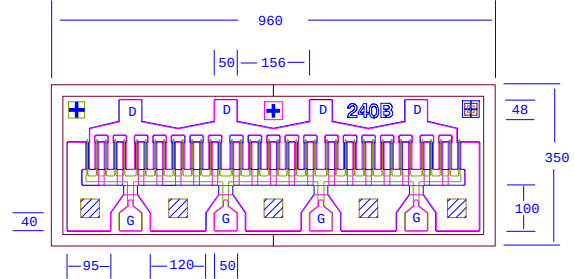


DATA SHEET
Low Distortion GaAs Power FET

- **+31.0dBm TYPICAL OUTPUT POWER**
- **8.5dB TYPICAL POWER GAIN FOR EFA240B AND 10.5dB FOR EFA240BV AT 12GHz**
- **0.3 X 2400 MICRON RECESSED “MUSHROOM” GATE**
- **Si₃N₄ PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**
- **EFA240BV WITH VIA HOLE SOURCE GROUNDING**
- **Idss SORTED IN 40mA PER BIN RANGE**



Chip Thickness: 75 ± 20 microns

All Dimensions In Microns

▨ : Via Hole

No Via Hole For EFA240B

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	EFA240B			EFA240BV			UNIT
		MIN	TYP	MAX	MIN	TYP	MAX	
P_{1dB}	Output Power at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{ds} f=12GHz f=18GHz	29.0	31.0 31.0		29.0	31.0 31.0		dBm
G_{1dB}	Gain at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{ds} f=12GHz f=18GHz	7.0	8.5 6.0		9.0	10.5 8.0		dB
PAE	Gain at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{ds} f=12GHz		33			35		%
I_{ds}	Saturated Drain Current V _{ds} =3V, V _{gs} =0V	400	680	880	400	680	880	mA
G_m	Transconductance V _{ds} =3V, V _{gs} =0V	280	360		280	360		mS
V_p	Pinch-off Voltage V _{ds} =3V, I _{ds} =6 mA		-2.0	-3.5		-2.0	-3.5	V
BV_{gd}	Drain Breakdown Voltage I _{gd} =2.4mA	-12	-15		-12	-15		V
BV_{gs}	Source Breakdown Voltage I _{gs} =2.4mA	-7	-14		-7	-14		V
R_{th}	Thermal Resistance (Au-Sn Eutectic Attach)		20			15		°C/W

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	EFA240B		EFA240BV	
		ABSOLUTE ¹	CONTINUOUS ²	ABSOLUTE ¹	CONTINUOUS ²
V_{ds}	Drain-Source Voltage	12V	8V	12V	8V
V_{gs}	Gate-Source Voltage	-8V	-4V	-8V	-4V
I_{ds}	Drain Current	I _{ds}	710mA	I _{ds}	I _{ds}
I_{gsf}	Forward Gate Current	60mA	10mA	60mA	10mA
P_{in}	Input Power	29dBm	@ 3dB Compression	29dBm	@ 3dB Compression
T_{ch}	Channel Temperature	175°C	150°C	175°C	150°C
T_{stg}	Storage Temperature	-65/175°C	-65/150°C	-65/175°C	-65/150°C
P_t	Total Power Dissipation	6.8W	5.7W	9.1W	7.6W

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

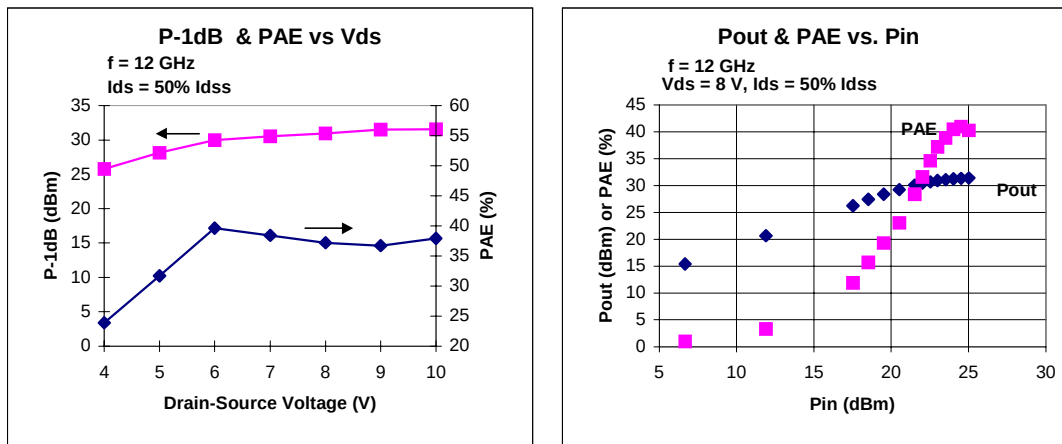
Phone: (408) 970-8664 Fax: (408) 970-8998 Web Site: www.excelics.com

EFA240B/EFA240BV

DATA SHEET

Low Distortion GaAs Power FET

EFA240B



S-PARAMETERS

EFA240B 8V, 1/2 Idss

FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.924	-109.6	8.554	117.9	0.035	34.7	0.345	-151.2
2.0	0.910	-140.4	4.879	97.0	0.039	20.8	0.407	-161.6
4.0	0.905	-157.4	2.561	77.8	0.039	14.8	0.447	-166.5
6.0	0.904	-163.9	1.717	64.0	0.037	16.1	0.492	-165.7
8.0	0.907	-168.2	1.295	52.5	0.036	17.7	0.541	-163.7
10.0	0.909	-171.9	1.020	42.7	0.032	22.5	0.594	-162.2
12.0	0.917	-177.5	0.835	32.1	0.031	24.8	0.653	-162.4
14.0	0.924	-179.1	0.688	22.4	0.030	25.9	0.706	-165.7
16.0	0.927	-174.9	0.569	11.6	0.032	23.2	0.741	-171.9
18.0	0.944	-174.3	0.474	2.4	0.033	22.4	0.778	-179.5
20.0	0.953	-173.2	0.395	-7.7	0.035	24.0	0.813	-171.7
22.0	0.942	-175.2	0.326	-13.6	0.040	24.7	0.830	-164.7
24.0	0.960	-177.3	0.290	-17.6	0.044	30.3	0.848	-160.2
26.0	0.951	-177.1	0.257	-19.2	0.053	39.2	0.846	-160.0

S-PARAMETERS

EFA240BV 8V, 1/2 Idss

FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.907	-109.0	9.976	119.2	0.033	33.9	0.356	-145.6
2.0	0.905	-142.3	5.784	97.9	0.038	17.7	0.425	-157.1
4.0	0.907	-163.3	2.990	77.1	0.038	5.5	0.471	-161.2
6.0	0.915	-171.5	1.961	63.2	0.035	1.4	0.520	-161.0
8.0	0.923	-175.8	1.431	51.7	0.032	-1.2	0.574	-161.2
10.0	0.933	-178.0	1.106	41.8	0.029	-2.4	0.627	-162.0
12.0	0.940	-180.0	0.887	32.4	0.027	-3.0	0.677	-163.9
14.0	0.941	-177.8	0.731	23.3	0.025	-5.5	0.721	-166.5
16.0	0.947	-175.1	0.616	14.1	0.024	-8.8	0.756	-169.8
18.0	0.949	-171.5	0.531	4.7	0.025	-11.9	0.791	-173.7
20.0	0.954	-167.9	0.459	-4.5	0.024	-13.0	0.818	-177.9
22.0	0.967	-167.2	0.389	-12.4	0.023	-12.5	0.848	-175.9
24.0	0.970	-165.3	0.335	-19.6	0.024	-11.2	0.873	-172.2
26.0	0.971	-163.3	0.292	-25.8	0.024	-0.7	0.900	-170.7

Note: The data included 0.7 mils diameter Au bonding wires; 4 gate wires, 15 mils each; 4 drain wires, 20 mils each; 10 source wires, 7 mils each; no source wires for EFA240BV.