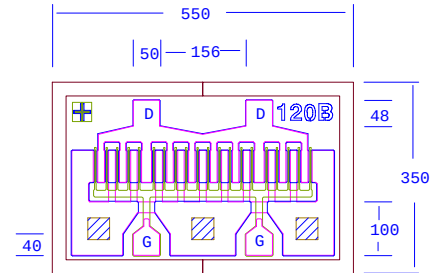


DATA SHEET
Low Distortion GaAs Power FET

- +28.0dBm TYPICAL OUTPUT POWER
- 9.5dB TYPICAL POWER GAIN FOR EFA120B AND 11.5dB FOR EFA120BV AT 12GHz
- 0.3 X 1200 MICRON RECESSED “MUSHROOM” GATE
- Si₃N₄ PASSIVATION
- ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY
- EFA120BV WITH VIA HOLE SOURCE GROUNDING
- Idss SORTED IN 20mA PER BIN RANGE



Chip Thickness: 75 ± 20 microns
All Dimensions In Microns

⊠ : Via Hole

No Via Hole For EFA120B

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	EFA120B			EFA120BV			UNIT
		MIN	TYP	MAX	MIN	TYP	MAX	
P_{1dB}	Output Power at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{dss} f=12GHz f=18GHz	26.0	28.0 28.0		26.0	28.0 28.0		dBm
G_{1dB}	Gain at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{dss} f=12GHz f=18GHz	8.0	9.5 7.0		10.0	11.5 9.0		dB
PAE	Gain at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{dss} f=12GHz		34			36		%
I_{dss}	Saturated Drain Current V _{ds} =3V, V _{gs} =0V	200	340	440	200	340	440	mA
G_m	Transconductance V _{ds} =3V, V _{gs} =0V	140	180		140	180		mS
V_p	Pinch-off Voltage V _{ds} =3V, I _{ds} =3.0mA		-2.0	-3.5		-2.0	-3.5	V
BV_{gd}	Drain Breakdown Voltage I _{gd} =1.2mA	-12	-15		-12	-15		V
BV_{gs}	Source Breakdown Voltage I _{gs} =1.2mA	-7	-14		-7	-14		V
R_{th}	Thermal Resistance (Au-Sn Eutectic Attach)		40			30		°C/W

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	EFA120B		EFA120BV	
		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 _{dss}	355mA	I _{dss}	I _{dss}
I_{gsf}	Forward Gate Current	30mA	5mA	30mA	5mA
P_{in}	Input Power	26dBm	@ 3dB Compression	26dBm	@ 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	3.4W	2.8W	4.5W	3.8W

Note: 1. Exceeding any of the above ratings may result in permanent damage.

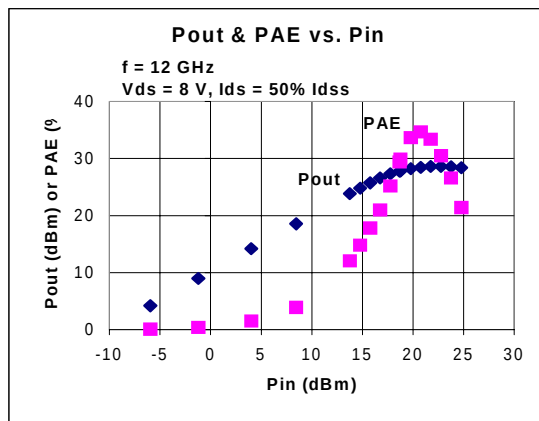
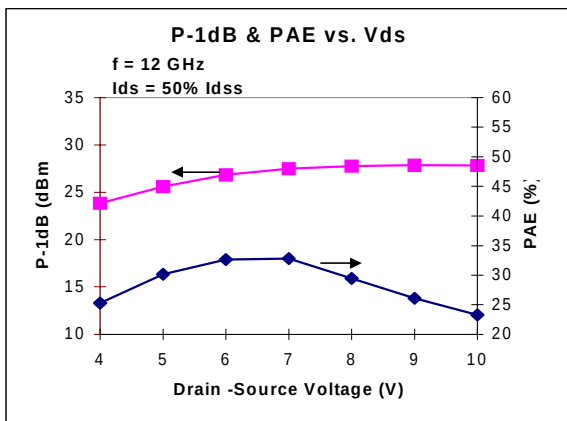
2. Exceeding any of the above ratings may reduce MTTF below design goals.

EFA120B/EFA120BV

DATA SHEET

Low Distortion GaAs Power FET

EFA120B



S-PARAMETERS

EFA120B 8V, 1/2 Idss

FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.950	-67.1	8.659	139.4	0.034	55.2	0.254	-47.4
2.0	0.911	-106.2	6.163	114.7	0.047	36.7	0.222	-79.6
4.0	0.881	-138.8	3.609	89.3	0.054	21.6	0.212	-106.1
6.0	0.875	-153.5	2.524	72.4	0.053	17.5	0.251	-118.6
8.0	0.873	-163.0	1.949	58.5	0.052	14.4	0.307	-126.7
10.0	0.871	-170.7	1.573	46.1	0.047	13.8	0.370	-134.4
12.0	0.878	-180.0	1.320	32.9	0.047	12.5	0.446	-143.0
14.0	0.883	-173.1	1.105	20.5	0.045	13.1	0.521	-152.2
16.0	0.888	-165.7	0.921	7.9	0.045	12.7	0.583	-162.2
18.0	0.909	-162.3	0.775	-2.9	0.046	11.8	0.637	-172.1
20.0	0.916	-159.4	0.648	-14.2	0.049	12.9	0.685	-177.4
22.0	0.914	-160.6	0.543	-21.8	0.054	15.6	0.715	-167.3
24.0	0.933	-161.0	0.483	-28.9	0.061	20.2	0.740	-158.7
26.0	0.923	-160.0	0.419	-34.4	0.072	24.4	0.758	-152.4

S-PARAMETERS

EFA120BV 8V, 1/2 Idss

FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.937	-64.1	10.367	141.1	0.031	55.1	0.290	-50.6
2.0	0.907	-103.9	7.564	117.0	0.046	34.4	0.274	-82.9
4.0	0.887	-140.6	4.476	90.1	0.052	14.6	0.284	-110.6
6.0	0.888	-157.4	3.096	72.9	0.051	5.1	0.327	-122.1
8.0	0.892	-167.0	2.337	59.4	0.050	-0.3	0.378	-129.3
10.0	0.897	-173.6	1.864	47.5	0.048	-7.0	0.432	-135.5
12.0	0.904	-179.8	1.553	35.8	0.046	-11.6	0.483	-142.6
14.0	0.906	-174.0	1.317	24.2	0.044	-15.6	0.527	-150.2
16.0	0.911	-167.5	1.134	12.0	0.044	-21.1	0.572	-159.1
18.0	0.917	-160.9	0.975	-0.1	0.044	-25.1	0.618	-168.5
20.0	0.922	-155.1	0.837	-11.7	0.041	-30.2	0.667	-177.5
22.0	0.936	-154.0	0.702	-21.1	0.039	-31.4	0.723	-173.1
24.0	0.941	-152.0	0.603	-29.3	0.037	-31.3	0.774	-167.9
26.0	0.934	-149.5	0.530	-36.6	0.034	-24.8	0.818	-165.6

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, 7 mils each; no source wires for EFA120BV.