

**Product Specifications**
December 1997

(1 of 2)

General Purpose
GaAs FETs**Features**

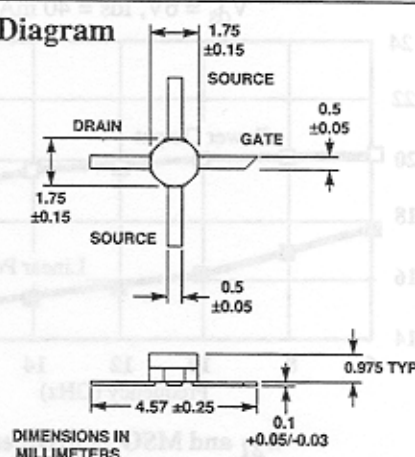
- ☐ High Gain
- ☐ 19 dBm Power Output
- ☐ Ion Implanted Material
- ☐ 70 Mil Stripline Commercial Package

Applications

- ☐ Point-to-Point Radios
- ☐ Test Equipment
- ☐ General Purpose Commercial Applications
- ☐ Industrial Applications

Description

The CFB0101-G series is a family of high-gain FETs intended for general purpose applications. Manufactured in Celeritek's proprietary 0.25 micron ion-implanted process, and assembled in an industry standard 70 mil stripline package.

B Package Diagram

age, this cost-effective family of devices is ideally suited for commercial applications where reliability, performance, and value are critical.

Specifications (TA = 25°C)

Parameter	Vds (V)	Bias Ids (mA)	Frequency (GHz)	Units	Grade	Min	Typ	Max
P _{1dB}	6.0	40.0	12.0	dBm	G1	19.0	19.5	—
					G2	18.0	18.5	—
					G3	17.0	17.5	—
G _L	6.0	40.0	12.0	dB	G1	9.0	9.5	—
					G2	9.0	9.5	—
					G3	8.0	8.5	—
IS ₂₁ ²	6.0	40.0	2.0	dB			14.0	
			10.0	dB			8.5	
			18.0	dB			4.9	
NF _{opt}	6.0	40.0	12.0	dB			2.8	
g _m	Vds = 3.0V	Vgs = 0V		mS			60.0	
I _{dss}	Vds = 3.0V	Vgs = 0V		mA		40.0	60.0	120.0
V _p	Vds = 3.0V	Ids = 1mA		Volts		-0.7	-1.3	-2.5
BV _{gd}	Igd = 100 μA			Volts		-5.5	-8.0	
R _{th}				°C/W			250	

Absolute Maximum Ratings

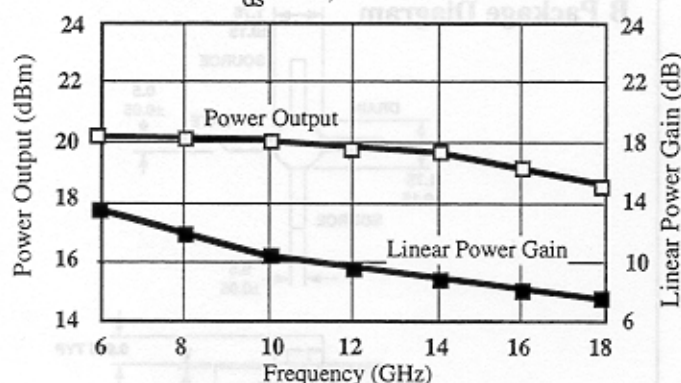
Parameter	Symbol	Rating
Drain-Source Voltage	Vds	8V
Gate-Source Voltage	Vgs	-5V
Drain Current	Ids	Idss
Continuous Dissipation	Pt	800mW
RF Power In	Pin	+17 dBm
Channel Temperature	Tch	175°C
Storage Temperature	Tstg	-65°C to +175°C

Typical Noise Parameters (Vds = 6V, Ids = 40 mA)

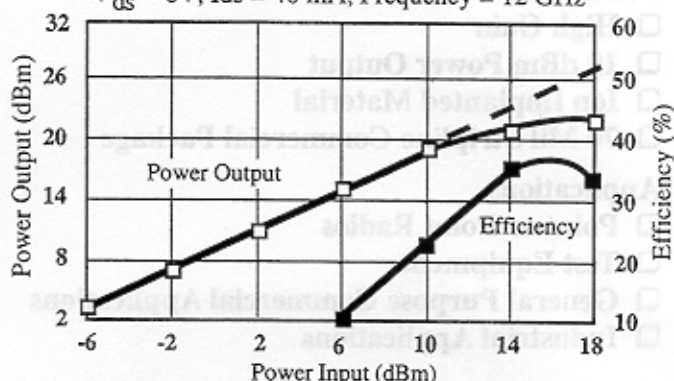
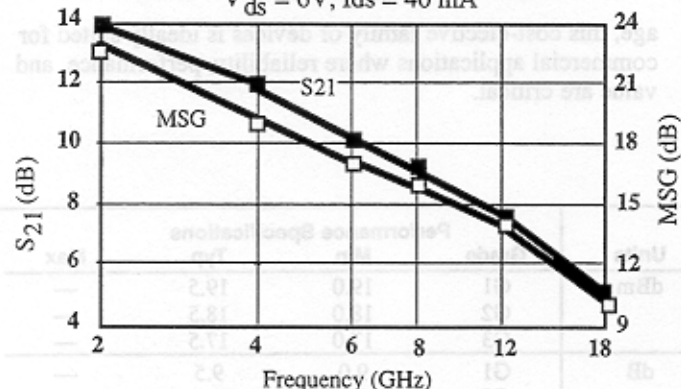
Freq (GHz)	NF _{opt}	G _A (dB)	Gamma Opt Mag	Opt Ang	Rn/50
2.0	1.06	21.2	0.76	39	1.51
4.0	1.33	17.0	0.60	80	0.62
6.0	1.68	14.6	0.50	119	0.14
8.0	2.00	12.7	0.46	157	0.04
10.0	2.30	11.5	0.46	175	0.16
12.0	2.60	10.7	0.50	-133	0.54
14.0	3.00	10.2	0.56	-100	1.07
16.0	3.49	10.0	0.62	-70	1.71
18.0	4.09	9.8	0.67	-42	2.38

Typical Performance (TA = 25°C)

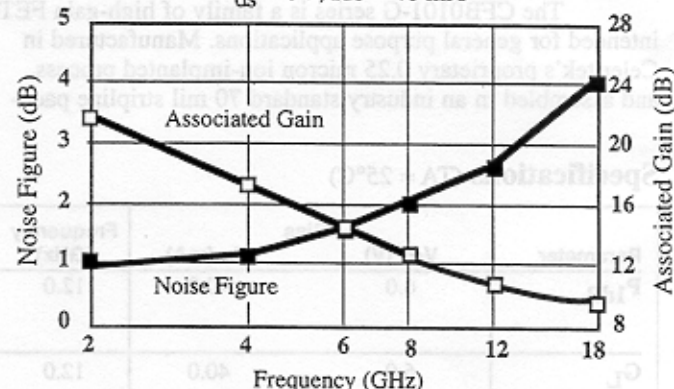
Power Output and Linear Power Gain vs Frequency

 $V_{ds} = 6V, I_{ds} = 40\text{ mA}$ 

Power Output and Power Added Efficiency vs Power In

 $V_{ds} = 6V, I_{ds} = 40\text{ mA}, \text{Frequency} = 12\text{ GHz}$  S_{21} and MSG vs Frequency $V_{ds} = 6V, I_{ds} = 40\text{ mA}$ 

Noise Figure and Associated Gain vs Frequency

 $V_{ds} = 6V, I_{ds} = 40\text{ mA}$ Typical Scattering Parameters (TA = 25°C, $V_{ds} = 6V, I_{ds} = 40\text{ mA}$)

CFB0101

Frequency (GHz)	S ₁₁		(dB)	S ₂₁		(dB)	S ₁₂		S ₂₂		MSG (dB)
	(Mag)	(Ang)		(Mag)	(Ang)		(Mag)	(Ang)	(Mag)	(Ang)	
2.0	0.94	-35	14.0	5.01	148	-31.6	0.03	63	0.53	-13	22.8
4.0	0.82	-77	12.1	4.03	109	-26.3	0.05	47	0.53	-40	19.2
6.0	0.70	-110	10.6	3.39	79	-24.1	0.06	35	0.52	-58	17.3
8.0	0.58	-152	9.9	3.13	50	-22.4	0.08	25	0.45	-70	16.1
10.0	0.58	169	8.5	2.66	21	-21.3	0.09	14	0.35	-104	14.9
12.0	0.55	142	7.5	2.37	-2	-20.5	0.09	10	0.40	-122	14.0
14.0	0.60	104	6.6	2.14	-28	-19.0	0.11	-2	0.32	-147	12.8
16.0	0.67	87	5.6	1.91	-53	-17.7	0.13	-13	0.39	166	11.7
18.0	0.69	60	4.9	1.76	-79	-16.7	0.15	-32	0.46	146	10.8

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