

### FEATURES

- High Output Power:  $P_{1dB} = 43.0\text{dBm}$  (Typ.)
- High Gain:  $G_{1dB} = 10.0\text{dB}$  (Typ.)
- High PAE:  $\eta_{add} = 37\%$  (Typ.)
- Low IM3 =  $-46\text{dBc@Po} = 32.0\text{dBm}$
- Broad Band: 5.9 to 6.4GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\text{ohm}$
- Hermetically Sealed Package



### DESCRIPTION

The FLM5964-18F is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 ohm system.

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

### ABSOLUTE MAXIMUM RATING (Case Temperature $T_c=25\text{deg.C}$ )

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

SEDI 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 48.0 and -8.4 mA respectively with gate resistance of 25ohm.

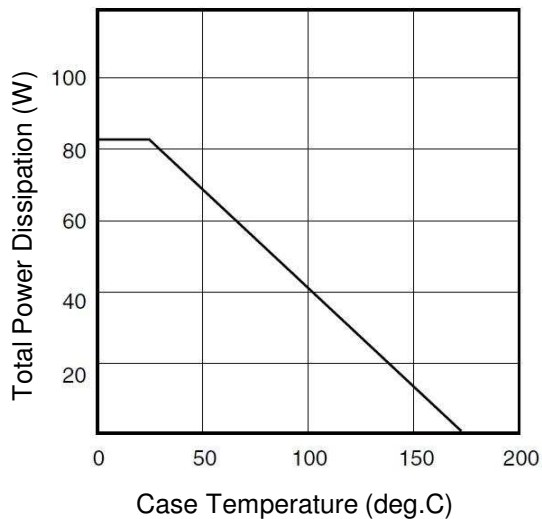
### ELECTRICAL CHARACTERISTICS (Case Temperature $T_c=25\text{deg.C}$ )

| Item                                 | Symbol          | Test Conditions                                                                                   | Limit |      |       | Unit    |
|--------------------------------------|-----------------|---------------------------------------------------------------------------------------------------|-------|------|-------|---------|
|                                      |                 |                                                                                                   | Min.  | Typ. | Max.  |         |
| Saturated Drain Current              | $I_{DSS}$       | $V_{DS}=5V, V_{GS}=0V$                                                                            | -     | 7.5  | 11.25 | A       |
| Transconductance                     | $g_m$           | $V_{DS}=5V, I_{DS}=4875\text{mA}$                                                                 | -     | 7500 | -     | mS      |
| Pinch-off Voltage                    | $V_p$           | $V_{DS}=5V, I_{DS}=250\text{mA}$                                                                  | -0.5  | -1.5 | -3.0  | V       |
| Gate Source Breakdown Voltage        | $V_{GSO}$       | $I_{GS}=-250\text{uA}$                                                                            | -5.0  | -    | -     | V       |
| Output Power at 1dB G.C.P.           | $P_{1dB}$       | $V_{DS}=10V,$<br>$I_{DS}=0.65 I_{DSS}$ (Typ.),<br>$f=5.9$ to $6.4$ GHz,<br>$Z_S=Z_L=50\text{ohm}$ | 42.0  | 43.0 | -     | dBm     |
| Power Gain at 1dB G.C.P.             | $G_{1dB}$       |                                                                                                   | 9.0   | 10.0 | -     | dB      |
| Drain Current                        | $I_{dsr}$       |                                                                                                   | -     | 4875 | 6000  | mA      |
| Power-added Efficiency               | $\eta_{add}$    |                                                                                                   | -     | 37   | -     | %       |
| Gain Flatness                        | $\Delta G$      |                                                                                                   | -     | -    | 1.2   | dB      |
| 3rd Order Intermodulation Distortion | $IM_3$          | $f = 6.4$ GHz, $\Delta f = 10$ MHz<br>2-Tone Test<br>$P_{out} = 32.0\text{dBm S.C.L.}$            | -44   | -46  | -     | dBc     |
| Thermal Resistance                   | $R_{th}$        | Channel to Case                                                                                   | -     | 1.6  | 1.8   | deg.C/W |
| Channel Temperature Rise             | $\Delta T_{ch}$ | $10V \times I_{dsr} \times R_{th}$                                                                | -     | -    | 80    | deg.C   |

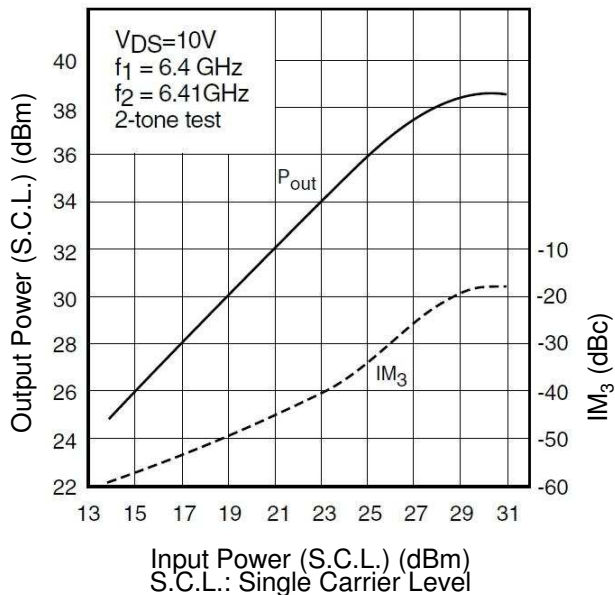
G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level

|                                                        |          |                |
|--------------------------------------------------------|----------|----------------|
| CASE STYLE                                             | IK       |                |
| ESD                                                    | Class 3A | 4000V to 8000V |
| Note : Based on JEDEC JESD22-A114 (C=100pF, R=1.5kohm) |          |                |
| RoHS Compliance                                        | Yes      |                |

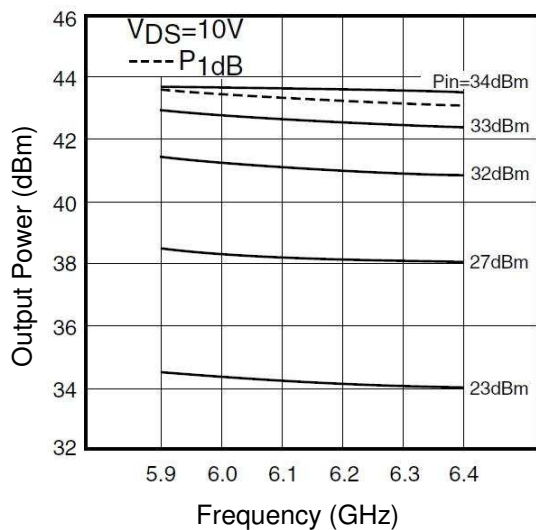
**POWER DERATING CURVE**



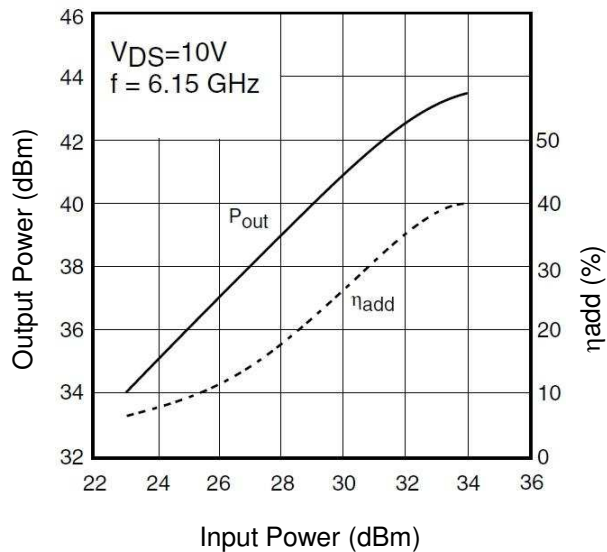
**OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER**

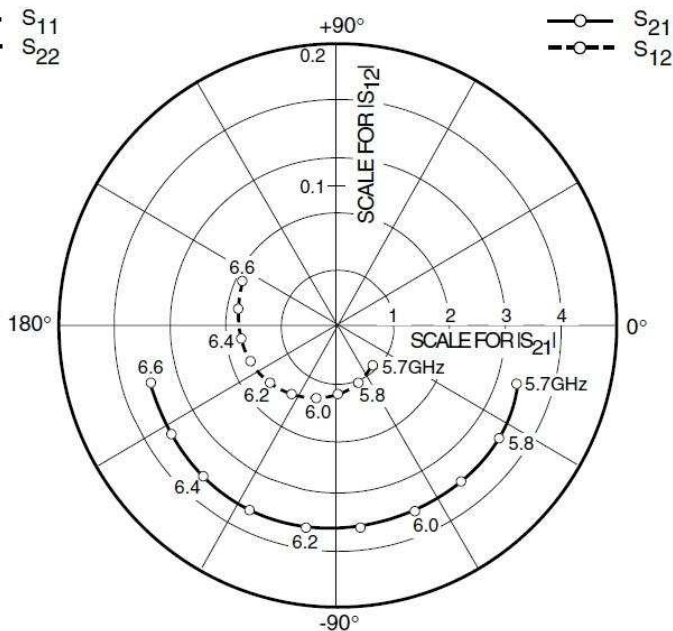
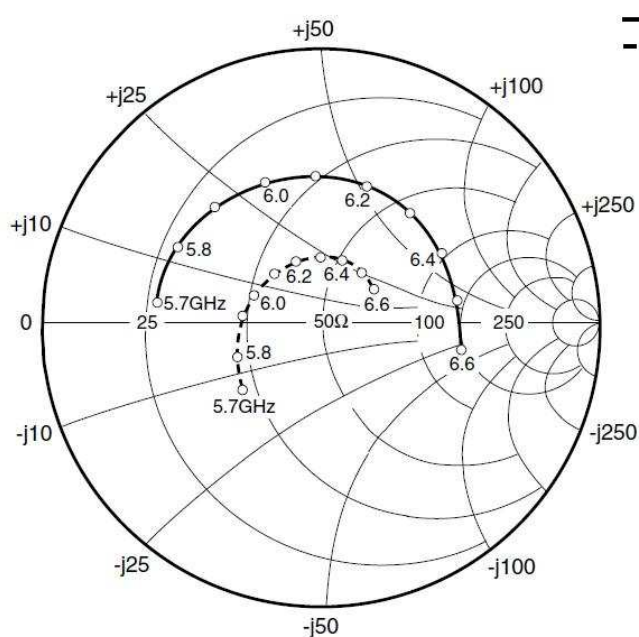


**OUTPUT POWER vs. FREQUENCY**



**OUTPUT POWER vs. INPUT POWER**



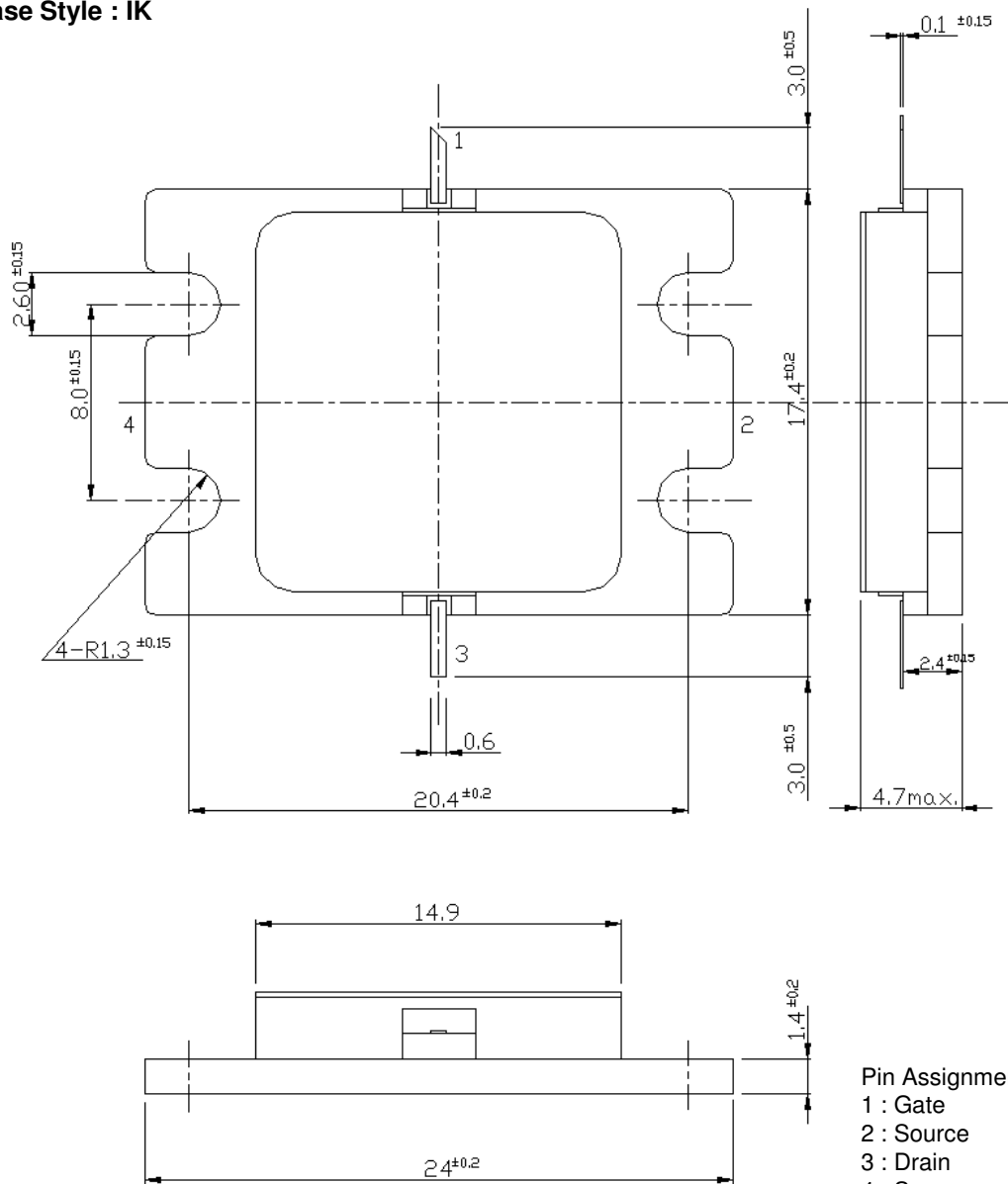


### S-PARAMETERS

$V_{DS} = 10V$ ,  $I_{DS} = 4875mA$

| FREQUENCY<br>(MHz) | S11   |       | S21   |        | S12   |        | S22   |        |
|--------------------|-------|-------|-------|--------|-------|--------|-------|--------|
|                    | MAG   | ANG   | MAG   | ANG    | MAG   | ANG    | MAG   | ANG    |
| 5700               | 0.597 | 172.1 | 3.400 | -18.1  | 0.038 | -49.2  | 0.438 | -147.7 |
| 5800               | 0.583 | 151.8 | 3.480 | -34.7  | 0.043 | -70.2  | 0.407 | -164.5 |
| 5900               | 0.569 | 132.1 | 3.537 | -51.2  | 0.049 | -89.7  | 0.379 | 178.5  |
| 6000               | 0.552 | 112.4 | 3.579 | -67.4  | 0.054 | -106.8 | 0.351 | 161.7  |
| 6100               | 0.535 | 93.1  | 3.612 | -83.5  | 0.059 | -124.1 | 0.322 | 144.9  |
| 6200               | 0.516 | 72.6  | 3.625 | -99.5  | 0.064 | -141.0 | 0.292 | 128.2  |
| 6300               | 0.502 | 51.8  | 3.626 | -115.6 | 0.068 | -157.9 | 0.261 | 110.9  |
| 6400               | 0.494 | 30.4  | 3.596 | -131.6 | 0.071 | -173.2 | 0.229 | 93.7   |
| 6500               | 0.494 | 9.4   | 3.546 | -147.5 | 0.074 | 170.9  | 0.196 | 75.1   |
| 6600               | 0.503 | -10.7 | 3.481 | -163.1 | 0.076 | 155.4  | 0.164 | 54.6   |

■ Package Outline  
Case Style : IK



Pin Assignment

- 1 : Gate
- 2 : Source
- 3 : Drain
- 4 : Source

Unit : mm

**For further information please contact:**

**<http://global-sei.com/Electro-optic/about/office.html>**

**CAUTION**

This product contains **gallium arsenide (GaAs)** which can be hazardous to the human body and the environment. For safety, observe the following procedures:

- Do not put these products 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.