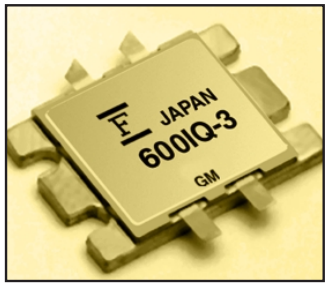
FLL600IQ-3

L-Band Medium & High Power GaAs FET

FEATURES

- Push-Pull Configuration
- High Power Output: 60W
- High PAE: 43%.
- Broad Frequency Range: 2000 to 2700 MHz.
- Suitable for class AB operation.



DESCRIPTION

The FLL600IQ-3 is a 60 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 WLL and MMDS 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	125	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 78 and -32 mA respectively with gate resistance of 25Ω.
3. The operating channel temperature (T_{ch}) should not exceed 145°C.

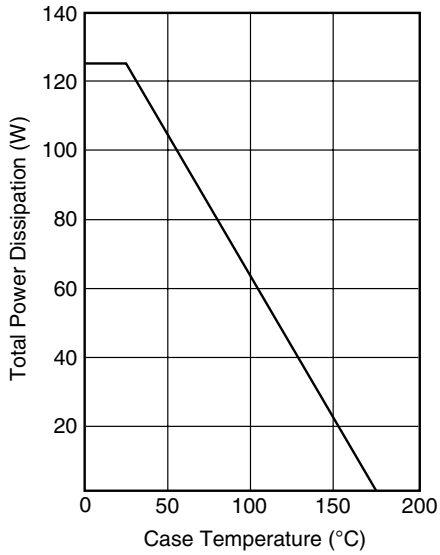
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Conditions	Limits			Unit
			Min.	Typ.	Max.	
Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	24	32	A
Transconductance	gm	V_{DS} = 5V, I_{DS} = 14.4A	-	12	-	S
Pinch-Off Voltage	V_p	V_{DS} = 5V, I_{DS} = 1.44A	-1.0	-2.0	-3.5	V
Gate-Source Breakdown Voltage	V_{GSO}	I_{GS} = -1.44mA	-5	-	-	V
Output Power at 1 dB G.C.P.	P_{1dB}	V_{DS} = 12V f=2.7 GHz I_{DS} = 4.0A	47.0	48.0	-	dBm
Power Gain at 1 dB G.C.P.	G_{1dB}		9.0	10.0	-	dB
Drain Current	I_{DSR}		-	11.0	15.0	A
Power-Added Efficiency	η_{add}		-	43	-	%
Thermal Resistance	R_{th}	Channel to Case	-	0.8	1.2	°C/W

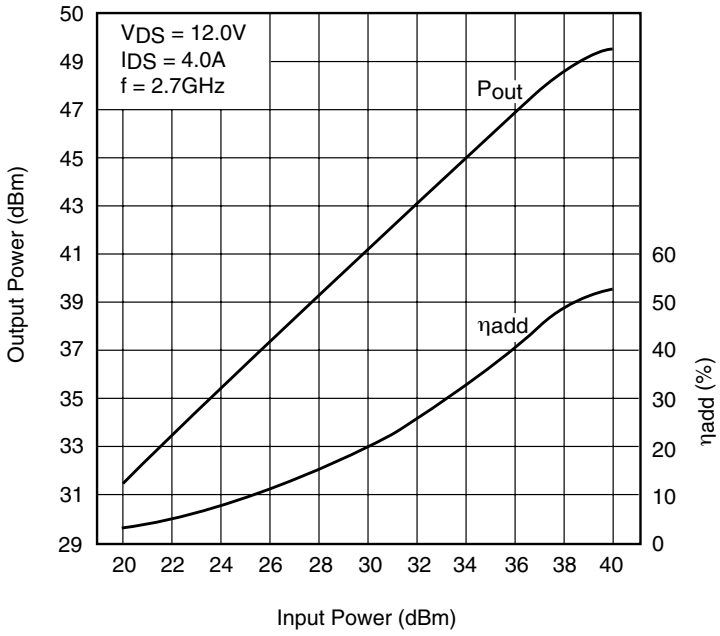
CASE STYLE: IQ

G.C.P.: Gain Compression Point

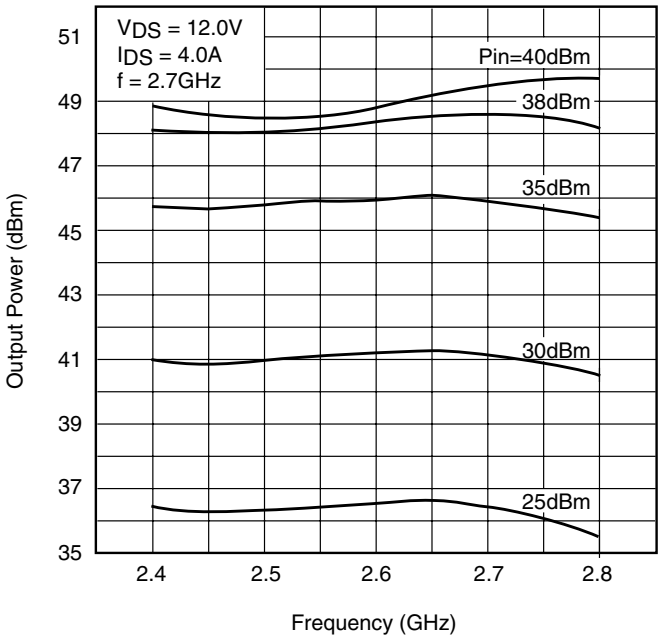
POWER DERATING CURVE



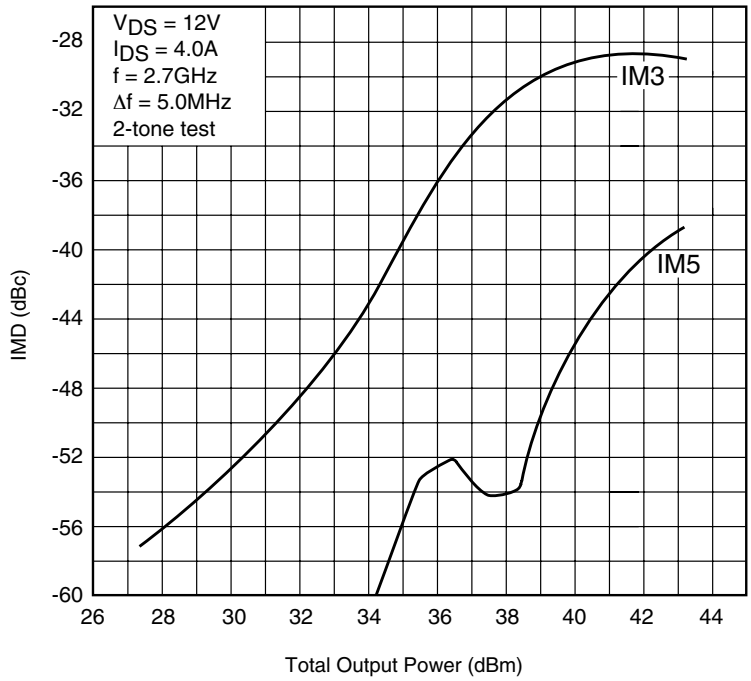
OUTPUT POWER & ηadd vs. INPUT POWER



OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. IMD



S-PARAMETERS

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

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	.978	178.4	.905	76.5	.005	47.5	.807	176.5
600	.974	176.4	.793	73.0	.005	51.3	.895	175.3
700	.972	175.0	.729	69.5	.006	61.1	.896	174.9
800	.962	173.6	.684	66.2	.006	58.1	.886	174.1
900	.961	172.5	.690	62.2	.008	51.9	.873	173.1
1000	.952	170.7	.688	57.1	.009	51.7	.866	172.4
1100	.944	168.6	.718	51.1	.011	56.7	.858	171.7
1200	.933	167.0	.740	44.6	.013	50.1	.844	171.3
1300	.924	165.2	.784	37.5	.014	46.6	.832	171.1
1400	.901	162.7	.836	29.6	.016	42.9	.823	171.0
1500	.881	160.4	.898	20.8	.018	36.2	.814	171.2
1600	.853	157.8	.959	11.6	.020	28.6	.815	171.7
1700	.816	155.2	1.043	1.3	.023	23.3	.818	172.6
1800	.778	152.9	1.116	-10.0	.024	16.5	.828	172.9
1900	.736	151.0	1.231	-20.8	.026	7.8	.843	173.3
2000	.704	148.6	1.386	-32.8	.029	-9.8	.864	172.4
2100	.636	146.2	1.566	-47.5	.026	-22.1	.871	171.2
2200	.579	145.5	1.730	-61.5	.025	-30.4	.887	169.9
2300	.508	145.9	1.998	-78.1	.025	-45.0	.876	167.5
2400	.439	152.3	2.278	-97.6	.023	-65.2	.843	164.8
2500	.439	166.3	2.605	-116.1	.020	-94.7	.782	163.6
2600	.562	172.4	2.774	-144.5	.013	-141.0	.697	166.2
2700	.700	162.6	2.675	-173.0	.013	137.0	.661	173.7
2800	.755	146.1	2.312	160.3	.016	85.1	.692	-179.9
2900	.723	126.8	1.967	137.9	.021	51.3	.748	-177.1
3000	.648	107.1	1.649	119.3	.026	37.5	.805	-176.7
3100	.579	74.7	1.536	101.2	.034	23.2	.841	-177.3
3200	.477	26.1	1.338	78.5	.040	2.4	.875	-178.6
3300	.318	-33.9	.963	58.0	.038	-21.5	.909	179.2

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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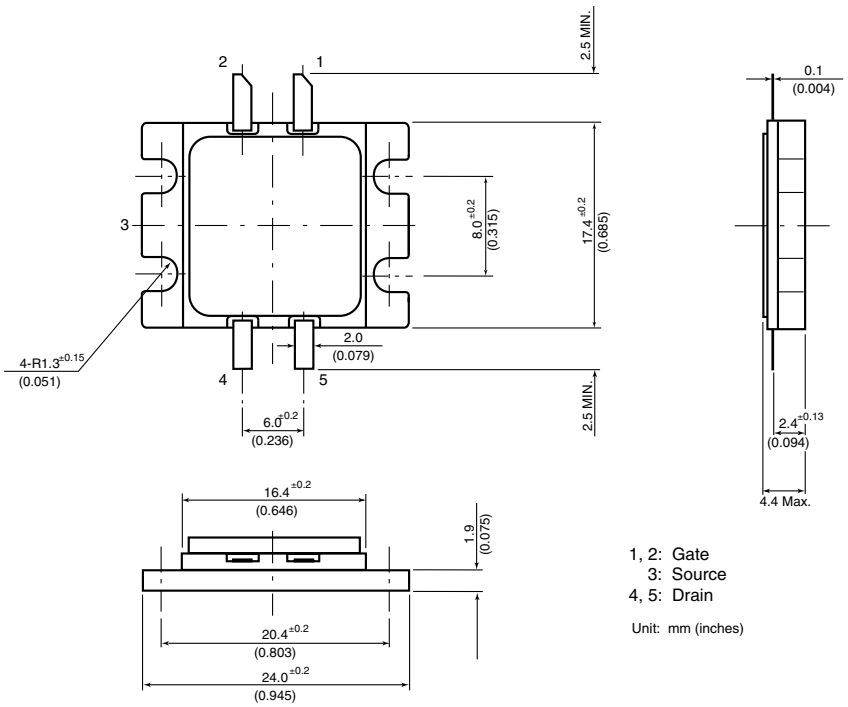
Case Style "IQ"



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

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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