

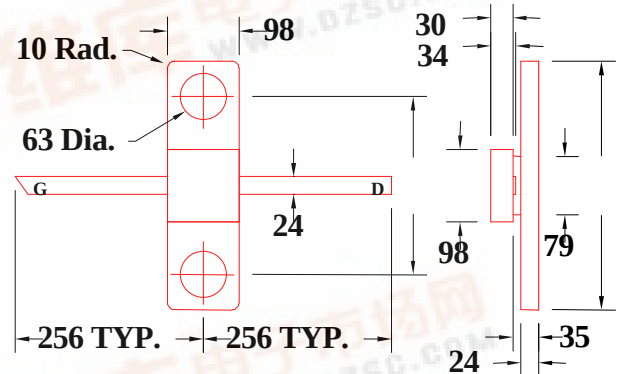


EFC120B-100F

DATA SHEET

Low Distortion GaAs Power FET

- HERMETIC 100mil CERAMIC FLANGE PACKAGE
- +28.0dBm TYPICAL OUTPUT POWER
- HIGH BV_{gd} FOR 10V BIAS
- 9.0dB TYPICAL POWER GAIN AT 8GHz
- 0.3 X 1200 MICRON RECESSED "MUSHROOM" GATE
- Si₃N₄ PASSIVATION
- ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY



ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

All Dimensions In mils

SYMBOLS	PARAMETERS/TEST CONDITIONS	MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression V _{ds} =10V, I _{ds} =50% I _{ds} f = 8GHz f = 12GHz	26.0	28.0 28.0		dBm
G_{1dB}	Gain at 1dB Compression V _{ds} =10V, I _{ds} =50% I _{ds} f = 8GHz f = 12GHz	4.0	9.0 6.0		dB
PAE	Gain at 1dB Compression V _{ds} =10V, I _{ds} =50% I _{ds} f = 12GHz		30		%
I_{ds}	Saturated Drain Current V _{ds} =3V, V _{gs} =0V	160	260	360	mA
G_m	Transconductance V _{ds} =3V, V _{gs} =0V	100	140		mS
V_p	Pinch-off Voltage V _{ds} =3V, I _{ds} =3.0mA		-2.5	-4.0	V
BV_{gd}	Drain Breakdown Voltage I _{gd} =1.2mA	-15	-20		V
BV_{gs}	Source Breakdown Voltage I _{gs} =1.2mA	-10	-17		V
R_{th}	Thermal Resistance		43*		°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	14V	10V
V_{gs}	Gate-Source Voltage	-8V	-4.5V
I_{ds}	Drain Current	I _{ds}	270mA
I_{gsf}	Forward Gate Current	30mA	5mA
P_{in}	Input Power	26dBm	@ 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	3.2W	2.7W

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								
10V, 1/2 Idss								
FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
GHz	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
1.0	1.015	-66.9	5.333	134.5	0.037	44.1	0.311	-73.2
2.0	0.910	-87.7	3.771	112.9	0.048	35.0	0.362	-71.6
3.0	0.871	-112.8	3.081	90.2	0.056	23.0	0.369	-87.9
4.0	0.836	-134.1	2.646	70.1	0.061	13.8	0.365	-100.5
5.0	0.810	-154.5	2.338	50.6	0.066	5.4	0.350	-114.3
6.0	0.783	-170.8	2.087	32.6	0.068	-2.6	0.332	-132.7
7.0	0.763	171.7	1.878	14.9	0.071	-9.7	0.347	-149.7
8.0	0.761	157.6	1.688	-2.6	0.072	-16.2	0.380	-169.0
9.0	0.766	139.5	1.514	-19.9	0.078	-24.7	0.404	-177.2
10.0	0.770	126.1	1.376	-35.5	0.082	-32.6	0.395	173.5
11.0	0.759	117.3	1.314	-50.3	0.091	-40.7	0.403	161.2
12.0	0.740	105.5	1.290	-66.4	0.104	-47.9	0.405	153.6
13.0	0.738	88.2	1.237	-84.1	0.122	-58.2	0.362	144.5
14.0	0.734	73.0	1.196	-102.5	0.146	-71.1	0.309	123.6
15.0	0.718	59.3	1.162	-123.4	0.176	-86.9	0.301	94.9
16.0	0.693	44.2	1.099	-143.5	0.209	-103.3	0.270	78.9
17.0	0.686	31.0	1.082	-161.9	0.266	-118.3	0.245	79.9
18.0	0.664	18.1	1.085	176.9	0.350	-138.1	0.215	73.9
19.0	0.666	1.0	1.071	153.7	0.465	-163.0	0.170	68.8
20.0	0.703	-26.1	1.066	127.7	0.621	167.1	0.193	106.0
21.0	0.546	-62.2	1.004	100.2	0.779	129.7	0.222	117.8
22.0	0.391	-119.2	0.993	74.3	0.903	90.1	0.170	110.1
23.0	0.493	-176.8	0.951	41.8	0.908	45.7	0.323	104.9
24.0	0.455	138.2	0.872	10.2	0.821	5.4	0.413	86.0
25.0	0.354	86.0	0.765	-28.8	0.691	-39.2	0.465	78.0
26.0	0.489	96.7	0.431	-78.0	0.341	-89.7	0.632	79.9