

# FLL1500IU-2C

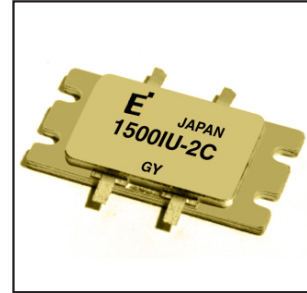
## L-Band High Power GaAs FET

### FEATURES

- Push-Pull Configuration
- High Power Output: 150W (Typ.)
- High PAE: 48% (Typ.)
- Broad Frequency Range: 2100 to 2200 MHz.
- Suitable for class AB operation.

### DESCRIPTION

The FLL1500IU-2C is a 150 Watt GaAs FET that employs a push-pull design that offers ease of matching, greater consistency and a broader bandwidth for high power L-band amplifiers. This product is targeted to reduce the size and complexity of highly linear, high power base station transmitting amplifiers. This new product is well suited for use in W-CDMA and IMT 2000 base station amplifiers as it offers high gain, long term reliability and ease of use.



### APPLICATIONS

- Solid State Base-Station Power Amplifier.
- W-CDMA and IMT 2000 Communication Systems.

### ABSOLUTE MAXIMUM RATINGS (Ambient Temperature Ta=25°C)

| Item                    | Symbol    | Condition                | Rating      | Unit             |
|-------------------------|-----------|--------------------------|-------------|------------------|
| Drain-Source Voltage    | $V_{DS}$  |                          | 15          | V                |
| Gate-Source Voltage     | $V_{GS}$  |                          | -5          | V                |
| Total Power Dissipation | $P_T$     | $T_c = 25^\circ\text{C}$ | 187.5       | 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 12 volts.
2. The forward and reverse gate currents should not exceed 353 and -103.6 mA respectively with gate resistance of 10 $\Omega$ .
3. The operating channel temperature ( $T_{ch}$ ) should not exceed 145 $^\circ\text{C}$ .

### ELECTRICAL CHARACTERISTICS (Case Temperature Tc=25°C)

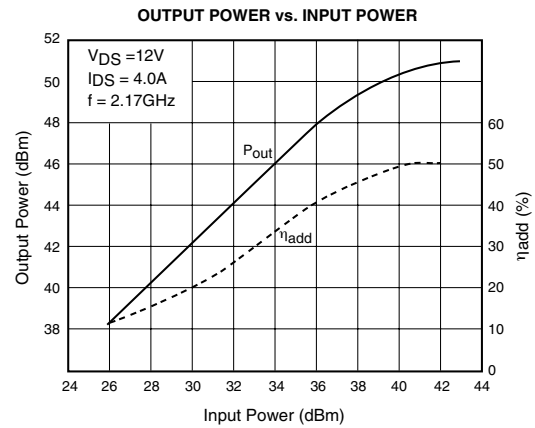
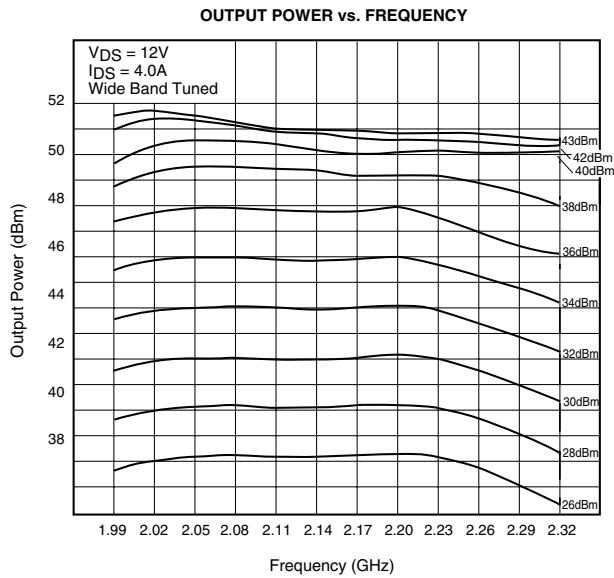
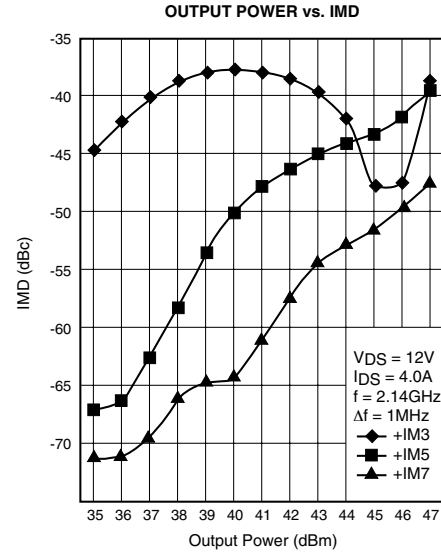
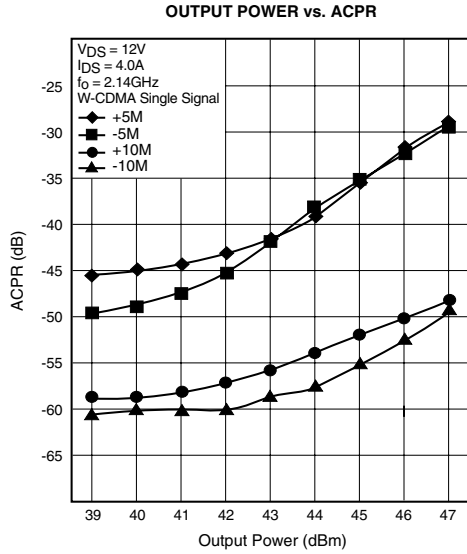
| Item                          | Symbol       | Conditions                                                                                           | Limits |      |      | Unit               |
|-------------------------------|--------------|------------------------------------------------------------------------------------------------------|--------|------|------|--------------------|
|                               |              |                                                                                                      | Min.   | Typ. | Max. |                    |
| Drain Current                 | $I_{DSS}$    | $V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$                                                             | -      | 16   | -    | A                  |
| Pinch-Off Voltage             | $V_p$        | $V_{DS} = 5\text{V}, I_{DS} = 440\text{mA}$                                                          | -0.1   | -0.3 | -0.5 | V                  |
| Gate-Source Breakdown Voltage | $V_{GSO}$    | $I_{GS} = -4.4\text{mA}$                                                                             | -5     | -    | -    | V                  |
| Output Power                  | $P_{out}$    | $V_{DS} = 12\text{V}$<br>$f = 2.17\text{GHz}$<br>$I_{DS} = 4.0\text{A}$<br>$P_{in} = 43.0\text{dBm}$ | 50.8   | 51.8 | -    | dBm                |
| Linear Gain                   | GL           |                                                                                                      | 11.0   | 12.0 | -    | dB                 |
| Drain Current                 | $I_{DSR}$    |                                                                                                      | -      | 23   | 30   | A                  |
| Power-Added Efficiency        | $\eta_{add}$ |                                                                                                      | -      | 48   | -    | %                  |
| Thermal Resistance            | $R_{th}$     | Channel to Case                                                                                      | -      | 0.55 | 0.8  | $^\circ\text{C/W}$ |

CASE STYLE: IU

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## L-Band High Power GaAs FET



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# **FLL1500IU-2C**

## **L-Band High Power GaAs FET**

### **S-PARAMETERS**

$V_{DS} = 12V, I_{DS} = 2000mA$

| FREQUENCY<br>(MHZ) | S11  |        | S21   |        | S12  |        | S22  |        |
|--------------------|------|--------|-------|--------|------|--------|------|--------|
|                    | MAG  | ANG    | MAG   | ANG    | MAG  | ANG    | MAG  | ANG    |
| 1000               | .930 | 156.2  | .455  | 54.5   | .010 | 72.9   | .892 | 161.1  |
| 1100               | .923 | 152.7  | .526  | 49.4   | .013 | 66.7   | .875 | 158.4  |
| 1200               | .901 | 148.4  | .648  | 42.1   | .013 | 60.6   | .850 | 155.8  |
| 1300               | .886 | 143.9  | .810  | 31.1   | .015 | 56.1   | .823 | 153.1  |
| 1400               | .855 | 138.0  | 1.035 | 17.1   | .016 | 46.3   | .796 | 150.7  |
| 1500               | .813 | 131.0  | 1.351 | 0.5    | .019 | 28.1   | .763 | 148.7  |
| 1600               | .753 | 121.1  | 1.798 | -19.6  | .021 | 4.2    | .738 | 146.5  |
| 1700               | .653 | 106.2  | 2.412 | -43.9  | .023 | -33.4  | .721 | 142.2  |
| 1800               | .468 | 77.4   | 3.261 | -73.8  | .031 | -76.4  | .677 | 134.2  |
| 1900               | .207 | -11.6  | 3.968 | -114.9 | .042 | -126.2 | .520 | 125.6  |
| 2000               | .458 | -124.0 | 3.749 | -158.0 | .047 | -176.8 | .369 | 140.7  |
| 2100               | .668 | -162.2 | 3.006 | 168.6  | .045 | 147.0  | .429 | 155.8  |
| 2200               | .745 | 175.8  | 2.427 | 145.8  | .039 | 124.5  | .502 | 154.3  |
| 2300               | .761 | 158.8  | 2.122 | 127.1  | .036 | 100.6  | .535 | 148.2  |
| 2400               | .749 | 142.4  | 2.049 | 111.2  | .034 | 85.9   | .548 | 139.7  |
| 2500               | .716 | 126.3  | 2.119 | 94.1   | .031 | 65.1   | .534 | 130.0  |
| 2600               | .658 | 102.0  | 2.264 | 71.4   | .034 | 37.7   | .500 | 116.1  |
| 2700               | .591 | 66.0   | 2.434 | 43.1   | .035 | -3.3   | .455 | 94.5   |
| 2800               | .553 | 14.6   | 2.526 | 10.3   | .044 | -53.7  | .405 | 59.0   |
| 2900               | .613 | -39.8  | 2.347 | -29.3  | .049 | -90.4  | .400 | 9.0    |
| 3000               | .701 | -80.3  | 1.765 | -67.7  | .042 | -117.2 | .480 | -39.5  |
| 3100               | .766 | -107.6 | 1.180 | -95.2  | .045 | -128.4 | .595 | -73.6  |
| 3200               | .803 | -126.5 | .820  | -114.6 | .047 | -127.8 | .694 | -97.2  |
| 3300               | .826 | -140.5 | .622  | -127.6 | .058 | -136.8 | .772 | -114.0 |
| 3400               | .839 | -151.8 | .500  | -140.7 | .069 | -135.3 | .822 | -126.6 |
| 3500               | .844 | -161.6 | .420  | -149.7 | .080 | -145.7 | .858 | -136.9 |
| 3600               | .820 | -170.9 | .366  | -156.5 | .096 | -146.2 | .880 | -145.5 |
| 3700               | .817 | -175.9 | .369  | -163.6 | .098 | -152.4 | .898 | -152.7 |
| 3800               | .816 | 175.6  | .360  | -172.0 | .124 | -157.2 | .900 | -158.8 |
| 3900               | .793 | 167.0  | .380  | 179.1  | .128 | -158.2 | .905 | -164.8 |
| 4000               | .757 | 157.5  | .387  | 166.8  | .155 | -164.5 | .904 | -169.8 |

Note: This S-Parameter data shows measurements performed on a single-ended push-pull FET. These parameters should be used to determine the calculated Push-Pull S-Parameter amplifier designs.

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## Case Style "IU"

