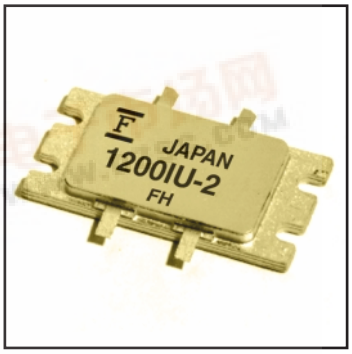
FLL1200IU-2

L-Band Medium & High Power GaAs FET

FEATURES

- Push-Pull Configuration
- High Power Output: 120W (Typ.)
- High PAE: 44%.
- Broad Frequency Range: 1800 to 2000 MHz.
- Suitable for class AB operation.



DESCRIPTION

The FLL1200IU-2 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 PCS/PCN base station amplifiers as it offers high gain, long term reliability and ease of use.

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

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 156.0 and -57.6 mA 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	72	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=1.96 GHz I_{DS} = 5.0A Pin = 41.0dBm	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

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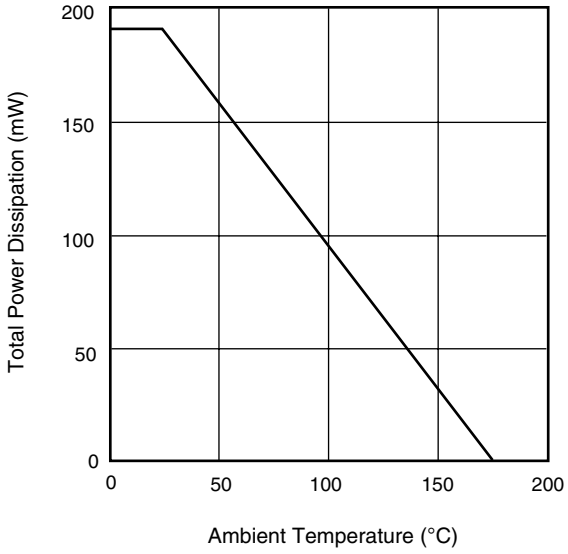
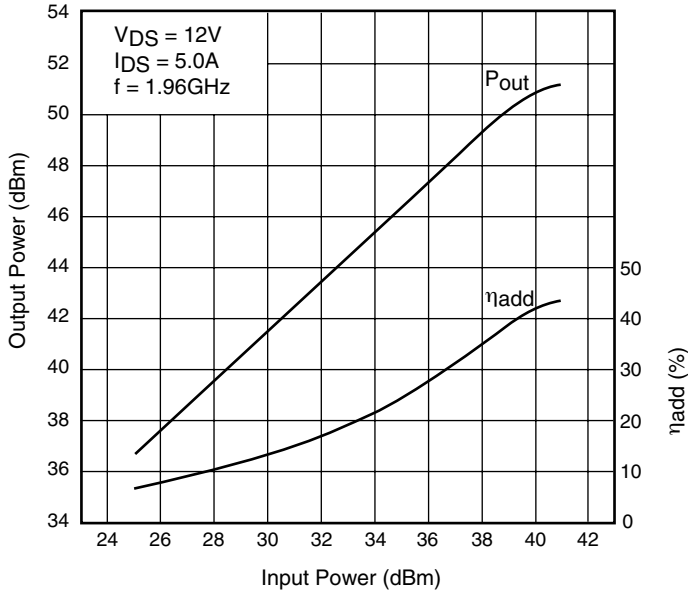
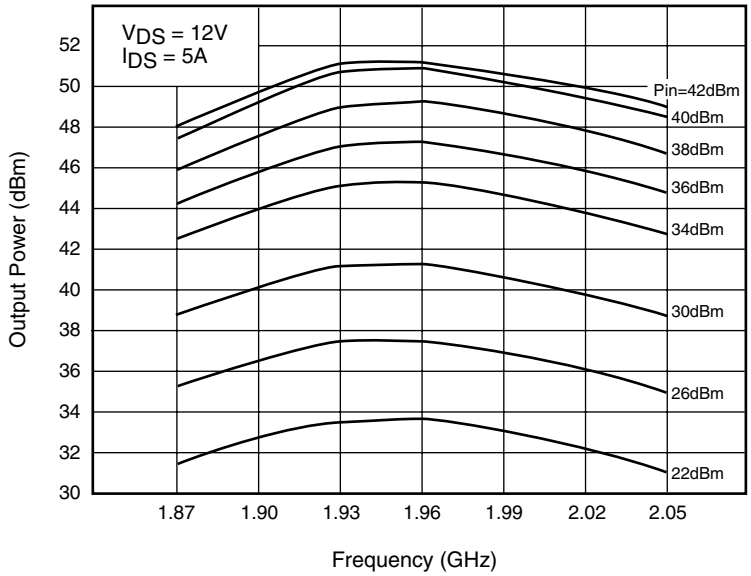
POWER DERATING CURVE



OUTPUT POWER & ηadd vs. INPUT POWER



OUTPUT POWER vs. FREQUENCY



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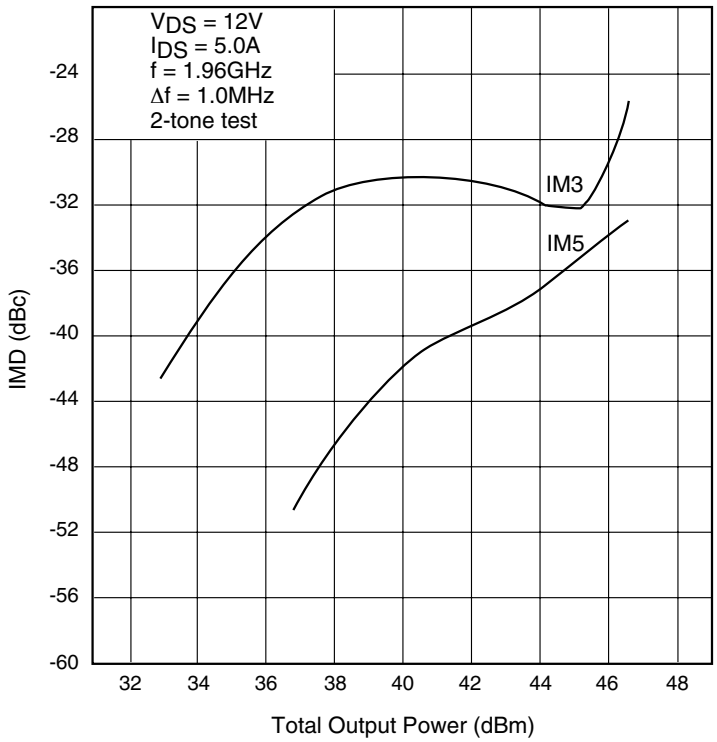
OUTPUT POWER vs. IMD



S-PARAMETERS

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

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1000	.927	170.0	.410	47.9	.005	39.5	.929	170.6
1100	.926	168.8	.432	42.6	.006	38.5	.920	169.8
1200	.922	167.2	.470	35.7	.006	37.8	.917	168.7
1300	.909	165.5	.526	28.6	.007	32.2	.911	167.8
1400	.893	163.7	.614	19.7	.009	24.7	.907	166.9
1500	.864	161.7	.738	7.5	.010	15.1	.905	166.0
1600	.821	160.4	.895	-8.4	.011	1.8	.914	164.8
1700	.765	160.1	1.084	-28.3	.012	-18.0	.928	163.5
1800	.717	163.3	1.268	-54.0	.012	-46.9	.940	160.2
1900	.722	168.6	1.353	-81.1	.011	-82.5	.932	155.8
2000	.786	170.8	1.320	-108.9	.009	-126.8	.886	151.6
2100	.857	168.7	1.174	-134.3	.008	-175.5	.821	148.8
2200	.904	164.3	1.006	-156.4	.009	144.7	.766	147.6
2300	.929	158.9	.871	-174.7	.010	114.2	.728	147.3
2400	.943	153.3	.751	169.0	.013	94.5	.700	146.9
2500	.946	148.4	.690	158.3	.015	78.5	.683	145.8
2600	.938	140.8	.653	144.8	.018	67.6	.662	144.2
2700	.933	131.3	.647	130.6	.021	54.6	.644	141.4
2800	.918	119.4	.634	113.5	.025	47.4	.620	136.9
2900	.903	104.1	.634	97.3	.030	31.7	.591	131.2
3000	.881	83.0	.558	79.7	.037	18.8	.553	123.4

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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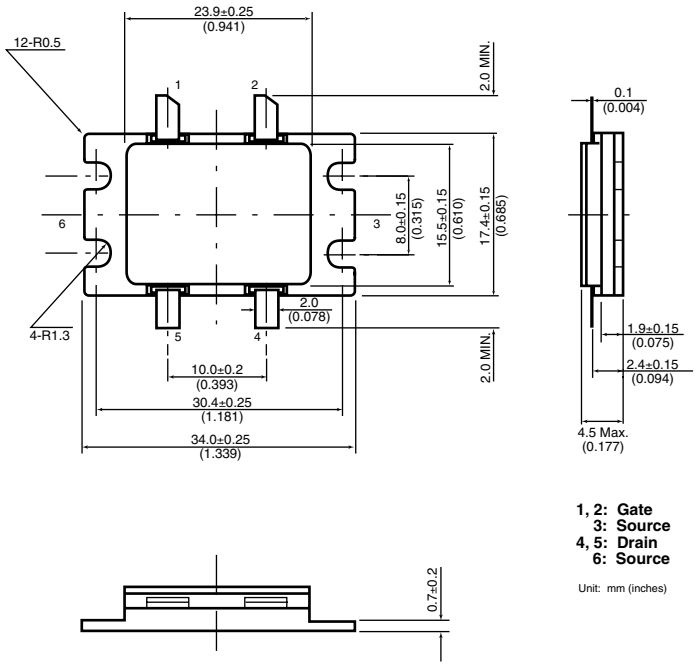
Case Style "IU"



1, 2: Gate
3: Source
4, 5: Drain
6: Source

Unit: mm (inches)

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CAUTION

Fujitsu Compound Semiconductor Products contain **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.**

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