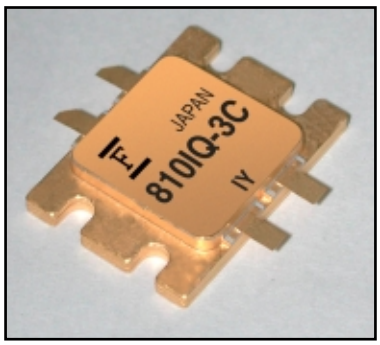
FLL810IQ-3C

L-Band High Power GaAs FET

FEATURES

- Push-Pull Configuration
- High Power Output: 80W
- High PAE: 50%.
- Excellent Linearity
- Suitable for class AB operation.
- Hermetically Sealed Package



DESCRIPTION

The FLL810IQ-3C is an 80 Watt GaAs FET that employs a push-pull design. This device offers excellent linearity, ease of matching, and greater consistency in covering the frequency band of 2.5 to 2.7 GHz. This new product is uniquely suited for use in MMDS applications as it offers high gain, long term reliability and ease of use.

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	Tc = 25°C	136	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 176 and -51.8 mA respectively with gate resistance of 5Ω.
3. The operating channel temperature (T_{ch}) should not exceed 145°C.

ELECTRICAL CHARACTERISTICS (Case Temperature Tc=25°C)

Item	Symbol	Conditions	Limits			Unit
			Min.	Typ.	Max.	
Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	8	-	A
Pinch-Off Voltage	V_p	V_{DS} = 5V, I_{DS} = 220mA	-0.1	-0.3	-0.5	V
Gate-Source Breakdown Voltage	V_{GSO}	I_{GS} = -2.2mA	-5	-	-	V
Output Power	P_{out}	V_{DS} = 12V f = 2.6 GHz I_{DS} = 5.0A Pin = 40.0dBm	48.0	49.0	-	dBm
Linear Gain (Note 1)	GL		11.0	12.0	-	dB
Power-Added Efficiency	η_{add}		-	50	-	%
Drain Current	I_{DSR}		-	11.5	15.0	A
Thermal Resistance	R_{th}	Channel to Case	-	0.8	1.1	°C/W

CASE STYLE: IQ

Note 1: The condition for GL is the same as Pout except Pin = 25.0dBm.

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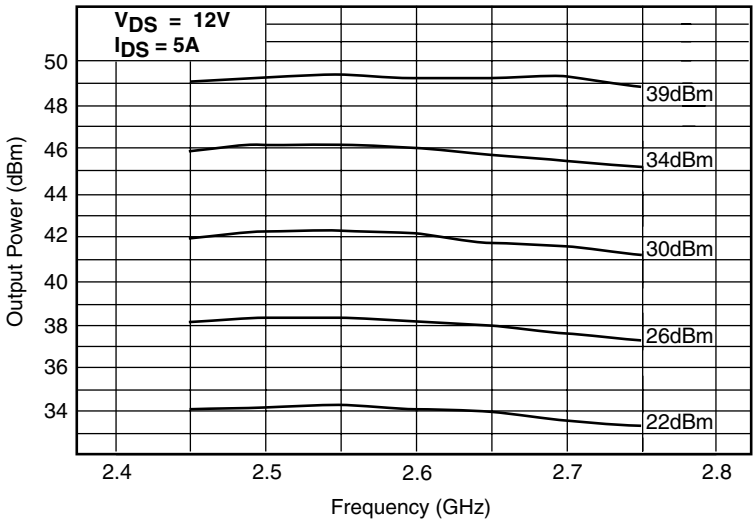
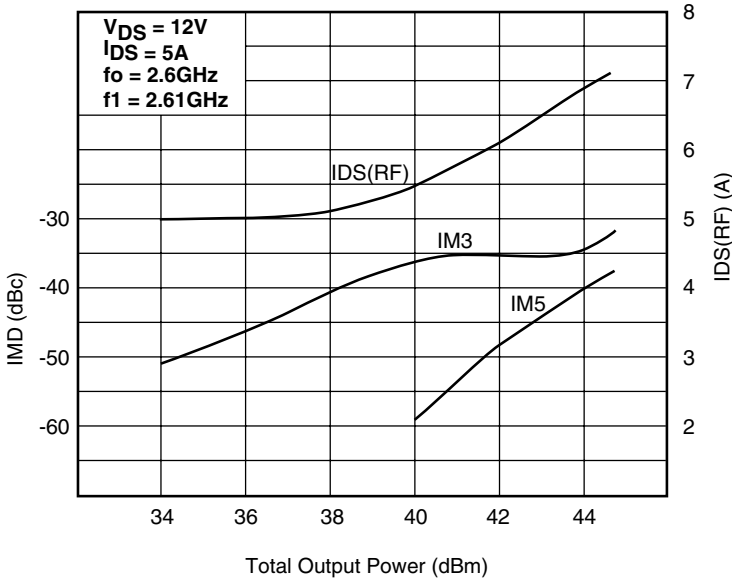
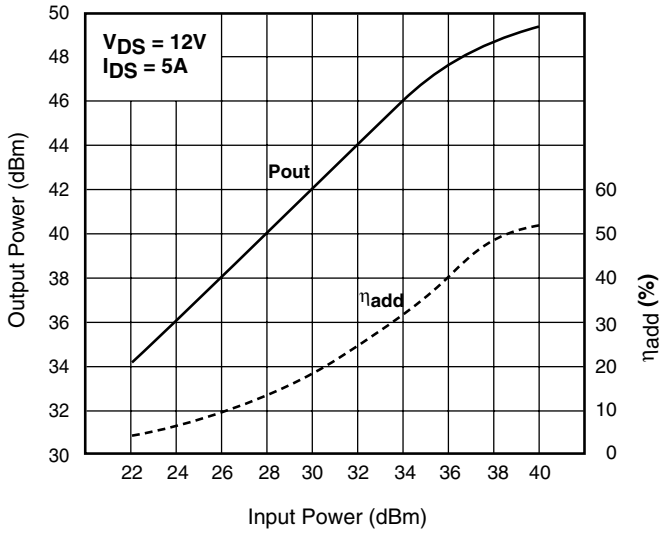
OUTPUT POWER vs. FREQUENCY



IMD & IDS(RF) vs. TOTAL OUTPUT POWER



OUTPUT POWER & η_{add} vs. INPUT POWER



S-PARAMETERS

V_{DS} = 12V, I_{DS} = 2500mA

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1500	.856	137.9	1.167	39.2	.021	43.0	.841	167.3
1600	.786	131.5	1.430	25.6	.026	31.2	.805	167.9
1700	.698	124.7	1.722	10.3	.029	15.8	.790	169.2
1800	.579	118.4	2.020	-8.0	.034	0.9	.777	170.2
1900	.455	115.3	2.323	-27.7	.036	-16.4	.795	171.0
2000	.347	115.2	2.564	-48.5	.039	-39.5	.818	169.7
2100	.247	119.8	2.784	-67.9	.041	-59.6	.819	167.1
2200	.141	142.0	3.064	-90.1	.041	-84.9	.781	163.5
2300	.200	-160.2	3.418	-114.9	.039	-114.5	.668	162.4
2400	.425	-159.8	3.446	-143.7	.035	-150.5	.560	170.4
2500	.634	-179.2	3.332	-173.7	.029	170.0	.556	-175.3
2600	.738	156.5	2.845	161.4	.024	122.6	.659	-168.5
2700	.750	129.4	2.436	134.5	.023	84.7	.747	-168.5
2800	.693	94.5	2.125	113.9	.020	47.3	.822	-170.0
2900	.620	48.8	1.618	89.3	.020	12.3	.879	-172.2
3000	.601	0.2	1.345	67.3	.019	-15.0	.910	-175.1
3100	.713	-39.5	1.031	50.9	.017	-35.8	.931	-177.6
3200	.804	-68.6	.748	31.0	.014	-60.2	.922	-179.8
3300	.863	-89.7	.587	19.4	.015	-70.4	.936	178.2
3400	.895	-104.3	.420	9.2	.014	-85.8	.936	176.2
3500	.909	-115.6	.335	0.5	.009	-96.7	.951	174.2

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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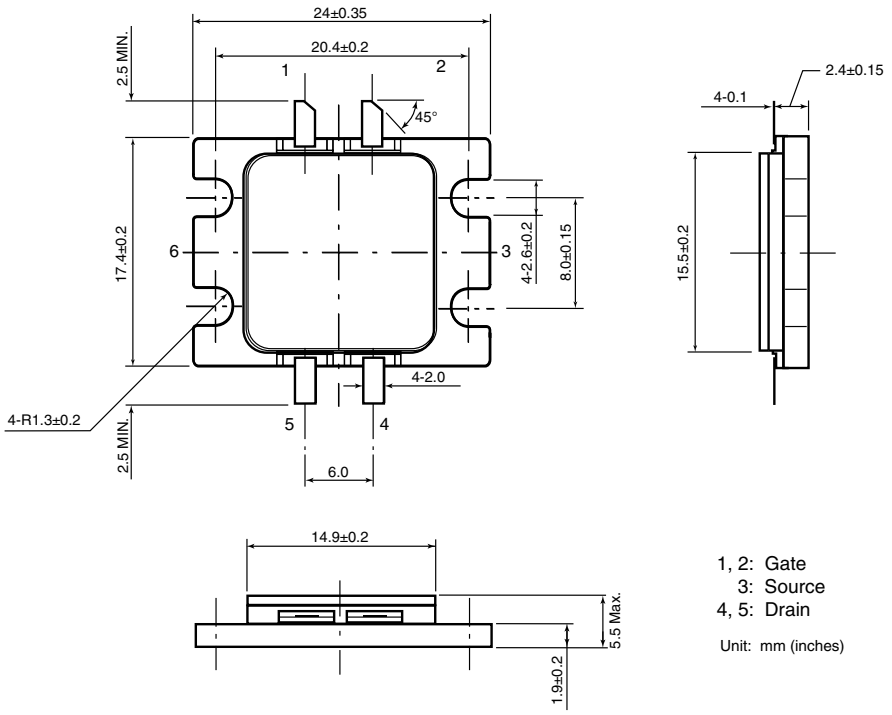
Case Style "IQ"



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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