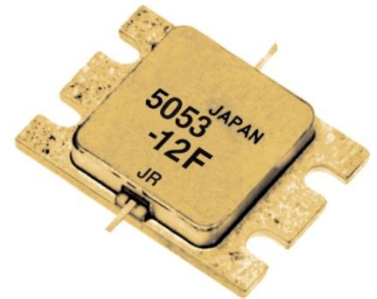


FEATURES

- High Output Power: $P_{1dB} = 41.5\text{dBm}$ (Typ.)
- High Gain: $G_{1dB} = 9.5\text{dB}$ (Typ.)
- High PAE: $\eta_{add} = 38\%$ (Typ.)
- Low IM3 = $-46\text{dBc}@P_o = 30.5\text{dBm}$
- Broad Band: 5.0 to 5.3GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\text{ohm}$



DESCRIPTION

The FLM5053-12F 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 (Ambient Temperature $T_a=25\text{deg.C}$)

| Item | Symbol | Condition | Rating | Unit |
|-------------------------|-----------|------------------------|-------------|-------|
| Drain-Source Voltage | V_{DS} | | 15 | V |
| Gate-Source Voltage | V_{GS} | | -5 | V |
| Total Power Dissipation | P_T | $T_c = 25\text{deg.C}$ | 57.6 | 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 32.0 and -5.6 mA respectively with gate resistance of 50ohm.

ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a=25\text{deg.C}$)

| Item | Symbol | Test Conditions | Limit | | | Unit |
|--------------------------------------|-----------------|----------------------------------------------------------------------------------------|-------|------|--------|---------|
| | | | Min. | Typ. | Max. | |
| Saturated Drain Current | I_{DSS} | $V_{DS}=5V, V_{GS}=0V$ | - | 5800 | 8700 | mA |
| Transconductance | g_m | $V_{DS}=5V, I_{DS}=3400\text{mA}$ | - | 2900 | - | mS |
| Pinch-off Voltage | V_p | $V_{DS}=5V, I_{DS}=300\text{mA}$ | -1.0 | -2.0 | -3.5 | V |
| Gate Source Breakdown Voltage | V_{GSO} | $I_{GS}=-300\text{uA}$ | -5.0 | - | - | V |
| Output Power at 1dB G.C.P. | P_{1dB} | $V_{DS}=10V,$ | 40.5 | 41.5 | - | dBm |
| Power Gain at 1dB G.C.P. | G_{1dB} | $I_{DS}=0.55 I_{DSS}$ (Typ.), | 8.5 | 9.5 | - | dB |
| Drain Current | I_{dsr} | $f=5.0$ to 5.3 GHz, | - | 3250 | 3800 | mA |
| Power-added Efficiency | η_{add} | $Z_S=Z_L=50\text{ohm}$ | - | 38 | - | % |
| Gain Flatness | ΔG | | - | - | +/-0.6 | dB |
| 3rd Order Intermodulation Distortion | IM_3 | $f = 5.3$ GHz, $\Delta f = 10$ MHz 2-Tone Test $P_{out} = 30.5\text{dBm}$ S.C.L. | -44 | -46 | - | dBc |
| Thermal Resistance | R_{th} | Channel to Case | - | 2.3 | 2.6 | deg.C/W |
| Channel Temperature Rise | ΔT_{ch} | $10V \times I_{dsr} \times R_{th}$ | - | - | 80 | deg.C |

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

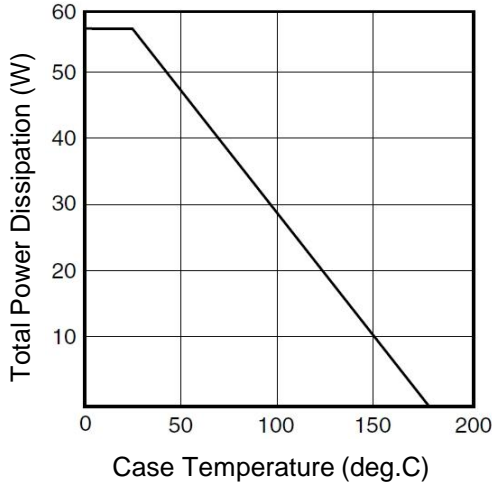
| | |
|-------------------|-----------|
| CASE STYLE | IK |
|-------------------|-----------|

| | | |
|------------|-----------------|-----------------------|
| ESD | Class 3A | 4000V to 8000V |
|------------|-----------------|-----------------------|

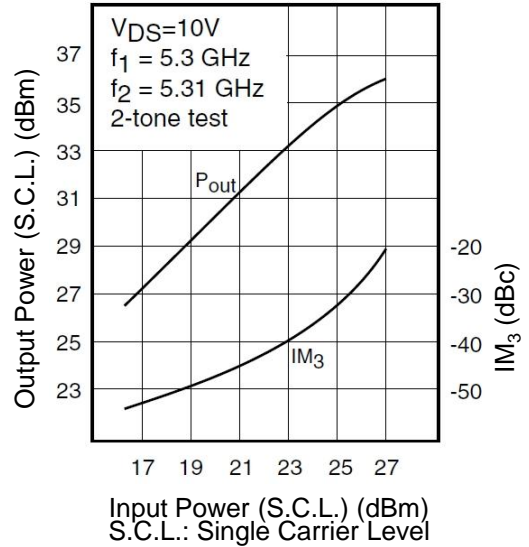
Note : Based on EIAJ ED-4701 C-111A (C=100pF, R=1.5kohm)

| | |
|------------------------|------------|
| RoHS Compliance | Yes |
|------------------------|------------|

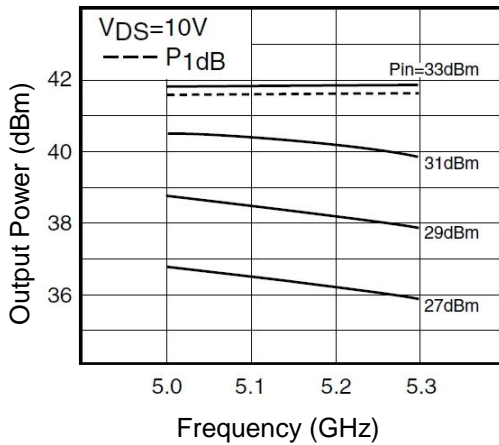
POWER DERATING CURVE



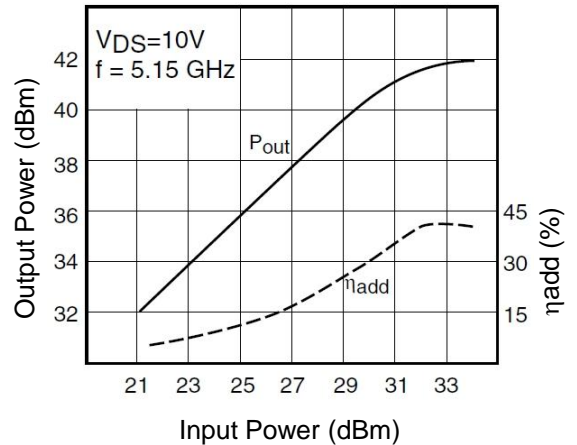
OUTPUT POWER & IM₃ vs. INPUT POWER

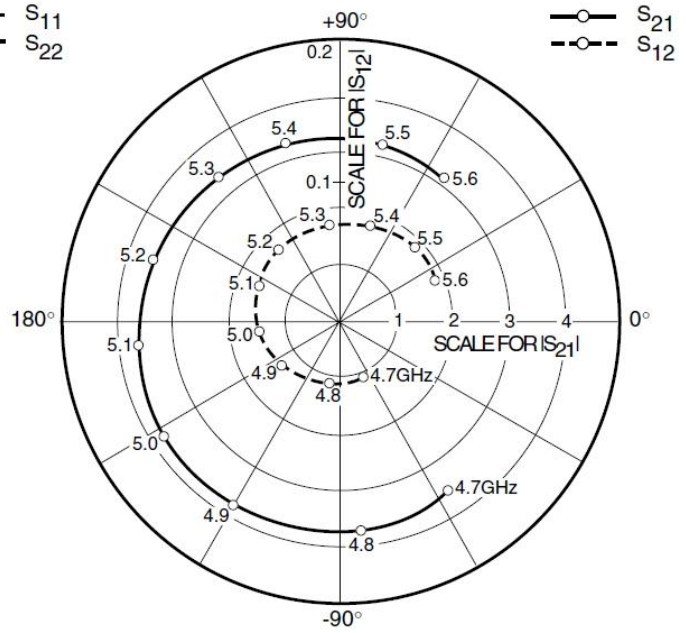
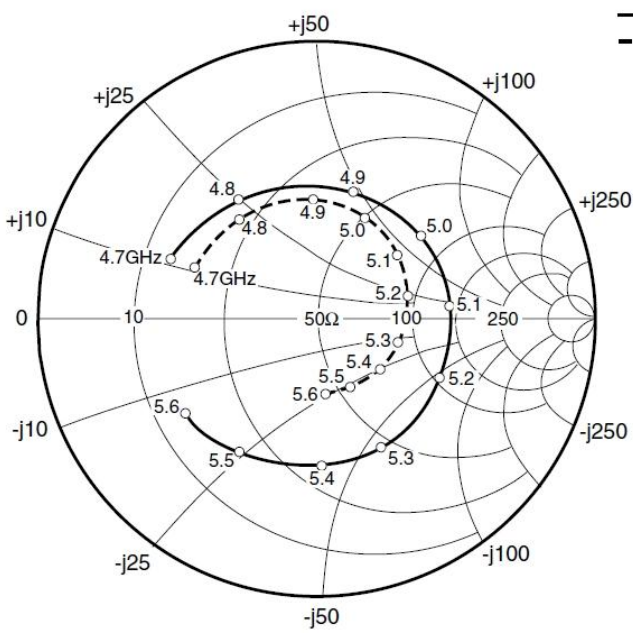


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER



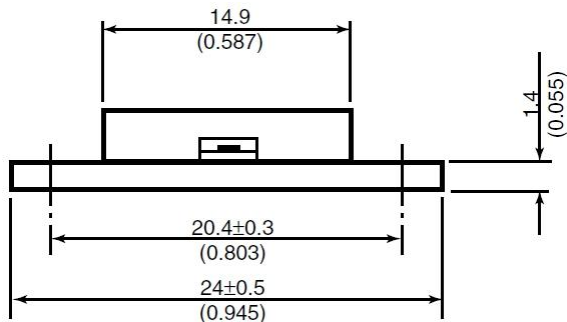
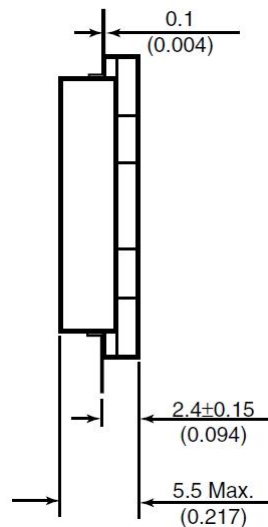
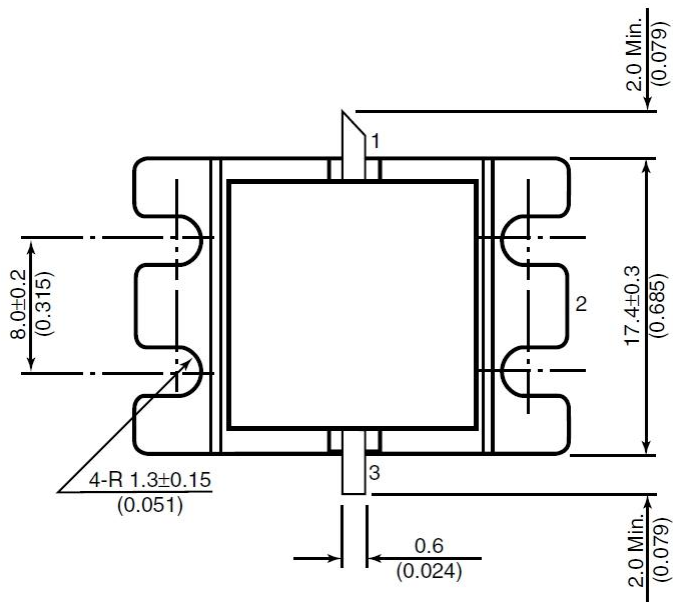


S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 3400mA$

| FREQUENCY (MHz) | S11 | | S21 | | S12 | | S22 | |
|--------------------|-------|--------|-------|--------|-------|--------|-------|-------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 4700 | 0.569 | 159.6 | 3.590 | -57.1 | 0.044 | -68.7 | 0.479 | 159.2 |
| 4800 | 0.518 | 124.9 | 3.753 | -84.3 | 0.049 | -101.8 | 0.456 | 129.9 |
| 4900 | 0.472 | 75.3 | 3.826 | -120.6 | 0.058 | -142.7 | 0.421 | 92.9 |
| 5000 | 0.463 | 38.4 | 3.788 | -147.3 | 0.062 | -172.5 | 0.394 | 66.0 |
| 5100 | 0.469 | 4.2 | 3.693 | -173.0 | 0.064 | 159.0 | 0.354 | 38.5 |
| 5200 | 0.488 | -27.5 | 3.565 | 162.3 | 0.066 | 133.8 | 0.328 | 12.3 |
| 5300 | 0.518 | -64.8 | 3.420 | 130.6 | 0.069 | 99.2 | 0.304 | -19.2 |
| 5400 | 0.543 | -89.8 | 3.334 | 107.5 | 0.070 | 76.0 | 0.291 | -40.8 |
| 5500 | 0.578 | -121.5 | 3.214 | 76.8 | 0.071 | 44.4 | 0.292 | -67.7 |
| 5600 | 0.594 | -143.9 | 3.128 | 54.1 | 0.071 | 22.2 | 0.281 | -86.1 |

Case Style "IK"
Metal-Ceramic Hermetic Package



1. Gate
2. Source (Flange)
3. Drain

Unit: mm(inches)



FLM5053-12F

C-Band Internally Matched FET

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.