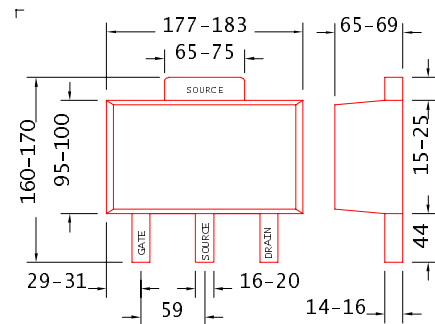


DATA SHEET
DC-4GHz Low Distortion GaAs Power FET
Features

- **LOW COST SURFACE-MOUNT PLASTIC PACKAGE**
- **+34.0dBm TYPICAL OUTPUT POWER**
- **12.0dB TYPICAL POWER GAIN AT 2GHz**
- **0.8dB TYPICAL NOISE FIGURE AT 2GHz**
- **+48dBm TYPICAL OUTPUT 3rd ORDER INTERCEPT POINT AT 2GHz**
- **0.5 X 4800 MICRON RECESSED “MUSHROOM” GATE**
- **Si₃N₄ PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**



(Top View)
All Dimensions In Mils

Applications

- **Analog and Digital Wireless System**
- **HPA**

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression f = 2GHz V _{ds} =7V, I _{ds} =750mA	32.5	34.0		dBm
G_{1dB}	Gain at 1dB Compression f = 2GHz V _{ds} =7V, I _{ds} =750mA	10.0	12.0		dB
PAE	Power Added Efficiency at 1dB Compression V _{ds} =7V, I _{ds} =750mA f = 2GHz		45		%
NF	Noise Figure f = 2GHz V _{ds} =5V, I _{ds} =300mA V _{ds} =5-7V, I _{ds} =750mA		0.8 2.0		dB
IP3	Output 3rd Order Intercept Point f = 2GHz V _{ds} =5-7V, I _{ds} =750mA V _{ds} =5V, I _{ds} =300mA		48 39		dBm
I_{dss}	Saturated Drain Current V _{ds} =3V, V _{gs} =0V	880	1360	1760	mA
G_m	Transconductance V _{ds} =3V, V _{gs} =0V	560	720		mS
V_p	Pinch-off Voltage V _{ds} =3V, I _{ds} =14mA		-2.0	-3.5	V
BV_{gd}	Drain Breakdown Voltage I _{gd} =4.8mA	-11	-15		V
BV_{gs}	Source Breakdown Voltage I _{gs} =4.8mA	-7	-14		V
R_{th}	Thermal Resistance		14*		°C/W

* Overall R_{th} depends on case mounting.

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE ¹	CONTINUOUS ²
V_{ds}	Drain-Source Voltage	12V	7V
V_{gs}	Gate-Source Voltage	-8V	-4V
I_{ds}	Drain Current	I _{dss}	1.2A
I_{gsf}	Forward Gate Current	120mA	20mA
P_{in}	Input Power	32dBm	@ 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	10 W	8.4 W

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

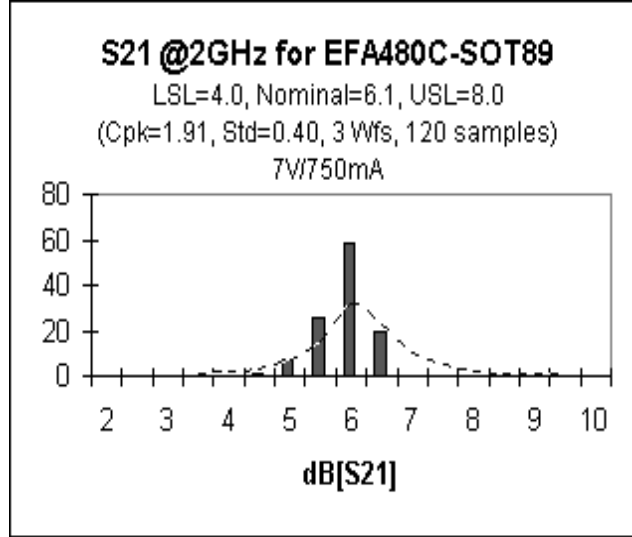
2. Exceeding any of the above ratings may reduce MTTF below design goals.

EFA480C-SOT89

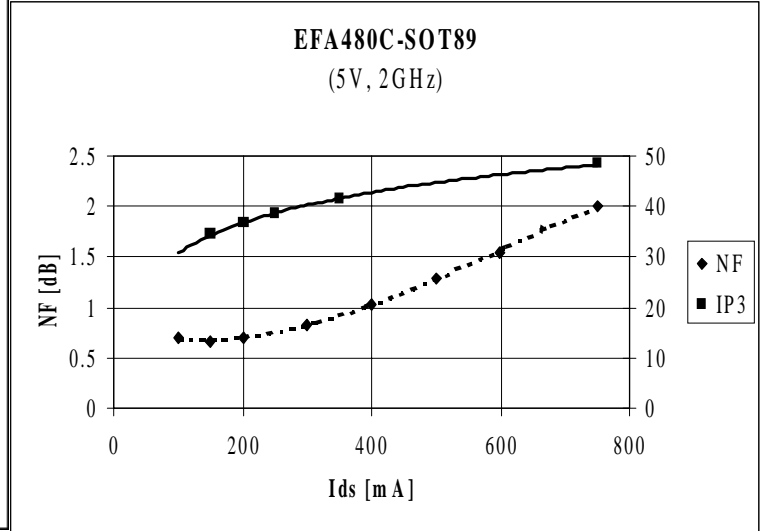
DATA SHEET DC-4GHz Low Distortion GaAs Power FET

Typical Performance

S21 Distribution



Noise Figure & IP3



S-PARAMETERS

S-PARAMETERS

7V, 750mA										5V, 150mA									
Freq (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---			Freq (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---		
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG			MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
0.1	0.914	-74.6	18.618	138.4	0.015	56.1	0.552	-166.3		0.1	0.953	-71.1	17.133	141.6	0.018	68.2	0.586	-167.0	
0.2	0.898	-113.3	12.814	117.4	0.024	39.5	0.652	-169.9		0.2	0.929	-111.0	12.353	120.2	0.026	39.7	0.678	-170.2	
0.3	0.898	-134.4	9.412	105.5	0.025	31.1	0.677	-174.6		0.3	0.916	-133.1	9.150	107.7	0.031	29.3	0.712	-174.9	
0.4	0.897	-147.5	7.342	97.4	0.026	28.5	0.692	-177.9		0.4	0.908	-146.6	7.156	99.3	0.030	28.1	0.731	-178.2	
0.5	0.893	-156.3	5.983	91.3	0.028	25.9	0.698	178.6		0.5	0.902	-155.7	5.838	93.1	0.033	27.1	0.742	178.3	
1.0	0.886	179.0	3.095	70.9	0.034	25.3	0.686	168.9		1.0	0.886	179.2	3.037	72.8	0.039	24.0	0.736	168.3	
1.5	0.831	161.0	2.625	55.6	0.052	23.7	0.616	153.0		1.5	0.828	161.0	2.596	57.9	0.059	21.8	0.676	152.7	
2.0	0.826	146.7	2.013	40.8	0.062	20.0	0.614	143.4		2.0	0.822	146.4	2.002	43.6	0.070	17.8	0.673	142.9	
2.5	0.818	133.2	1.680	26.4	0.074	13.7	0.602	133.9		2.5	0.812	132.9	1.671	29.8	0.083	11.0	0.662	133.2	
3.0	0.806	119.3	1.463	11.3	0.087	4.9	0.587	122.7		3.0	0.799	119.0	1.465	14.9	0.097	2.6	0.647	121.7	
3.5	0.808	103.3	1.303	-5.2	0.100	-5.5	0.570	109.6		3.5	0.800	103.0	1.313	-1.0	0.111	-8.0	0.626	108.6	
4.0	0.797	85.9	1.142	-23.4	0.110	-18.7	0.579	92.5		4.0	0.790	85.6	1.154	-18.7	0.120	-21.8	0.632	91.7	
4.5	0.812	69.0	0.967	-40.5	0.113	-31.5	0.602	75.1		4.5	0.806	68.8	0.982	-35.4	0.124	-34.2	0.651	74.5	
5.0	0.836	53.9	0.816	-56.0	0.113	-43.2	0.652	61.1		5.0	0.830	54.0	0.831	-50.4	0.123	-46.1	0.693	60.9	
5.5	0.856	41.4	0.687	-69.8	0.109	-53.7	0.685	50.8		5.5	0.851	41.4	0.706	-63.8	0.120	-56.5	0.721	50.4	
6.0	0.859	30.1	0.589	-82.8	0.108	-63.8	0.705	41.3		6.0	0.855	30.2	0.611	-76.3	0.118	-66.2	0.733	41.0	