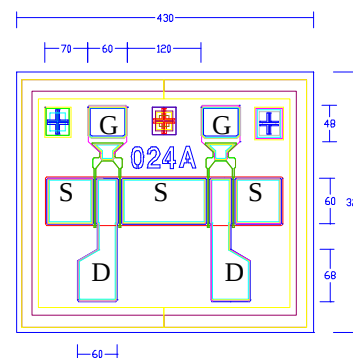


PRELIMINARY DATA SHEET
Low Distortion GaAs Power FET

- **+18.0dBm TYPICAL OUTPUT POWER**
- **11.0dB TYPICAL POWER GAIN AT 12GHz**
- **TYPICAL 1.6 dB NOISE FIGURE AND 10 dB ASSOCIATED GAIN AT 12GHz**
- **0.3 X 240 MICRON RECESSED “MUSHROOM” GATE**
- **Si₃N₄ 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 V _{ds} =6V, I _{ds} =50% I _{dss} f=18GHz	16	18 18		dBm
G_{1dB}	Gain at 1dB Compression f=12GHz V _{ds} =6V, I _{ds} =50% I _{dss} f=18GHz	9	11 9		dB
PAE	Power Added efficiency at 1dB Compression V _{ds} =6V, I _{ds} =50% I _{dss} f=12GHz		30		%
NF	Noise Figure V _{ds} =3V, I _{ds} =15mA f=12GHz		1.6		dB
GA	Associated Gain V _{ds} =3V, I _{ds} =15mA f=12GHz		10		dB
I_{dss}	Saturated Drain Current V _{ds} =3V, V _{gs} =0V	35	60	85	mA
G_m	Transconductance V _{ds} =3V, V _{gs} =0V	30	40		mS
V_p	Pinch-off Voltage V _{ds} =3V, I _{ds} =1.0mA		-2	-3.5	V
BV_{gd}	Drain Breakdown Voltage I _{gd} =100uA	-8	-12		V
BV_{gs}	Source Breakdown Voltage I _{gs} =100uA	-6	-11		V
R_{th}	Thermal Resistance (Au-Sn Eutectic Attach)		135		°C/W

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE ¹	CONTINUOUS ²
V_{ds}	Drain-Source Voltage	10V	6V
V_{gs}	Gate-Source Voltage	-8V	-4V
I_{ds}	Drain Current	I _{dss}	I _{dss}
I_{gsf}	Forward Gate Current	6mA	1mA
P_{in}	Input Power	19dBm	@ 3dB Compression
T_{ch}	Channel Temperature	175°C	150°C
T_{stg}	Storage Temperature	-65/175°C	-65/150°C
P_t	Total Power Dissipation	1W	830mW

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.

Excelics Semiconductor, Inc., 2908 Scott Blvd., Santa Clara, CA 95054

Phone: (408) 970-8664 Fax: (408) 970-8998 Web Site: www.excelics.com

EFA024A

PRELIMINARY DATA SHEET

Low Distortion GaAs Power FET

S-PARAMETERS 3V, 15mA

FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.998	-11.6	3.455	169.4	0.019	80.9	0.715	-7.2
2.0	0.984	-23.2	3.398	160.1	0.036	74.2	0.702	-13.8
3.0	0.972	-34.2	3.356	151.3	0.054	67.8	0.687	-19.6
4.0	0.950	-44.8	3.231	142.7	0.068	61.5	0.686	-27.8
5.0	0.927	-53.9	3.002	133.9	0.079	55.3	0.677	-32.9
6.0	0.908	-65.5	2.966	125.3	0.092	49.0	0.637	-36.8
7.0	0.878	-75.5	2.918	117.6	0.105	43.3	0.609	-44.2
8.0	0.859	-81.6	2.669	110.1	0.108	37.7	0.606	-51.2
9.0	0.853	-90.4	2.498	102.9	0.114	32.3	0.582	-53.6
10.0	0.835	-99.4	2.415	96.2	0.120	27.5	0.544	-57.1
11.0	0.827	-106.4	2.294	89.5	0.123	23.1	0.527	-62.9
12.0	0.815	-114.4	2.186	83.0	0.127	18.1	0.500	-67.0
13.0	0.799	-120.5	2.100	76.9	0.131	14.2	0.484	-75.5
14.0	0.796	-123.4	1.901	72.1	0.127	11.5	0.515	-79.5
15.0	0.816	-134.9	1.817	65.9	0.127	7.0	0.492	-74.4
16.0	0.802	-146.3	1.910	58.4	0.142	2.0	0.416	-83.9
17.0	0.752	-139.3	1.791	54.4	0.142	0.3	0.477	-105.8
18.0	0.773	-145.1	1.562	50.2	0.130	-1.6	0.540	-98.6
19.0	0.776	-163.9	1.620	43.2	0.141	-6.2	0.462	-87.8
20.0	0.729	-171.0	1.607	33.7	0.148	-12.9	0.452	-118.6
21.0	0.715	-168.2	1.559	32.7	0.150	-12.3	0.529	-113.0
22.0	0.733	-167.4	1.470	30.0	0.147	-12.6	0.487	-113.4
23.0	0.737	179.0	1.398	20.7	0.148	-18.8	0.459	-125.1
24.0	0.736	175.2	1.353	17.6	0.149	-19.7	0.500	-123.0
25.0	0.751	174.5	1.306	13.3	0.148	-20.7	0.431	-130.3
26.0	0.746	166.7	1.241	5.3	0.145	-26.7	0.482	-148.0

S-PARAMETERS 6V,1/2Idss

FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.990	-12.5	3.579	168.3	0.012	81.1	0.807	-5.3
2.0	0.977	-25.3	3.516	158.5	0.025	74.8	0.801	-10.6
3.0	0.961	-37.5	3.459	149.2	0.036	68.2	0.788	-14.8
4.0	0.941	-49.2	3.324	139.4	0.045	61.1	0.783	-21.5
5.0	0.920	-59.3	3.055	130.4	0.051	55.2	0.778	-26.2
6.0	0.902	-72.1	2.990	121.3	0.059	49.9	0.748	-27.6
7.0	0.878	-82.5	2.943	113.3	0.068	45.2	0.720	-32.5
8.0	0.865	-88.2	2.674	105.6	0.069	40.5	0.717	-39.6
9.0	0.859	-96.2	2.473	98.4	0.071	35.4	0.707	-42.1
10.0	0.843	-104.7	2.388	91.7	0.074	30.6	0.678	-45.2
11.0	0.837	-110.5	2.264	85.0	0.075	27.8	0.670	-50.8
12.0	0.824	-117.6	2.159	78.4	0.078	24.3	0.652	-54.5
13.0	0.808	-122.8	2.092	72.1	0.080	20.6	0.643	-62.9
14.0	0.803	-125.6	1.881	66.3	0.076	17.6	0.672	-69.2
15.0	0.814	-137.5	1.782	60.2	0.077	15.0	0.675	-64.7
16.0	0.803	-149.5	1.897	52.5	0.085	11.3	0.616	-69.2
17.0	0.766	-143.3	1.783	46.6	0.086	8.7	0.651	-89.0
18.0	0.784	-149.9	1.506	42.6	0.077	8.4	0.713	-85.2
19.0	0.789	-168.5	1.545	36.7	0.084	6.1	0.672	-72.2
20.0	0.760	-175.1	1.583	25.9	0.091	-0.6	0.630	-95.3
21.0	0.753	-173.0	1.505	24.3	0.092	1.2	0.689	-94.8
22.0	0.767	-170.3	1.423	22.6	0.092	3.2	0.669	-95.5
23.0	0.772	177.9	1.371	12.9	0.093	-3.0	0.634	-106.0
24.0	0.768	174.8	1.329	8.9	0.096	-3.1	0.671	-108.4
25.0	0.776	175.3	1.303	4.5	0.098	-2.8	0.633	-115.5
26.0	0.769	167.3	1.234	-6.0	0.097	-8.8	0.668	-133.3

Note: The data included 0.7 mils diameter Au bonding wires:
2 gate wires, 15 mils each; 2 drain wires, 20 mils each; 6 source wires, 10 mils each.