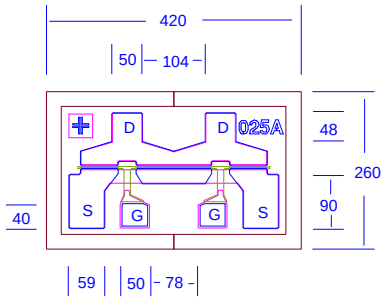
Excelics

EFB025A

PRELIMINARY DATA SHEET
General Purpose GaAs FET

- **+18.5dBm TYPICAL OUTPUT POWER**
- **11.0dB TYPICAL POWER GAIN AT 12GHz**
- **TYPICAL 1.3 dB NOISE FIGURE AND 11 dB ASSOCIATED GAIN AT 12GHz**
- **0.3 X 250 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**
- **Idss SORTED IN 5mA 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	f=12GHz	17	18.5		dBm
	Vds=6V, Ids=50% Idss	f=18GHz		18.5		
G_{1dB}	Gain at 1dB Compression	f=12GHz	9	11		dB
	Vds=6V, Ids=50% Idss	f=18GHz		9		
NF	Noise Figure Vds=3V,Ids=15mA	f=12GHz		1.3		dB
GA	Associated Gain Vds=3V,Ids=15mA	f=12GHz		11		dB
Idss	Saturated Drain Current Vds=3V, Vgs=0V		35	65	105	mA
Gm	Transconductance Vds=3V, Vgs=0V		40	60		mS
Vp	Pinch-off Voltage Vds=3V, Ids=1.0mA			-1.5	-3.0	V
BVgd	Drain Breakdown Voltage Igd=100uA		-5.5	-8.5		V
BVgs	Source Breakdown Voltage Igs=100uA		-5.5	-8.5		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			155		°C/W

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	10V	6V
Vgs	Gate-Source Voltage	-6V	-4V
Ids	Drain Current	Idss	Idss
Igsf	Forward Gate Current	6mA	1mA
Pin	Input Power	16dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	880mW	730mW

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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PRELIMINARY DATA SHEET

General Purpose GaAs FET

S-PARAMETERS

6V,Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.959	-15.7	5.152	166.7	0.018	62.0	0.655	-6.9
2.0	0.938	-30.7	5.002	155.2	0.034	62.8	0.640	-15.2
3.0	0.912	-44.3	4.745	144.2	0.048	57.5	0.628	-24.3
4.0	0.886	-56.8	4.460	134.8	0.060	52.3	0.609	-28.9
5.0	0.867	-68.2	4.277	126.5	0.071	48.0	0.580	-34.2
6.0	0.823	-78.5	3.995	116.6	0.078	41.7	0.563	-45.7
7.0	0.808	-87.9	3.699	108.9	0.084	36.8	0.565	-48.7
8.0	0.795	-97.9	3.543	102.3	0.091	32.9	0.515	-49.9
9.0	0.769	-107.9	3.371	93.9	0.097	27.4	0.469	-60.5
10.0	0.749	-115.8	3.140	86.7	0.098	22.5	0.470	-67.9
11.0	0.743	-124.1	2.971	80.1	0.100	19.3	0.444	-71.6
12.0	0.727	-131.1	2.771	73.4	0.101	15.5	0.440	-79.6
13.0	0.731	-137.8	2.613	68.3	0.101	12.7	0.439	-77.4
14.0	0.738	-145.6	2.541	61.9	0.105	9.2	0.352	-83.7
15.0	0.705	-152.3	2.364	54.0	0.103	4.2	0.387	-108.7
16.0	0.705	-155.6	2.141	50.7	0.098	4.6	0.490	-99.8
17.0	0.731	-160.8	2.122	47.6	0.103	4.6	0.412	-85.9
18.0	0.719	-168.3	2.091	39.2	0.107	-0.7	0.327	-116.4
19.0	0.694	-171.2	1.896	34.1	0.102	-2.3	0.473	-122.7
20.0	0.708	-173.8	1.834	33.0	0.104	-0.9	0.472	-103.1
21.0	0.716	-177.8	1.894	27.1	0.114	-3.0	0.328	-115.7
22.0	0.696	176.6	1.782	19.6	0.111	-6.9	0.406	-140.1
23.0	0.693	172.5	1.673	15.8	0.110	-7.4	0.431	-134.3
24.0	0.692	168.0	1.653	10.2	0.113	-8.9	0.401	-147.1
25.0	0.687	163.5	1.531	4.4	0.109	-10.7	0.473	-156.4
26.0	0.710	160.7	1.520	0.4	0.113	-11.1	0.439	-150.6

Note: The data included 0.7 mils diameter Au bonding wires:
2 gate wires, 15 mils each; 2 drain wires, 20 mils each; 4 source wires, 7 mils each.