

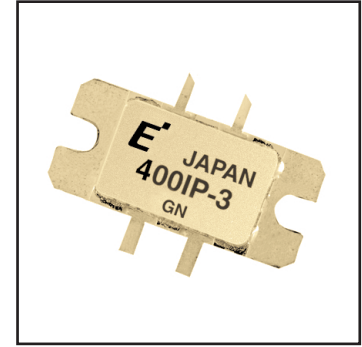
FEATURES

- Push-Pull Configuration
- High Power Output: 35W (Typ.)
- High PAE: 43% (Typ.)
- Broad Frequency Range: 2300 to 2500 MHz.
- Suitable for class A operation at 10V and class AB operation at 12V

DESCRIPTION

The FLL400IP-3 is a 35 Watt GaAs FET that employs a push-pull design that offers ease of matching, greater consistency and a broader bandwidth for high power S-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.

Eudyna'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	$T_c = 25^\circ\text{C}$	107	W
Storage Temperature	T_{stg}		-65 to +175	$^\circ\text{C}$
Channel Temperature	T_{ch}		+175	$^\circ\text{C}$

Eudyna 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}	$I_{GS} = -720\mu A$	-5	-	-	V
Output Power at 1 dB G.C.P.	P_{1dB}	$V_{DS} = 12V$ $f = 2.5 \text{ GHz}$ $I_{DS} = 2A$	44.5	45.5	-	dBm
Power Gain at 1 dB G.C.P.	G_{1dB}		8.0	9.0	-	dB
Drain Current	I_{DSR}		-	6.0	8.0	A
Power-Added Efficiency	η_{add}		-	43	-	%
Output Power at 1 dB G.C.P.	P_{1dB}	$V_{DS} = 10V$ $f = 2.5 \text{ GHz}$ $I_{DS} = 5A$ (Note 1)	-	44.5	-	dBm
Power Gain at 1 dB G.C.P.	G_{1dB}		-	9.0	-	dB
Thermal Resistance	R_{th}	Channel to Case	-	1.0	1.4	$^\circ\text{C/W}$

CASE STYLE: IP

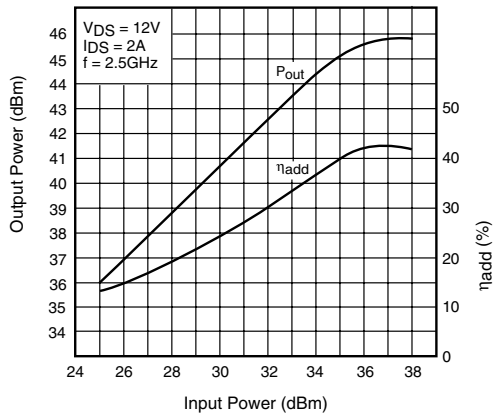
G.C.P.: Gain Compression Point

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

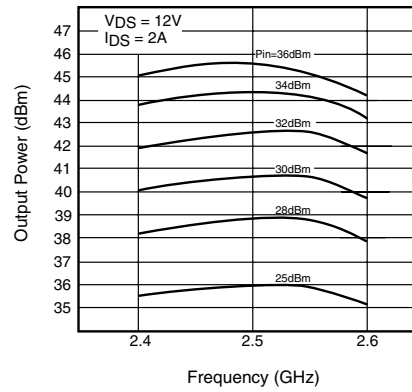
FLL400IP-3

L-Band Medium & High Power GaAs FET

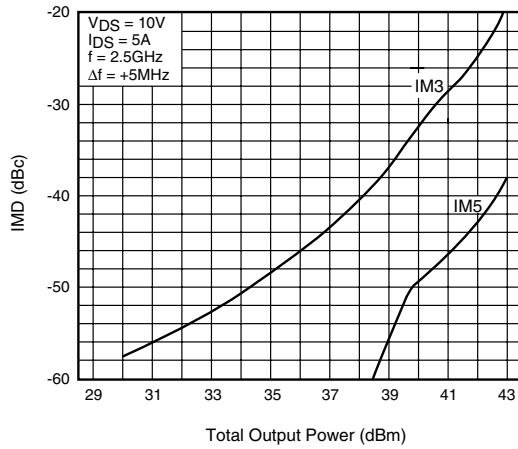
OUTPUT POWER & η_{add} vs. INPUT POWER



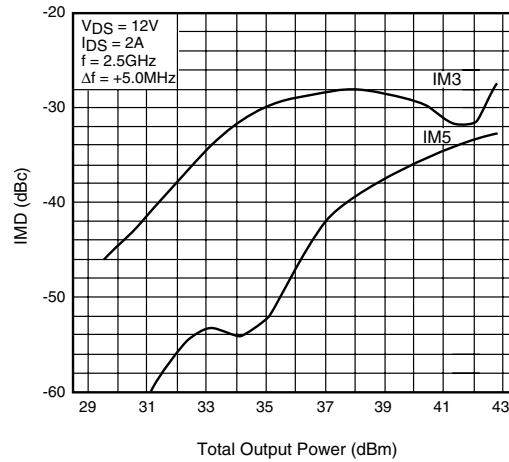
OUTPUT POWER vs. FREQUENCY



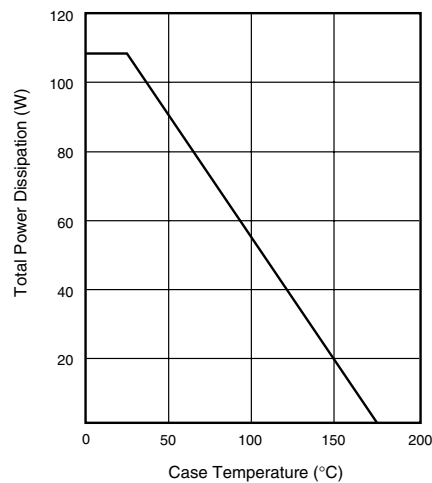
IMD vs. OUTPUT POWER



IMD vs. OUTPUT POWER



POWER DERATING CURVE



S-PARAMETERS $V_{DS} = 12V, I_{DS} = 2000mA$

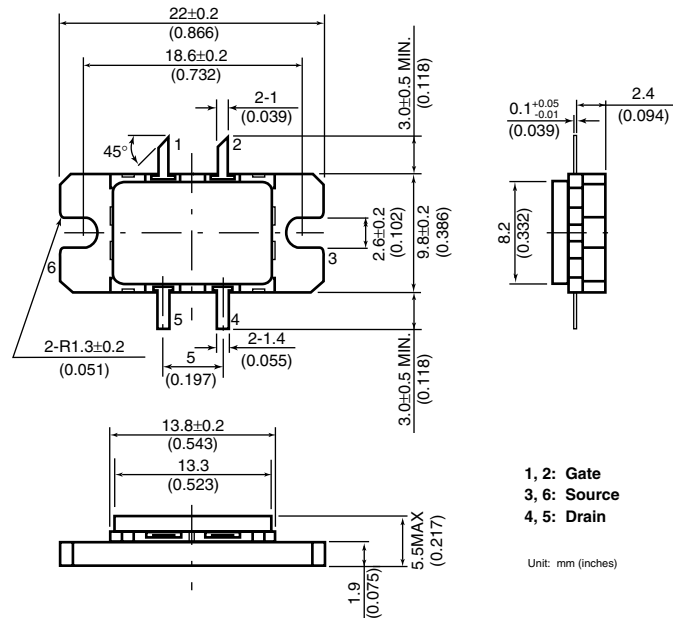
FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	.954	178.5	1.792	66.1	.006	28.3	.972	174.9
600	.954	177.2	1.527	61.1	.006	27.5	.867	174.5
700	.953	175.3	1.341	55.9	.007	30.8	.867	174.0
800	.849	173.7	1.202	50.2	.007	33.6	.857	173.1
900	.849	171.8	1.107	44.1	.007	31.7	.854	172.6
1000	.840	170.3	1.033	38.5	.009	31.1	.850	171.7
1100	.925	168.3	.964	32.9	.010	-8.6	.821	172.8
1200	.929	168.0	.952	27.0	.009	26.2	.835	171.4
1300	.926	166.5	.928	20.5	.010	23.3	.829	170.9
1400	.919	164.9	.909	13.8	.011	21.4	.821	170.3
1500	.910	163.2	.906	7.0	.012	20.7	.815	170.2
1600	.902	161.3	.912	-0.5	.014	15.2	.809	169.8
1700	.886	159.4	.919	-8.6	.014	9.4	.804	169.4
1800	.874	157.7	.934	-16.7	.015	5.2	.802	169.0
1900	.861	156.0	.962	-25.7	.016	-1.1	.803	169.6
2000	.845	154.2	.988	-35.5	.017	-8.0	.809	168.2
2100	.824	152.7	1.027	-45.5	.017	-13.8	.824	167.5
2200	.806	150.9	1.068	-56.6	.018	-21.6	.837	166.5
2300	.783	149.9	1.119	-68.9	.019	-33.6	.855	165.0
2400	.760	149.6	1.173	-82.0	.018	-45.7	.881	163.3
2500	.738	151.6	1.224	-94.2	.018	-54.9	.808	161.8
2600	.717	153.4	1.277	-111.2	.017	-72.9	.936	158.6
2700	.711	156.4	1.311	-130.3	.016	-90.1	.950	154.8
2800	.736	159.7	1.291	-152.2	.013	-115.4	.939	150.8
2900	.794	161.9	1.186	-174.9	.008	-149.5	.909	148.1
3000	.856	161.1	1.015	162.5	.005	168.4	.875	147.1
3100	.807	159.0	.821	142.6	.005	121.0	.854	147.6
3200	.936	156.3	.643	125.3	.005	66.5	.849	148.4
3300	.848	153.5	.498	110.4	.006	32.8	.955	148.5
3400	.941	153.9	.379	102.4	.002	60.1	.805	149.2
3500	.959	150.6	.315	89.3	.007	22.9	.876	150.7
3600	.957	148.7	.252	80.4	.007	9.4	.884	150.1
3700	.954	146.9	.204	71.1	.007	14.0	.888	149.9
3800	.948	145.3	.169	64.6	.007	5.3	.889	149.9
3900	.947	143.5	.144	57.4	.007	8.1	.889	150.0
4000	.945	142.0	.121	50.0	.008	3.4	.897	149.5
4100	.942	140.2	.101	43.8	.007	5.0	.885	149.1
4200	.939	137.8	.087	38.5	.009	2.1	.882	149.5
4300	.943	135.9	.074	34.4	.007	-0.9	.878	147.6
4400	.945	133.4	.067	31.2	.008	7.6	.881	147.2
4500	.944	131.3	.061	25.4	.008	14.5	.903	145.8
4600	.942	128.5	.056	21.7	.010	14.3	.915	142.7
4700	.946	126.2	.052	16.4	.010	16.1	.923	139.4
4800	.947	123.8	.047	13.7	.012	19.0	.931	135.8
4900	.949	121.2	.044	10.3	.014	15.0	.943	131.9
5000	.946	119.1	.044	5.8	.016	15.6	.956	127.9

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.

FLL400IP-3

L-Band Medium & High Power GaAs FET

Case Style "IP" Metal-Ceramic Hermetic Package



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CAUTION

Eudyna Devices Inc. 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 this product 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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