

FLU10ZM

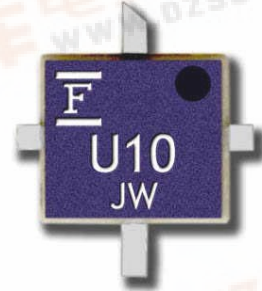
L-Band Medium & High Power GaAs FET

FEATURES

- High Output Power: P1dB=29.5dBm(typ.)
- High Gain: G1dB=13.0dB(typ.)
- Low Cost Plastic(SMT) Package
- Tape and Reel Available

DESCRIPTION

The FLU10ZM is a GaAs FET designed for base station and CPE applications. This is a new product series using a plastic surface mount package that has been optimized for high volume cost driven applications. Fujitsu's stringent Quality Assurance Program assures the highest reliability and consistent performance.



ABSOLUTE MAXIMUM RATINGS (Case Temperature Tc=25°C)

| Item | Symbol | Rating | Unit |
|-------------------------|------------------|-------------|------|
| Drain-Source Voltage | V _{DS} | 15 | V |
| Gate-Source Voltage | V _{GS} | -5 | V |
| Total Power Dissipation | P _T | 6.9 | W |
| Storage Temperature | T _{stg} | -55 to +150 | °C |
| Channel Temperature | T _{CH} | 175 | °C |

Recommended Operating Condition (Case Temperature Tc=25°C)

| Item | Symbol | Condition | Unit |
|----------------------|------------------|-----------|------|
| DC Input Voltage | V _{DS} | ≤ 10 | V |
| Channel Temperature | T _{ch} | ≤ 145 | °C |
| Forward Gate Current | I _{gsf} | ≤ 4.8 | mA |
| Reverse Gate Current | I _{gsr} | ≥ -0.5 | mA |
| Gate Resistance | R _g | 400 | Ω |

ELECTRICAL CHARACTERISTICS (Case Temperature Tc=25°C)

| Item | Symbol | Test Conditions | Limit | | | Unit |
|-------------------------------|------------------|---|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| Drain Current | I _{DSS} | V _{DS} =5V, V _{GS} =0V | - | 300 | 450 | mA |
| Transconductance | gm | V _{DS} =5V, I _{DS} =200mA | - | 150 | - | mS |
| Pinch-off Voltage | V _p | V _{DS} =5V, I _{DS} =15mA | -1.0 | -2.0 | -3.5 | V |
| Gate-Source Breakdown Voltage | V _{GSO} | I _{GS} =-15uA | -5 | - | - | V |
| Output Power at 1dB G.C.P. | P _{1dB} | V _{DS} =10V, f=2.0GHz, I _{DS} =0.6I _{DSS} (Typ.) | 28.5 | 29.5 | - | dBm |
| Power Gain at 1dB G.C.P. | G _{1dB} | I _{DS} =0.6I _{DSS} (Typ.) | 12.0 | 13.0 | - | dB |
| Thermal Resistance | R _{th} | Channel to Case | - | 15 | 18 | °C/W |

CASE STYLE: ZM

G.C.P.: Gain Compression Point

Note 1: Product supplied to this specification are 100% DC performance tested.

Note 2: The RF parameters are measured on a lot basis by sample testing 10 pcs/lot.

Acceptance Criteria:(accept/reject)=(0/1). Any lot failure shall be 100% retested.

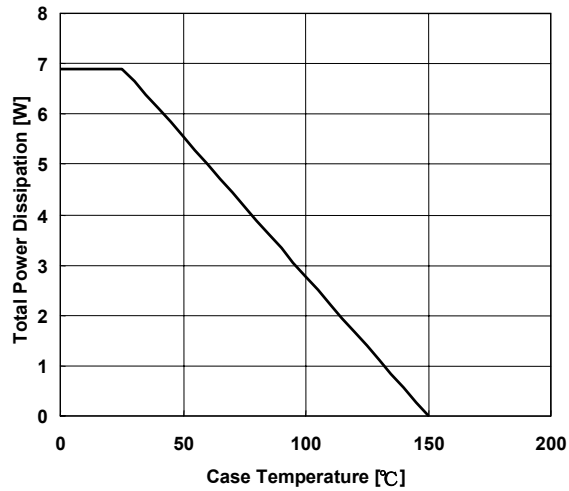
| | | |
|-----|----------|-------------|
| ESD | Class II | 500~ 1999 V |
|-----|----------|-------------|

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

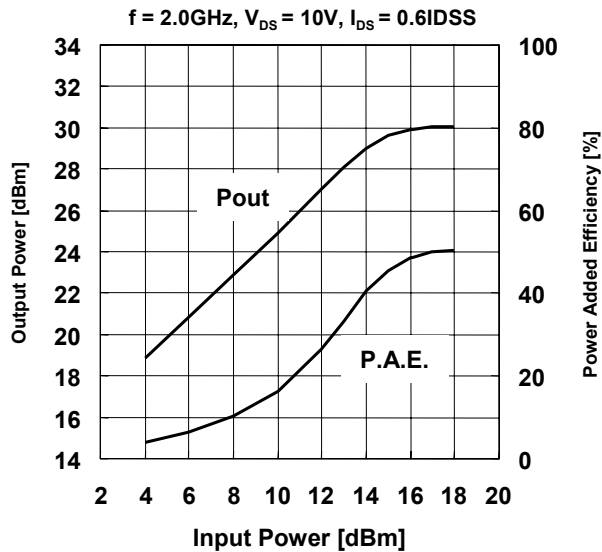
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POWER DERATING CURVE



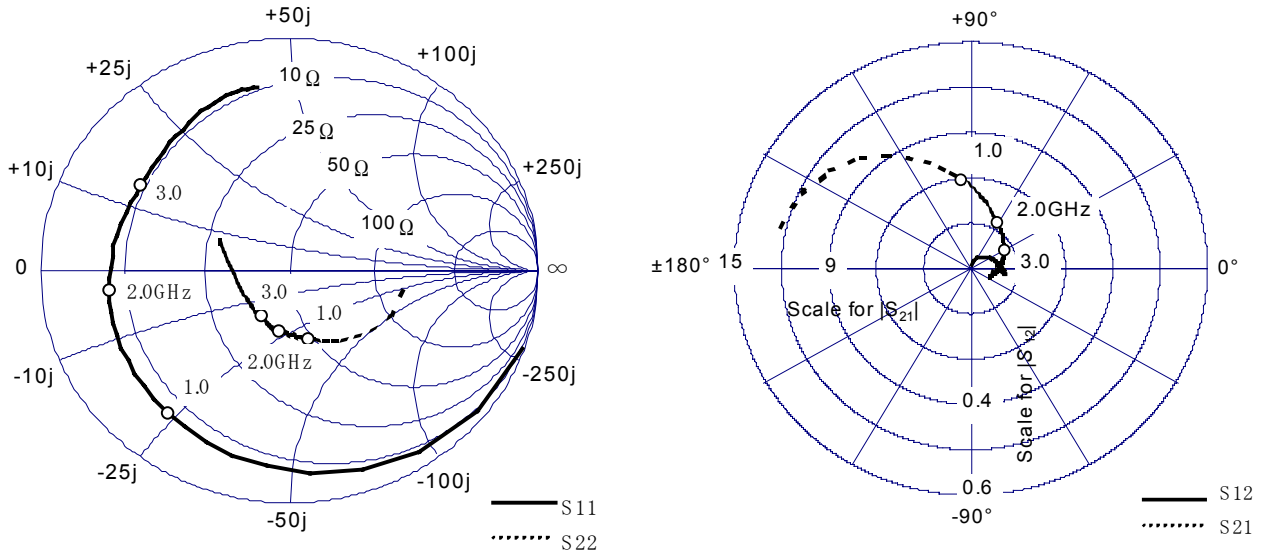
OUTPUT POWER & POWER ADDED EFFICIENCY vs. INPUT POWER



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■ S-PARAMETER



$V_{DS} = 10V, I_{DS} = 180mA$

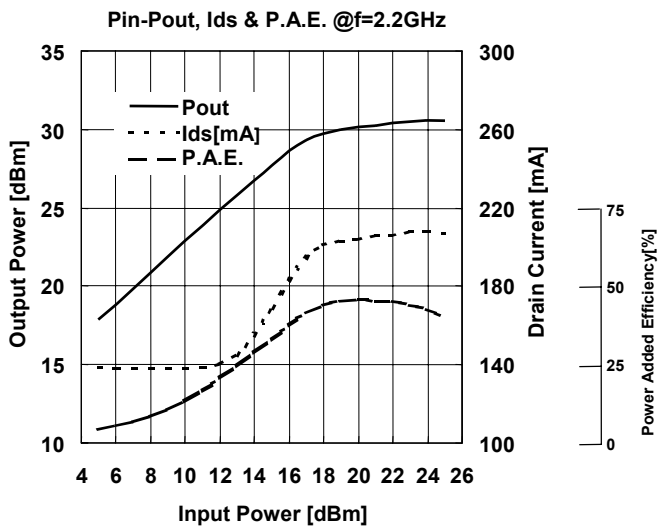
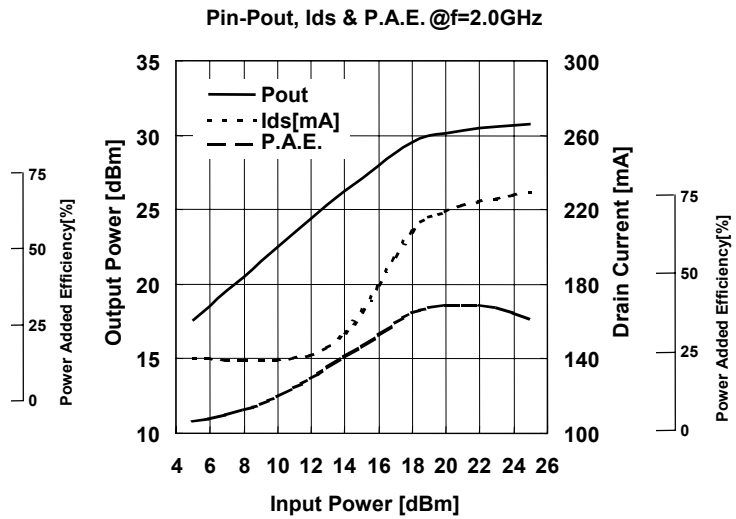
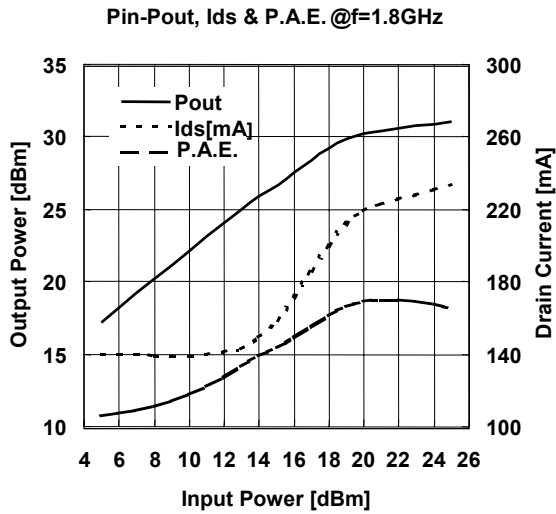
| Freq [GHz] | S11 | | S21 | | S12 | | S22 | |
|---------------|------|---------|------|--------|------|--------|------|---------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 0.5 | 0.88 | -82.82 | 9.02 | 126.68 | 0.05 | 48.61 | 0.37 | -52.39 |
| 1 | 0.78 | -128.10 | 5.90 | 96.81 | 0.06 | 27.98 | 0.30 | -78.22 |
| 1.5 | 0.75 | -153.80 | 4.31 | 76.65 | 0.07 | 19.62 | 0.27 | -91.11 |
| 2 | 0.72 | -174.63 | 3.45 | 60.18 | 0.07 | 13.94 | 0.25 | -101.36 |
| 2.5 | 0.71 | 165.70 | 2.85 | 43.48 | 0.08 | 8.34 | 0.22 | -114.34 |
| 3 | 0.69 | 145.11 | 2.41 | 27.24 | 0.08 | 4.74 | 0.20 | -128.63 |
| 3.5 | 0.73 | 126.72 | 2.05 | 11.34 | 0.08 | -1.38 | 0.19 | -153.74 |
| 4 | 0.76 | 112.29 | 1.74 | -3.63 | 0.08 | -7.63 | 0.22 | 179.95 |
| 4.5 | 0.79 | 100.63 | 1.48 | -17.87 | 0.09 | -13.21 | 0.27 | 161.06 |
| 5 | 0.80 | 93.48 | 1.25 | -30.30 | 0.09 | -16.94 | 0.34 | 146.70 |

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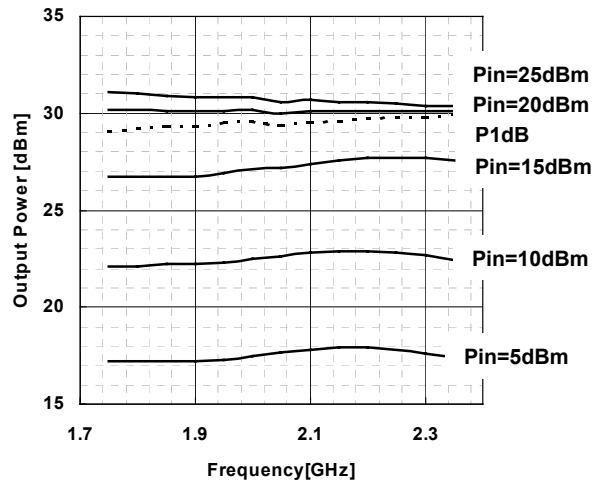
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OUTPUT POWER & DRAIN CURRENT vs. INPUT POWER with a wide band tuning condition.

@ $V_{DS} = 10V$, $I_{DS} = 150mA$, $V_{GS} = -0.9V$



OUTPUT POWER vs. FREQUENCY

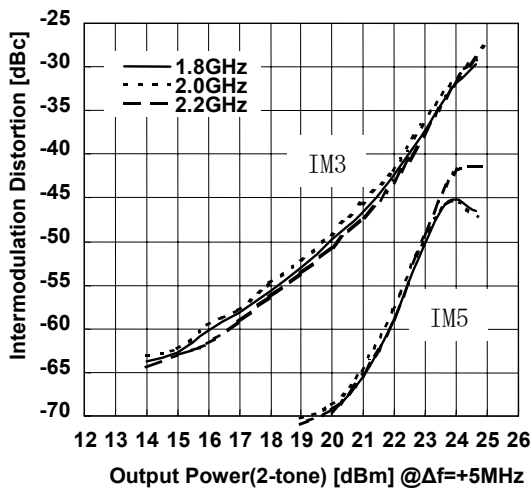


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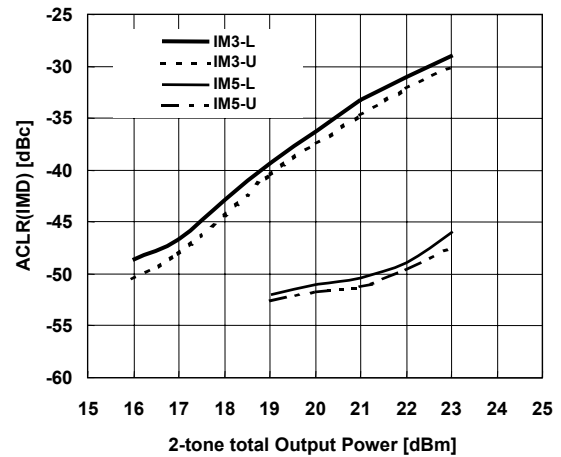
@ $V_{DS} = 10V$, $I_{DS} = 150mA$, $V_{GS} = -0.9V$

IMD vs OUTPUT POWER(2-tone)



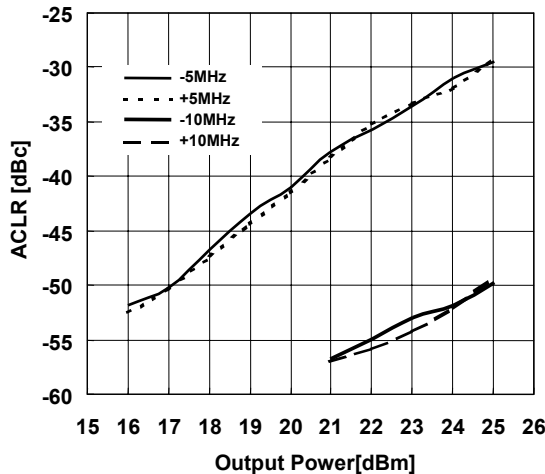
W-CDMA 2-CARRIER IMD(ACLR)

*fo=2.1325GHz *f1=2.1475GHz



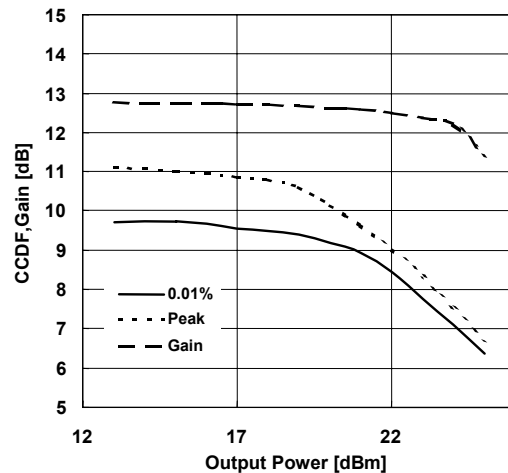
W-CDMA SINGLE CARRIER ACLR

*fo=2.1325GHz



W-CDMA SINGLE CARRIER CCDF AND GAIN

*fo=2.1325GHz

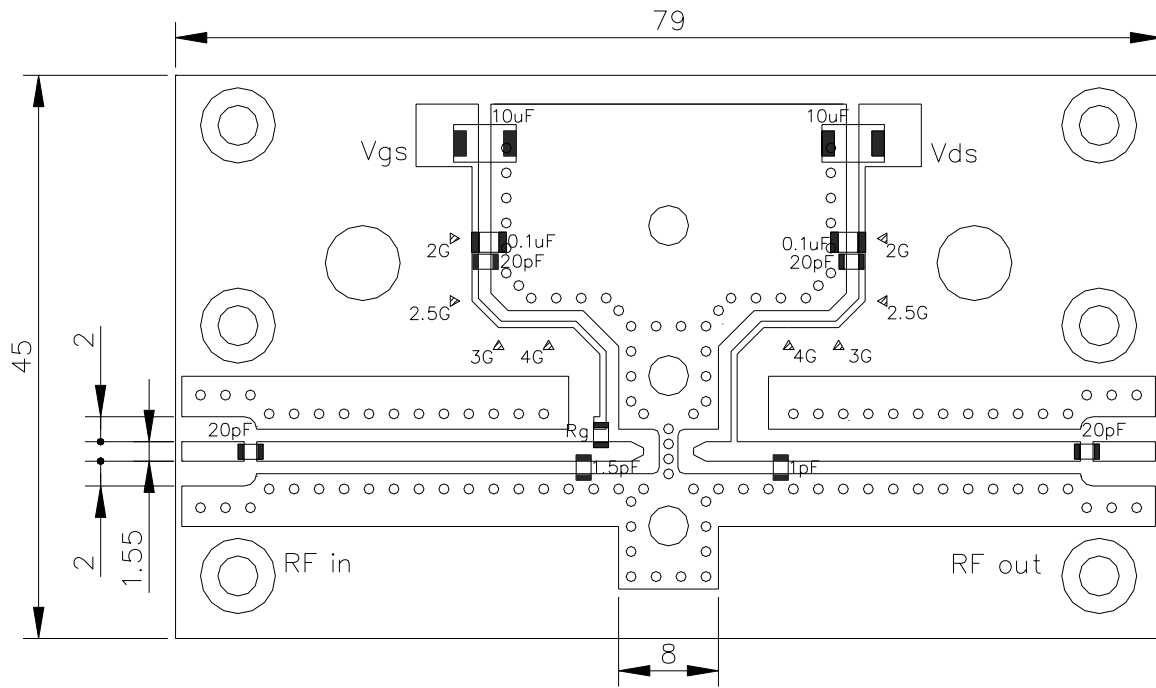


Note : *All signals are W-CDMA modulated at 3GPP3.4.12-00 BS-1 64ch non clipping. All data was obtained using the board tuned for wide band tuning (1.8 GHz to 2.3 GHz).

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■ Recommended Bias Circuit and Internal Block Diagram (wide band tuning condition)



<Board information>
 $\epsilon_r=3.5$, $t=0.8$

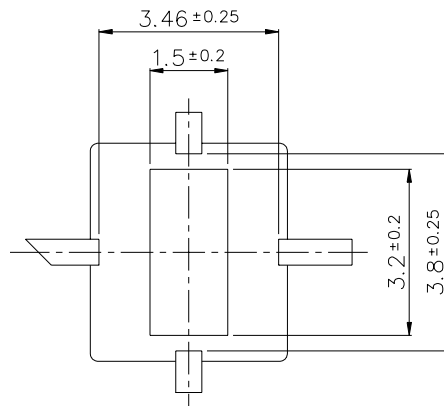
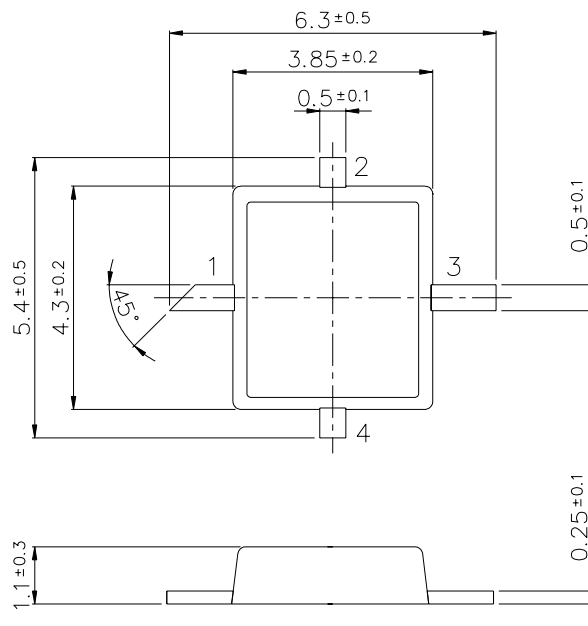
Unit : mm

* Board was tuned for wide band performance with data shown on pages 4 and 5.

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■ Package Outline



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

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