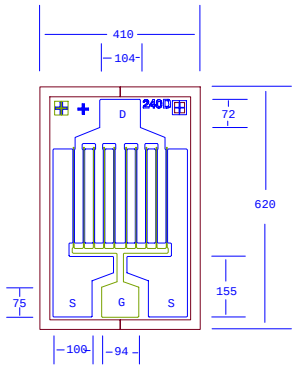
Excelics

EFA240D

DATA SHEET **Rev.1**

Low Distortion GaAs Power FET

- **+31.0dBm TYPICAL OUTPUT POWER**
- **18.5dB TYPICAL POWER GAIN AT 2GHz**
- **0.5 X 2400 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION AND PLATED HEAT SINK**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**
- **Idss SORTED IN 40mA PER BIN RANGE**



Chip Thickness: 75 ± 13 microns
All Dimensions In Microns

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression Vds=8V, Ids=50% Idss	f= 2GHz f= 4GHz	29.0	31.0 31.0		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f= 2GHz f= 4GHz	16.0	18.5 13.5		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss	f=2GHz		45		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		400	680	880	mA
Gm	Transconductance Vds=3V, Vgs=0V		280	360		mS
Vp	Pinch-off Voltage Vds=3V, Ids=6mA			-2.0	-3.5	V
BVgd	Drain Breakdown Voltage Igd=2.4mA		-12	-15		V
BVgs	Source Breakdown Voltage Igs=2.4mA		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			23		°C/W

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-4V
Ids	Drain Current	Idss	620mA
Igsf	Forward Gate Current	60mA	10mA
Pin	Input Power	29dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	6.0 W	5.0 W

Note: 1. Exceeding any of the above ratings may result in permanent damage.
2. Exceeding any of the above ratings may reduce MTTF below design goals.

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S-PARAMETERS

8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.500	0.950	-75.6	11.303	136.8	0.027	53.1	0.195	-119.8
1.000	0.906	-116.5	7.670	113.0	0.036	35.5	0.264	-142.3
1.500	0.888	-138.2	5.566	99.1	0.040	27.9	0.290	-152.3
2.000	0.880	-151.5	4.317	89.4	0.041	24.4	0.303	-157.5
2.500	0.877	-160.7	3.510	81.6	0.042	22.9	0.312	-160.6
3.000	0.875	-167.7	2.952	74.9	0.043	22.5	0.321	-162.6
3.500	0.875	-173.3	2.544	68.8	0.043	22.6	0.329	-164.0
4.000	0.876	-178.1	2.233	63.2	0.044	23.2	0.338	-165.0
4.500	0.877	177.7	1.989	57.8	0.045	24.1	0.347	-165.9
5.000	0.879	173.9	1.792	52.7	0.046	25.1	0.356	-166.7
5.500	0.881	170.4	1.630	47.8	0.046	26.3	0.366	-167.5
6.000	0.883	167.1	1.493	43.0	0.047	27.5	0.377	-168.3
6.500	0.885	164.1	1.377	38.3	0.048	28.7	0.389	-169.1
7.000	0.887	161.1	1.276	33.7	0.050	30.0	0.400	-169.9
7.500	0.890	158.4	1.188	29.2	0.051	31.2	0.413	-170.8
8.000	0.893	155.7	1.109	24.8	0.052	32.3	0.426	-171.8
8.500	0.896	153.1	1.040	20.5	0.054	33.4	0.439	-172.9
9.000	0.899	150.6	0.977	16.2	0.056	34.4	0.453	-174.0
9.500	0.902	148.1	0.920	12.1	0.058	35.3	0.467	-175.2
10.000	0.905	145.7	0.867	8.0	0.060	36.0	0.481	-176.5

Note: The data included 0.7 mils diameter Au bonding wires:
1 gate wires, 20 mils each; 1 drain wires, 12 mils each; 4 source wires, 7 mils each.