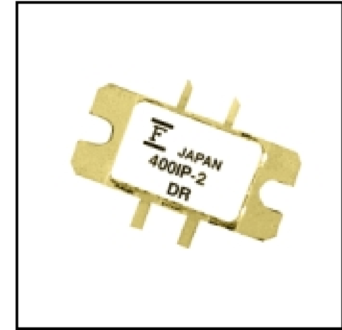
FLL400IP-2

L-Band Medium & High Power GaAs FET



FEATURES

- Push-Pull Configuration
- High Power Output: 35W (Typ.)
- High PAE: 44% (Typ.)
- Broad Frequency Range: 800 to 2000 MHz.
- Suitable for class A operation at 10V and class AB operation at 12V

DESCRIPTION

The FLL400IP-2 is a 35 Watt GaAs FET that employs a push-pull design which 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.

APPLICATIONS

- Solid State Base-Station Power Amplifier.
- PCS/PCN 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	107	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 54.4 and -17.4 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	-	12	16	A
Transconductance	gm	V_{DS} = 5V, I_{DS}=7.2A	-	6000	-	mS
Pinch-Off Voltage	V_p	V_{DS} = 5V, I_{DS}=720mA	-1.0	-2.0	-3.5	V
Gate-Source Breakdown Voltage	V_{GSO}	I_{GS} = -720μA	-5	-	-	V
Output Power at 1 dB G.C.P.	P_{1dB}	V_{DS} = 12V f=1.96GHz I_{DS} = 2A	44.5	45.5	-	dBm
Power Gain at 1 dB G.C.P.	G_{1dB}		9.0	10.0	-	dB
Drain Current	I_{DSR}		-	6.0	8.0	A
Power-Added Efficiency	η_{add}		-	44	-	%
Output Power at 1 dB G.C.P.	P_{1dB}	V_{DS} = 10V f=1.96GHz I_{DS} = 2A	-	44.5	-	dBm
Power Gain at 1 dB G.C.P.	G_{1dB}		-	10.0	-	dB
Thermal Resistance	R_{th}	Channel to Case	-	1.0	1.4	°C/W

CASE STYLE: IP

G.C.P.: Gain Compression Point

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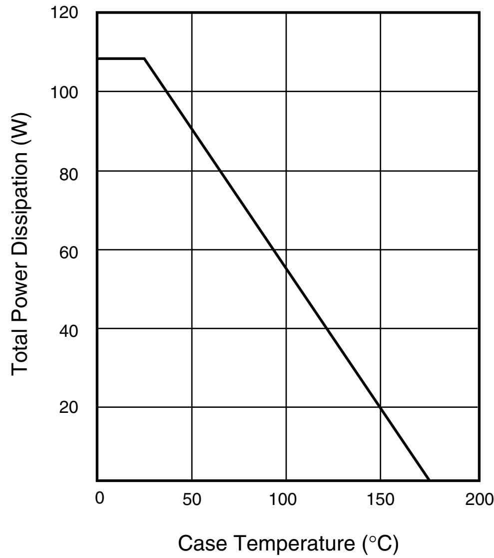
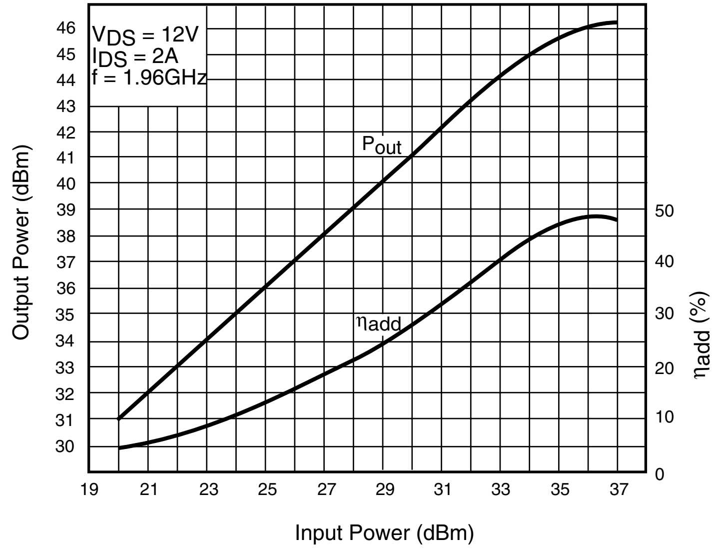
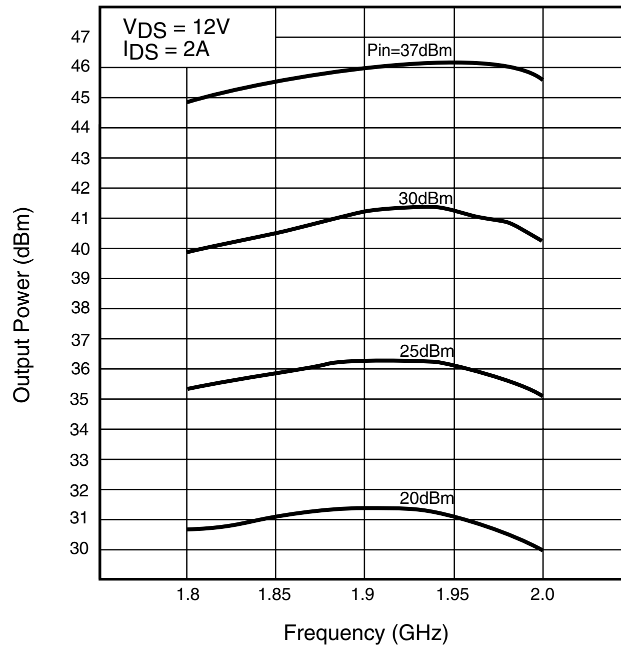
POWER DERATING CURVE

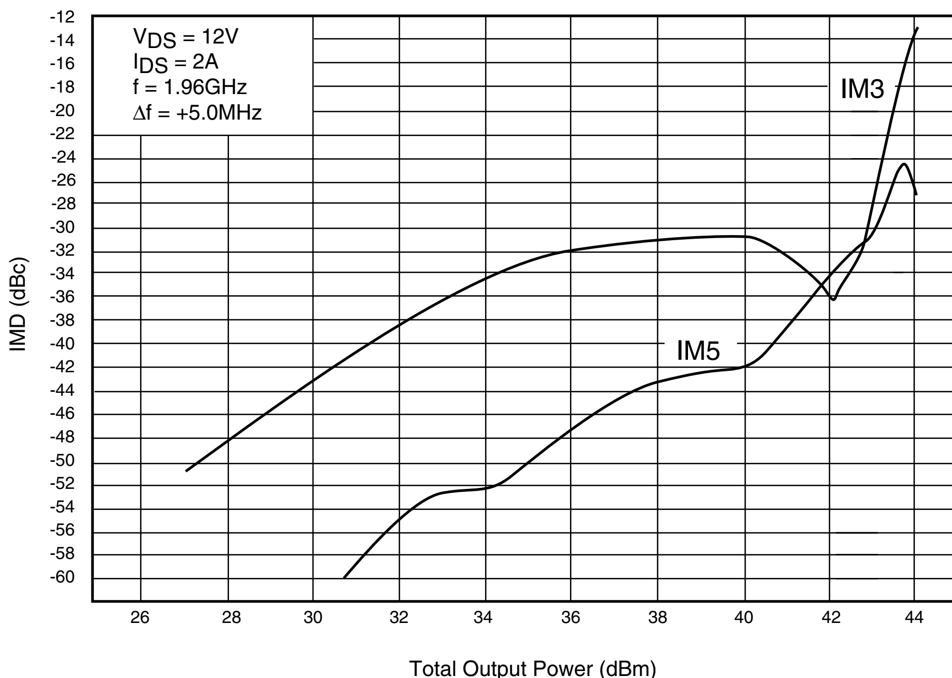


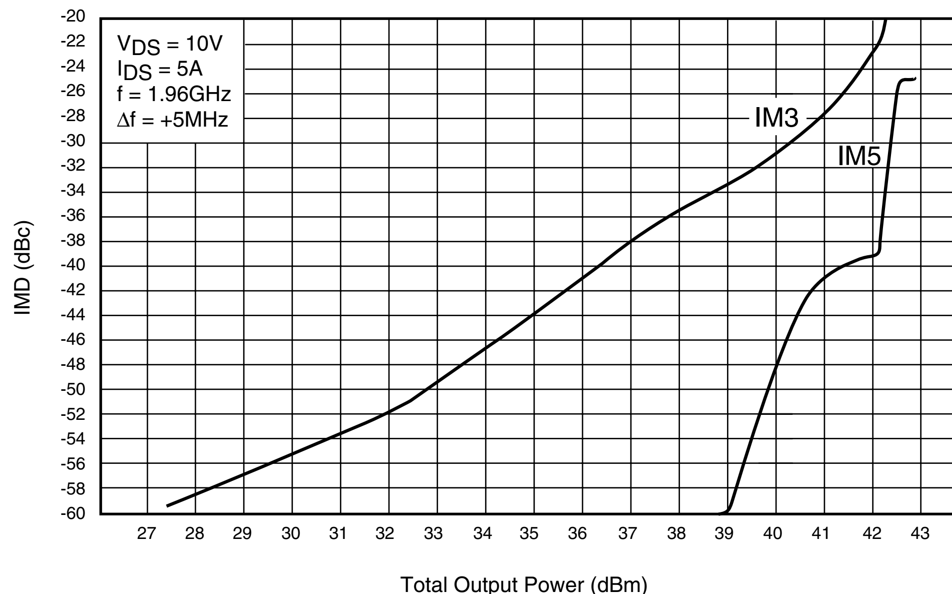
OUTPUT POWER & η_{add} vs. INPUT POWER



OUTPUT POWER vs. FREQUENCY




OUTPUT POWER vs. IMD
VDS = 12V
IDS = 2A
f = 1.96GHz
Δf = +5.0MHz
IM3
IM5
IMD (dBc)
-12
-14
-16
-18
-20
-22
-24
-26
-28
-30
-32
-34
-36
-38
-40
-42
-44
-46
-48
-50
-52
-54
-56
-58
-60
26
28
30
32
34
36
38
40
42
44
Total Output Power (dBm)


OUTPUT POWER vs. IMD
VDS = 10V
IDS = 5A
f = 1.96GHz
Δf = +5MHz
IM3
IM5
IMD (dBc)
-20
-22
-24
-26
-28
-30
-32
-34
-36
-38
-40
-42
-44
-46
-48
-50
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-60
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41
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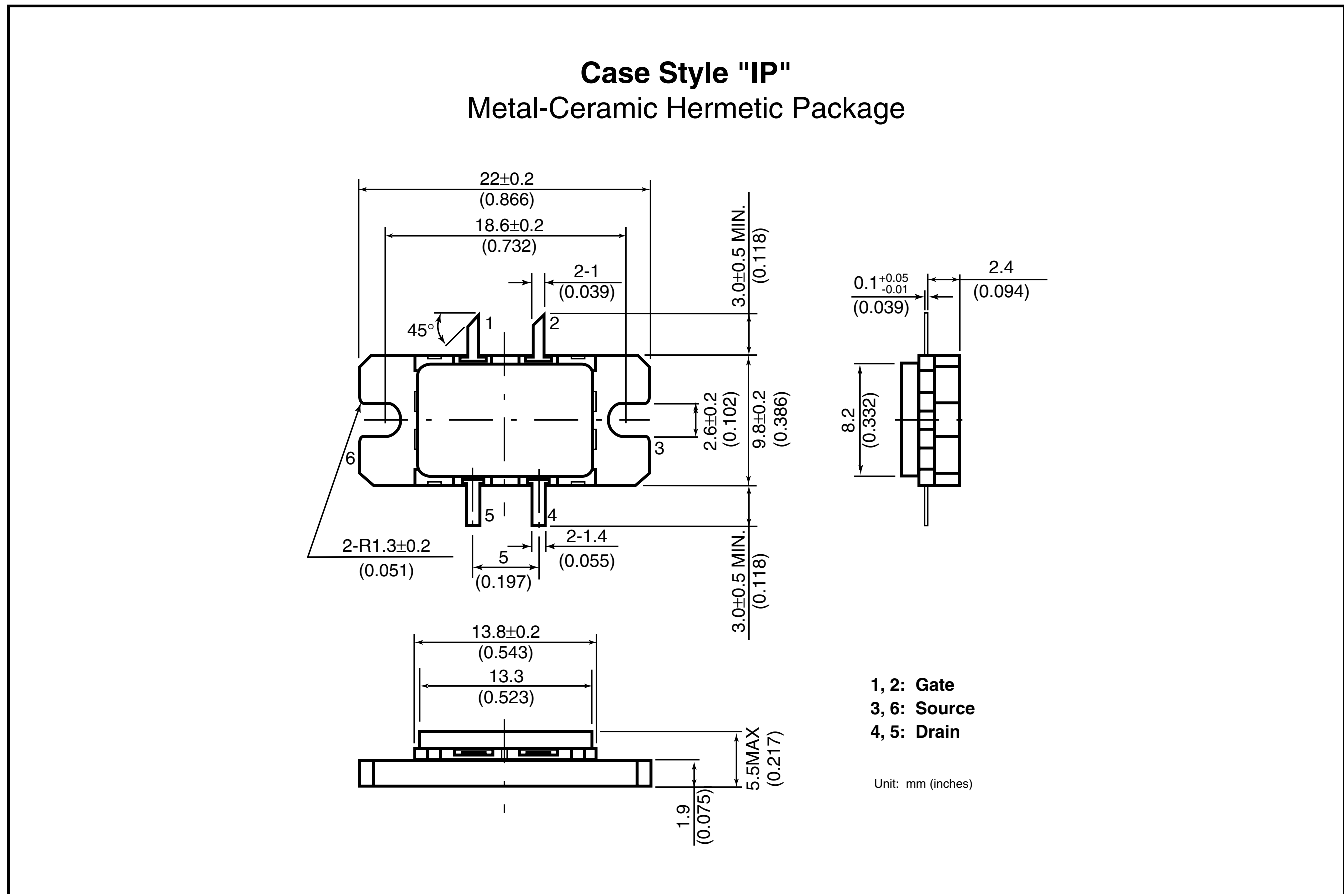
43
Total Output Power (dBm)

Case Style "IP"
Metal-Ceramic Hermetic Package



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- **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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