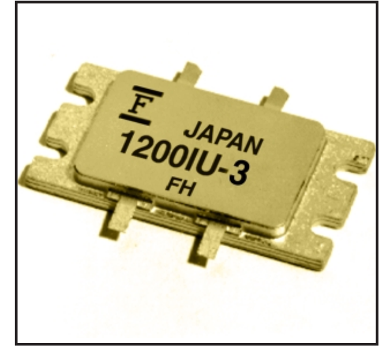
FLL1200IU-3

L-Band High Power GaAs FET

FEATURES

- Push-Pull Configuration
- High Power Output: 120W (Typ.)
- High PAE: 44%.
- Broad Frequency Range: 2400 to 2500 MHz.
- Suitable for class AB operation.



DESCRIPTION

The FLL1200IU-3 is a 120 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 uniquely suited for use in Wireless Local Loop (WLL) base station amplifiers as it offers high gain, long term reliability and ease of use.

APPLICATIONS

- Solid State Base-Station Power Amplifier.
- WLL Communication Systems.

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

Parameter	Symbol	Condition	Rating	Unit
Drain-Source Voltage	V_{DS}		15	V
Gate-Source Voltage	V_{GS}		-5	V
Total Power Dissipation	P_T	Tc = 25°C	187.5	W
Storage Temperature	T_{stg}		-65 to +175	°C
Channel Temperature	T_{ch}		+175	°C

Fujitsu 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 156.0mA and -57.6mA respectively with gate resistance of 10Ω.
3. The operating channel temperature (T_{ch}) should not exceed 145°C.

ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Conditions	Limits			Unit
			Min.	Typ.	Max.	
Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	48	-	A
Transconductance	gm	V_{DS} = 5V, I_{DS} = 28.8A	-	24	-	S
Pinch-Off Voltage	V_p	V_{DS} = 5V, I_{DS} = 2.88A	-1.0	-2.0	-3.5	V
Gate-Source Breakdown Voltage	V_{GSO}	I_{GS} = -2.88mA	-5	-	-	V
Output Power	P_{out}	V_{DS} = 12V f = 2.5 GHz I_{DS} = 5.0A Pin = 41.0dBm Note 1	49.8	50.8	-	dBm
Linear Gain	GL		10.0	11.0	-	dB
Drain Current	I_{DSR}		-	20	30	A
Power-Added Efficiency	η_{add}		-	44	-	%
Thermal Resistance	R_{th}	Channel to Case	-	0.6	0.8	°C/W

CASE STYLE: IU

Note 1: The device shall be measured at a constant V_{GS} condition.

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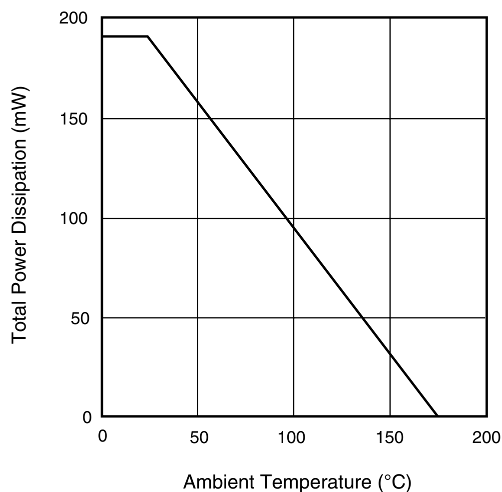

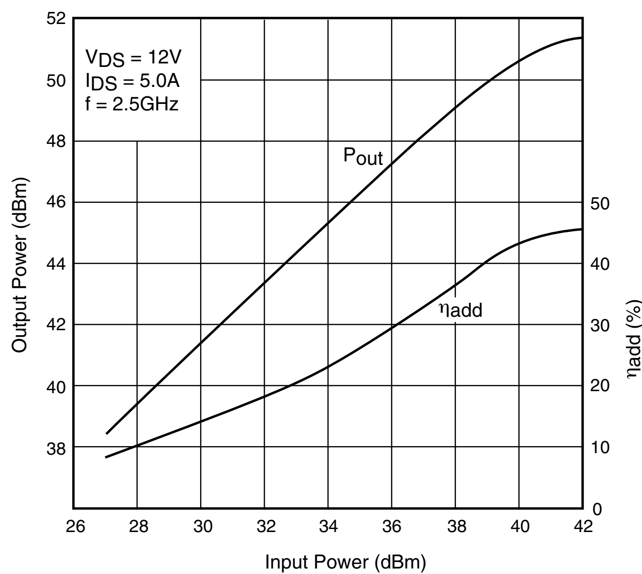

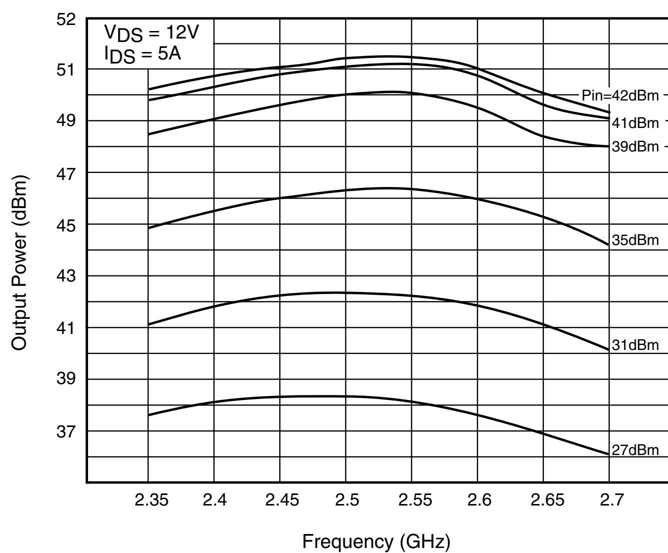

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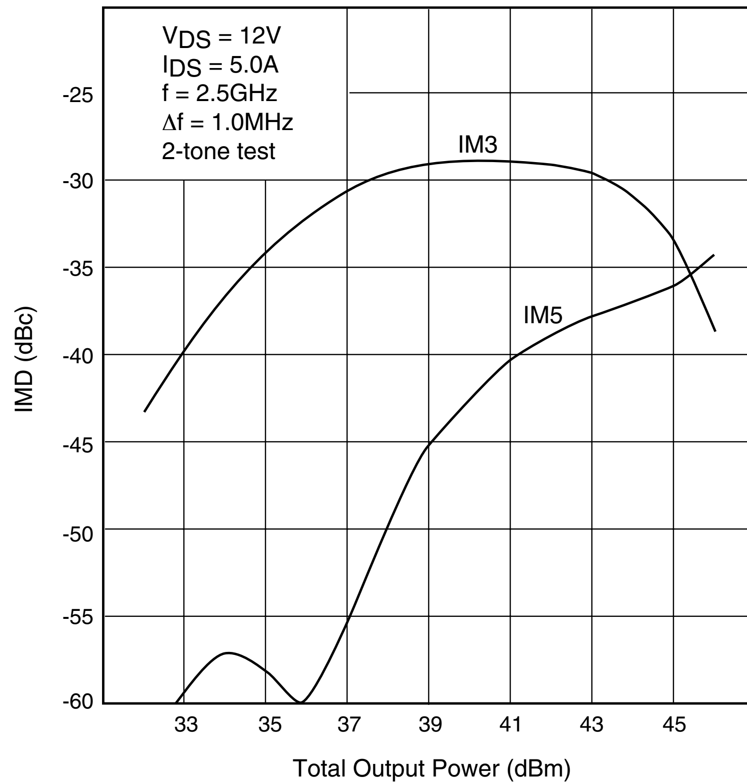
OUTPUT POWER vs. IMD

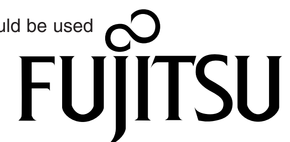


S-PARAMETERS

V_{DS} = 12V, I_{DS} = 2.5A

FREQUENCY (MHZ)	S11 MAG	S11 ANG	S21 MAG	S21 ANG	S12 MAG	S12 ANG	S22 MAG	S22 ANG
1000	.924	167.9	.405	19.7	.004	12.6	.894	166.2
1100	.925	166.5	.420	10.8	.005	7.2	.883	165.0
1200	.916	165.4	.444	1.6	.006	-4.6	.868	163.6
1300	.919	164.3	.476	-9.2	.006	-9.9	.853	162.3
1400	.916	162.7	.517	-19.8	.008	-13.2	.837	161.3
1500	.918	161.3	.573	-31.5	.008	-26.4	.819	160.2
1600	.915	159.2	.643	-43.6	.008	-34.9	.801	158.8
1700	.921	156.9	.732	-56.3	.009	-42.6	.780	157.4
1800	.916	153.5	.854	-69.8	.009	-57.7	.760	155.9
1900	.916	149.8	1.032	-83.6	.011	-77.0	.734	153.8
2000	.907	144.4	1.310	-98.8	.013	-92.5	.699	151.1
2100	.879	136.3	1.777	-116.9	.015	-119.8	.642	147.0
2200	.797	122.7	2.631	-141.7	.021	-156.8	.532	142.7
2300	.504	98.3	3.957	178.8	.032	151.7	.369	154.6
2400	.142	-176.2	4.372	125.5	.038	85.2	.488	175.8
2500	.473	-169.7	3.661	87.7	.037	40.0	.564	165.5
2600	.639	177.2	3.009	55.7	.036	2.3	.491	151.9
2700	.722	167.8	2.643	26.2	.037	-30.6	.308	143.7
2800	.784	159.2	2.323	-4.8	.037	-66.6	.129	-166.4
2900	.833	148.2	1.962	-36.6	.035	-99.5	.348	-122.7
3000	.851	134.5	1.556	-65.9	.033	-129.0	.582	-132.0
3100	.844	117.7	1.239	-91.5	.029	-152.6	.730	-142.8
3200	.802	94.3	1.012	-115.7	.027	-175.5	.810	-152.1
3300	.748	62.0	.847	-141.4	.024	163.0	.857	-159.7
3400	.702	17.6	.683	-169.5	.021	139.1	.886	-165.6
3500	.720	-31.3	.511	162.6	.018	119.7	.905	-171.0
3600	.778	-71.5	.352	137.6	.014	99.4	.913	-175.3
3700	.827	-99.9	.236	118.5	.012	89.2	.920	-178.5
3800	.859	-119.2	.163	103.8	.011	76.1	.915	177.2
3900	.878	-132.7	.115	92.2	.010	70.3	.919	173.7
4000	.887	-143.2	.086	82.7	.010	69.7	.918	170.8

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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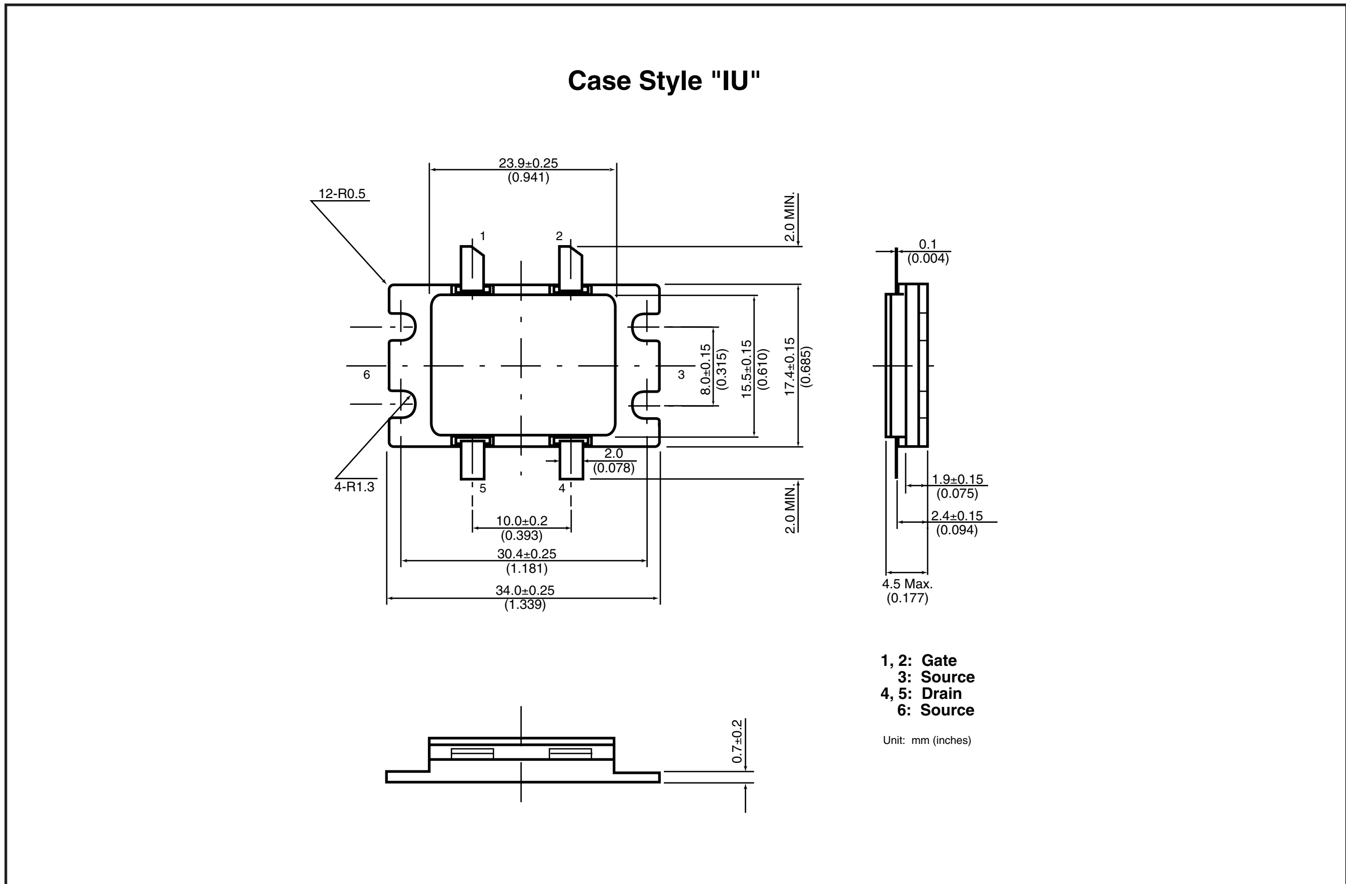

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- **Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.**
- **Observe government laws and company regulations when discarding this product. This product must be discarded in accordance with methods specified by applicable hazardous waste procedures.**

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