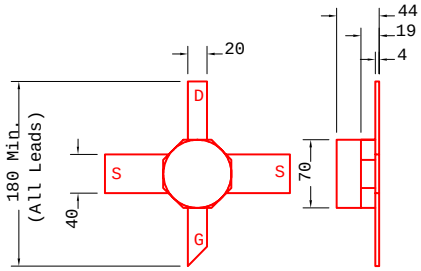
Excelics EPB025A-70

DATA SHEET

Low Noise High Gain Heterojunction FET

- **NON-HERMETIC LOW COST CERAMIC 70 mil PACKAGE**
- **TYPICAL 0.85dB NOISE FIGURE AND 10.5dB ASSOCIATED GAIN AT 12GHz**
- **0.3 X 250 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES SUPER LOW NOISE, HIGH GAIN AND HIGH RELIABILITY**



All Dimensions In mils

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	MIN	TYP	MAX	UNIT
NF	Noise Figure f = 12GHz Vds=2V, Ids=15mA		0.85	1.0	dB
Ga	Associated Gain f = 12GHz Vds=2V, Ids=15mA	9.5	10.5		dB
P_{1dB}	Output Power at 1dB Compression f=12GHz Vds=3V, Ids=25mA f=18GHz		15.0 15.0		dBm
G_{1dB}	Gain at 1dB Compression f=12GHz Vds=3V, Ids=25mA f=18GHz		12.0 9.5		dB
Idss	Saturated Drain Current Vds=2V, Vgs=0V	20	50	80	mA
Gm	Transconductance Vds=2V, Vgs=0V	50	80		mS
Vp	Pinch-off Voltage Vds=2V, Ids=1.0mA		-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=10uA	-3	-5		V
BVgs	Source Breakdown Voltage Igs=10uA	-3	-5		V
Rth	Thermal Resistance		370*		°C/W

***Overall Rth depends on case mounting**

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	5V	3V
Vgs	Gate-Source Voltage	-3V	-3V
Ids	Drain Current	Idss	50mA
Igsf	Forward Gate Current	2mA	0.3mA
Pin	Input Power	12dBm	@ 1dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	370mW	310mW

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

2V, 15mA

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.977	-21.3	5.991	159.2	0.026	75.1	0.641	-16.1
2.0	0.922	-42.4	5.602	138.8	0.048	60.3	0.604	-33.3
3.0	0.857	-61.7	5.110	120.4	0.065	48.3	0.567	-48.6
4.0	0.793	-79.8	4.758	103.7	0.079	38.2	0.532	-61.2
5.0	0.729	-97.0	4.445	87.9	0.091	27.6	0.480	-73.9
6.0	0.672	-111.1	4.087	73.0	0.098	18.2	0.426	-88.7
7.0	0.612	-125.3	3.757	58.9	0.104	9.1	0.399	-101.8
8.0	0.558	-138.7	3.494	45.7	0.105	0.3	0.354	-113.4
9.0	0.508	-160.7	3.354	31.6	0.110	-6.9	0.329	-123.7
10.0	0.473	178.3	3.169	17.1	0.114	-15.8	0.307	-139.6
11.0	0.437	168.8	3.014	4.5	0.117	-23.9	0.299	-159.3
12.0	0.404	154.6	2.898	-8.6	0.120	-31.1	0.298	-177.4
13.0	0.430	127.9	2.734	-23.4	0.122	-40.9	0.276	165.2
14.0	0.460	105.7	2.535	-37.4	0.120	-51.0	0.269	149.4
15.0	0.436	91.0	2.424	-51.6	0.122	-60.3	0.306	130.5
16.0	0.424	73.5	2.311	-66.6	0.123	-71.4	0.328	108.8
17.0	0.450	59.1	2.084	-79.5	0.114	-79.0	0.296	96.1
18.0	0.496	49.9	2.021	-90.2	0.123	-85.3	0.334	92.8
19.0	0.472	30.9	1.938	-104.6	0.121	-99.1	0.376	76.2
20.0	0.518	15.6	1.884	-120.1	0.119	-111.5	0.412	62.4
21.0	0.566	8.9	1.792	-133.9	0.120	-122.4	0.394	51.5
22.0	0.554	0.6	1.713	-147.9	0.123	-134.0	0.388	46.2
23.0	0.534	-18.5	1.639	-164.8	0.124	-149.4	0.378	29.4
24.0	0.575	-35.4	1.557	176.7	0.126	-167.0	0.362	8.2
25.0	0.550	-43.9	1.513	161.6	0.130	-179.0	0.368	-4.3
26.0	0.522	-57.1	1.516	145.7	0.143	166.3	0.346	-15.8