

**Product Specifications
December 1997**

(1 of 2)

**General Purpose
GaAs FETs****Features**

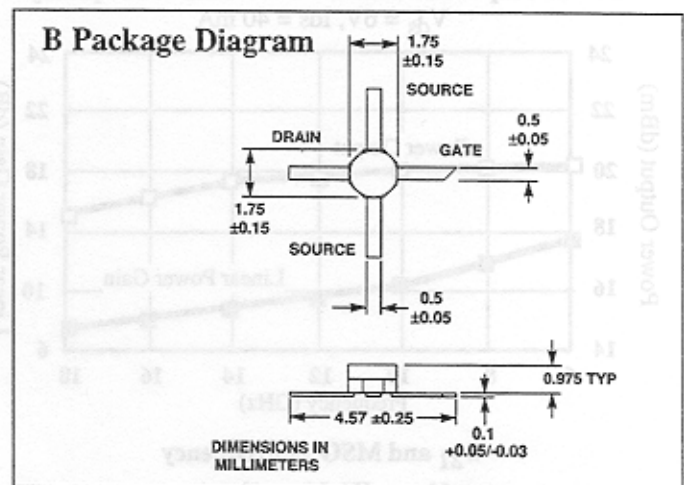
- High Gain
- 19 dBm Power Output
- Ion Implanted Material
- 70 Mil Stripline Commercial Package

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 pack-



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	Performance Specifications			
					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	—
S ₂₁ ²	6.0	40.0	2.0	dB			14.0	
			10.0			8.5		
			18.0			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

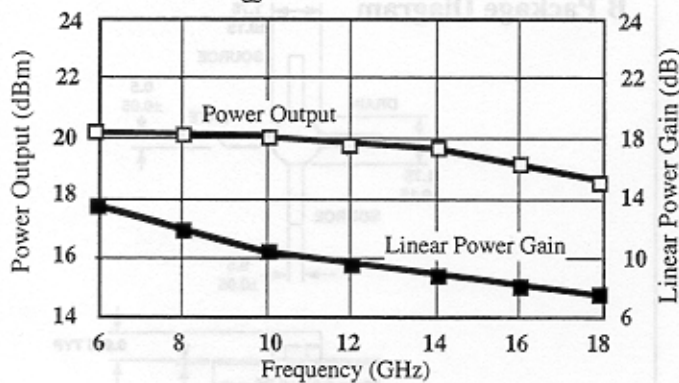
Parameter	Symbol	Rating
Drain-Source Voltage	Vds	8V
Gate-Source Voltage	Vgs	-5V
Drain Current	Ids	Idss
Continuous Dissipation	Pt	800mW
RF Power In	Pin	+17 dBm
Channel Temperature	Tch	175°C
Storage Temperature	Tstg	-65°C to +175°C

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

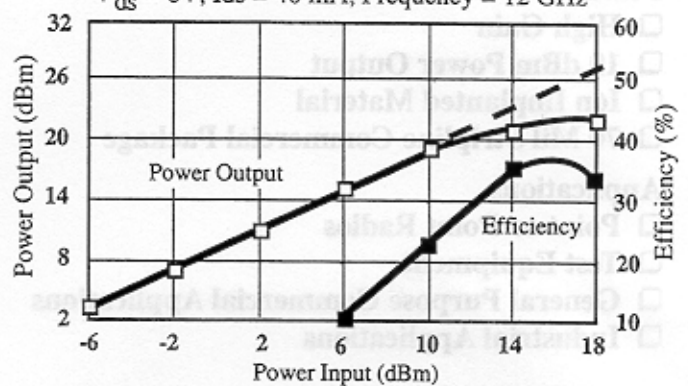
Freq (GHz)	NF _{opt}	G _A (dB)	Gamma Opt Mag	Gamma Opt Ang	Rn/50
2.0	1.06	21.2	0.76	39	1.51
4.0	1.33	17.0	0.60	80	0.62
6.0	1.68	14.6	0.50	119	0.14
8.0	2.00	12.7	0.46	157	0.04
10.0	2.30	11.5	0.46	175	0.16
12.0	2.60	10.7	0.50	-133	0.54
14.0	3.00	10.2	0.56	-100	1.07
16.0	3.49	10.0	0.62	-70	1.71
18.0	4.09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

Typical Performance (TA = 25°C)

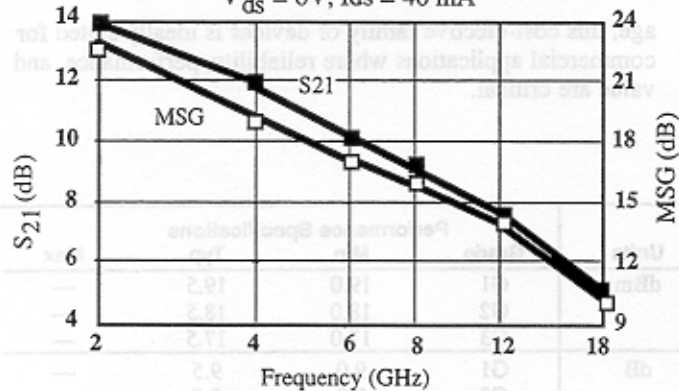
Power Output and Linear Power Gain vs Frequency
 $V_{ds} = 6V, I_{ds} = 40 mA$



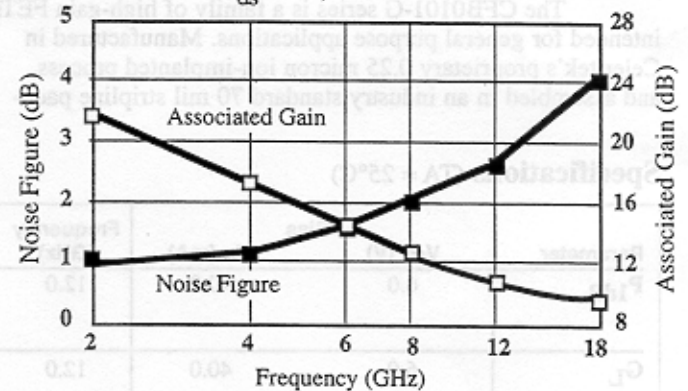
Power Output and Power Added Efficiency vs Power In
 $V_{ds} = 6V, I_{ds} = 40 mA, \text{Frequency} = 12 GHz$



S₂₁ and MSG vs Frequency
 $V_{ds} = 6V, I_{ds} = 40 mA$



Noise Figure and Associated Gain vs Frequency
 $V_{ds} = 6V, I_{ds} = 40 mA$



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

CFB0101

Frequency (GHz)	S ₁₁		S ₂₁ (dB)	S ₁₂		S ₂₂ (dB)	MSG (dB)
	(Mag)	(Ang)		(Mag)	(Ang)		
2.0	0.94	-35	14.0	0.03	63	-31.6	22.8
4.0	0.82	-77	12.1	0.05	47	-26.3	19.2
6.0	0.70	-110	10.6	0.06	35	-24.1	17.3
8.0	0.58	-152	9.9	0.08	25	-22.4	16.1
10.0	0.58	169	8.5	0.09	14	-21.3	14.9
12.0	0.55	142	7.5	0.09	10	-20.5	14.0
14.0	0.60	104	6.6	0.11	-2	-19.0	12.8
16.0	0.67	87	5.6	0.13	-13	-17.7	11.7
18.0	0.69	60	4.9	0.15	-32	-16.7	10.8

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