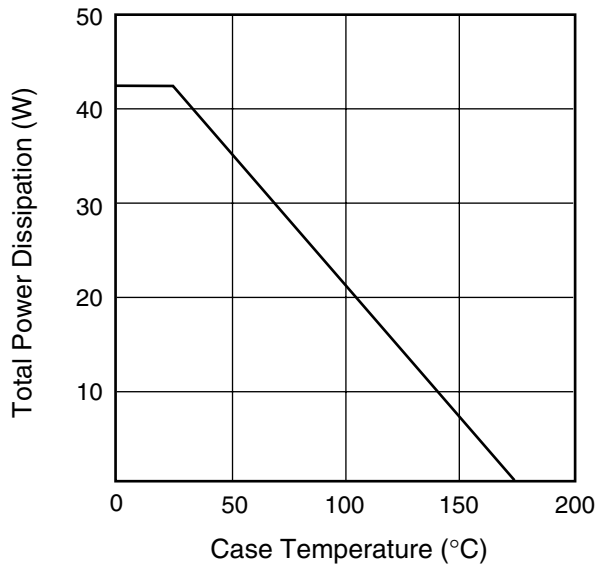
| Item                                 | Symbol          | Test Conditions                                                                                                            | Limit |      |           | Unit               |
|--------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------|-------|------|-----------|--------------------|
|                                      |                 |                                                                                                                            | Min.  | Typ. | Max.      |                    |
| Saturated Drain Current              | $I_{DSS}$       | $V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$                                                                                   | -     | 3400 | 5200      | mA                 |
| Transconductance                     | $g_m$           | $V_{DS} = 5\text{V}, I_{DS} = 2200\text{mA}$                                                                               | -     | 3400 | -         | mS                 |
| Pinch-off Voltage                    | $V_p$           | $V_{DS} = 5\text{V}, I_{DS} = 170\text{mA}$                                                                                | -0.5  | -1.5 | -3.0      | V                  |
| Gate Source Breakdown Voltage        | $V_{GSO}$       | $I_{GS} = -170\mu\text{A}$                                                                                                 | -5.0  | -    | -         | V                  |
| Output Power at 1dB G.C.P.           | $P_{1dB}$       | $V_{DS} = 10\text{V},$<br>$I_{DS} = 0.65 I_{DSS}$ (Typ.),<br>$f = 7.1 \sim 7.9 \text{GHz},$<br>$Z_S = Z_L = 50 \text{ohm}$ | 38.5  | 39.5 | -         | dBm                |
| Power Gain at 1dB G.C.P.             | $G_{1dB}$       |                                                                                                                            | 8.0   | 9.0  | -         | dB                 |
| Drain Current                        | $I_{dsr}$       |                                                                                                                            | -     | 2200 | 2600      | mA                 |
| Power-added Efficiency               | $\eta_{add}$    |                                                                                                                            | -     | 35   | -         | %                  |
| Gain Flatness                        | $\Delta G$      |                                                                                                                            | -     | -    | $\pm 0.6$ | dB                 |
| 3rd Order Intermodulation Distortion | $IM_3$          | $f = 7.9 \text{GHz}, \Delta f = 10 \text{MHz}$<br>2-Tone Test<br>$P_{out} = 28.5\text{dBm}$ S.C.L.                         | -44   | -46  | -         | dBc                |
| Thermal Resistance                   | $R_{th}$        | Channel to Case                                                                                                            | -     | 3.0  | 3.5       | $^\circ\text{C/W}$ |
| Channel Temperature Rise             | $\Delta T_{ch}$ | $10\text{V} \times I_{dsr} \times R_{th}$                                                                                  | -     | -    | 80        | $^\circ\text{C}$   |

CASE STYLE: IB

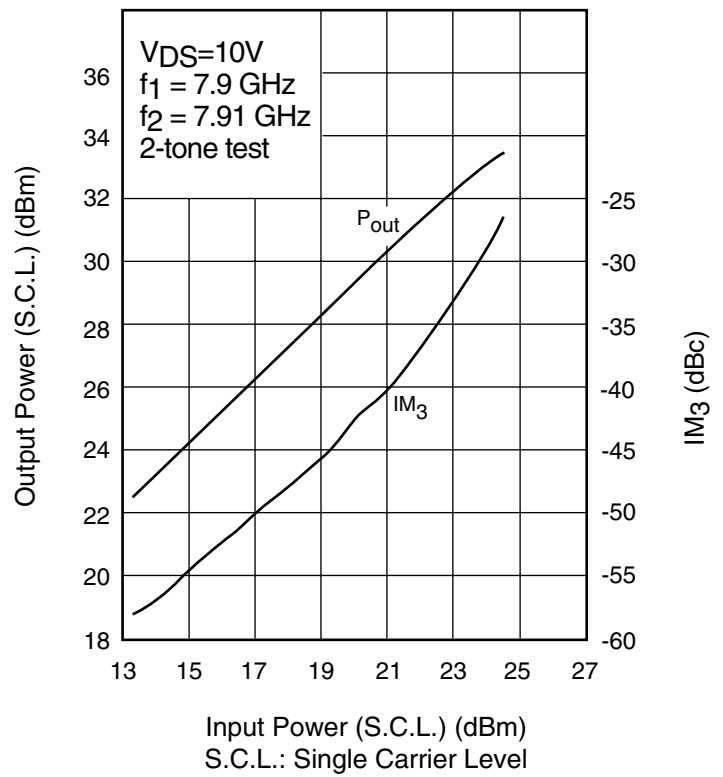
G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level



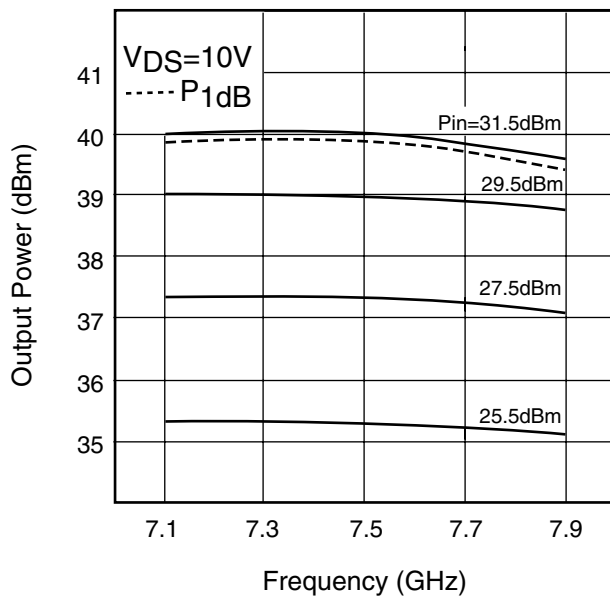
**POWER DERATING CURVE**



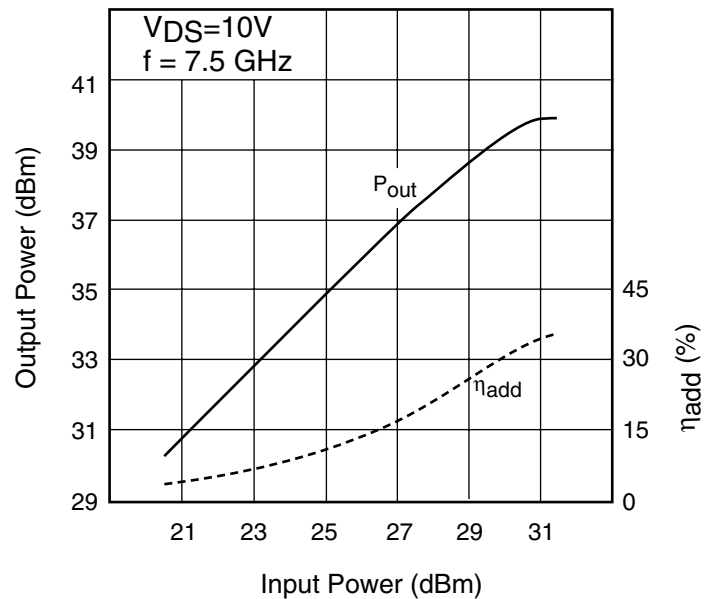
**OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER**

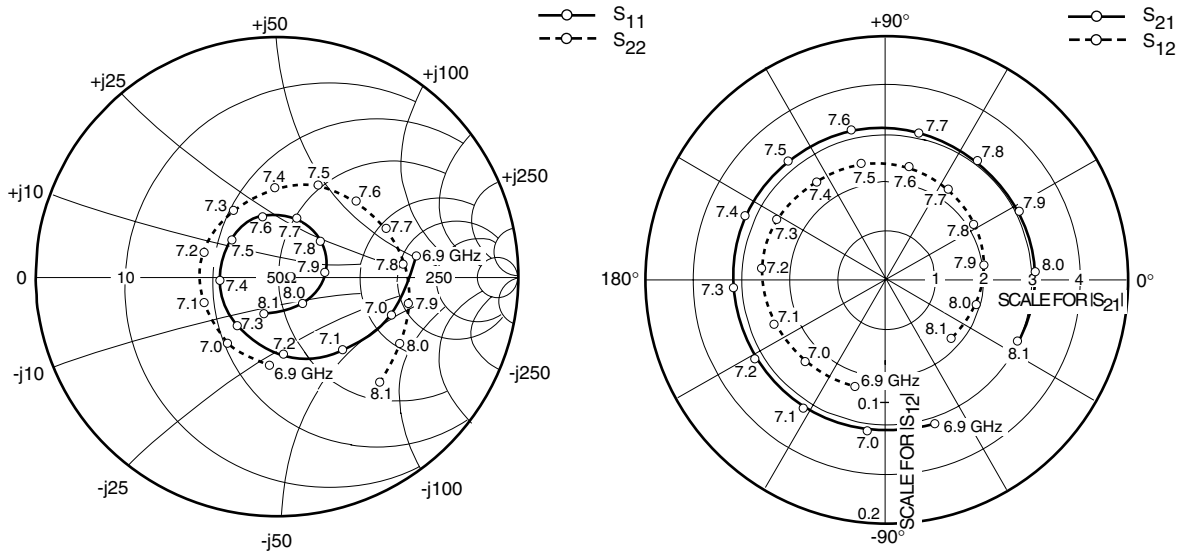


**OUTPUT POWER vs. FREQUENCY**



**OUTPUT POWER vs. INPUT POWER**



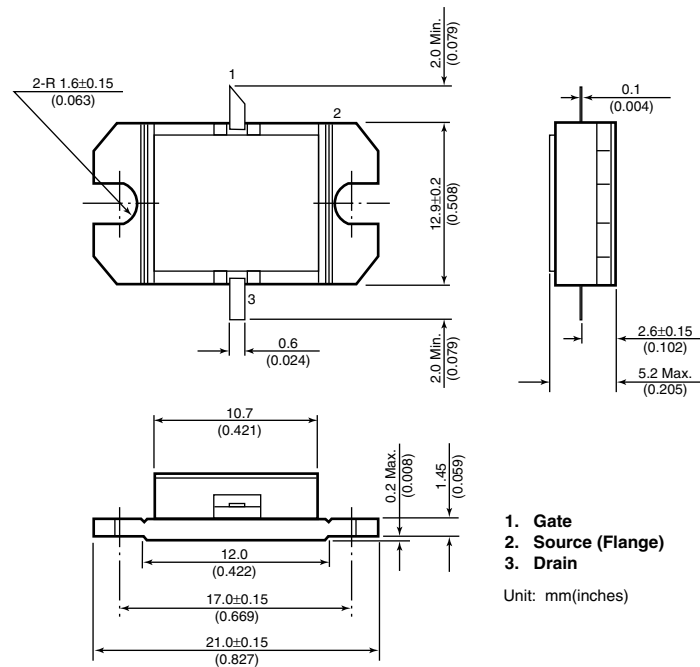


### S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 2200mA$

| FREQUENCY<br>(MHZ) | S11  |        | S21   |        | S12  |        | S22  |        |
|--------------------|------|--------|-------|--------|------|--------|------|--------|
|                    | MAG  | ANG    | MAG   | ANG    | MAG  | ANG    | MAG  | ANG    |
| 6900               | .583 | 8.7    | 3.108 | -71.7  | .091 | -112.1 | .373 | -95.0  |
| 7000               | .504 | -18.5  | 3.141 | -97.1  | .097 | -134.9 | .343 | -125.7 |
| 7100               | .410 | -47.7  | 3.170 | -122.4 | .102 | -158.3 | .318 | -159.5 |
| 7200               | .323 | -85.2  | 3.217 | -149.4 | .105 | 175.8  | .311 | 161.9  |
| 7300               | .259 | -128.8 | 3.251 | -176.6 | .104 | 151.2  | .331 | 123.8  |
| 7400               | .237 | -177.4 | 3.232 | 156.3  | .101 | 127.2  | .373 | 91.6   |
| 7500               | .245 | 139.5  | 3.214 | 129.9  | .098 | 102.8  | .420 | 66.0   |
| 7600               | .262 | 103.7  | 3.188 | 103.9  | .095 | 79.5   | .461 | 44.1   |
| 7700               | .261 | 71.7   | 3.133 | 78.3   | .089 | 56.0   | .496 | 24.5   |
| 7800               | .237 | 40.0   | 3.094 | 52.8   | .086 | 31.9   | .524 | 6.3    |
| 7900               | .199 | 4.2    | 3.065 | 27.4   | .081 | 8.1    | .554 | -11.2  |
| 8000               | .151 | -44.6  | 3.037 | 1.9    | .077 | -15.5  | .586 | -28.4  |
| 8100               | .161 | -110.9 | 2.989 | -24.9  | .072 | -41.8  | .616 | -45.4  |

### Case Style "IB" 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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