

**Product Specifications
December 1997**

(1 of 2)

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

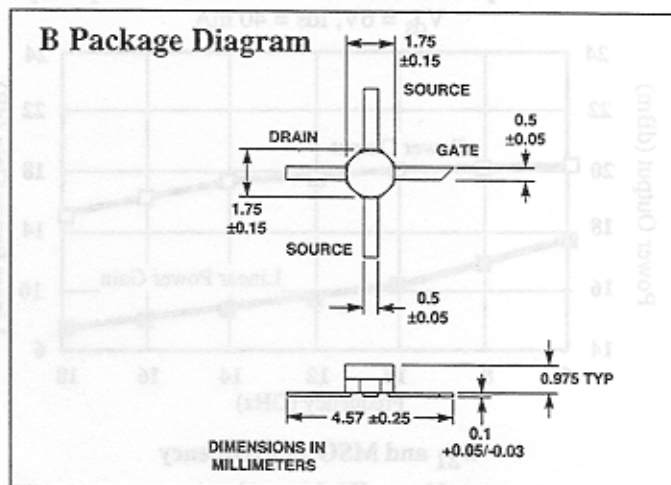
- High Gain
- 19 dBm Power Output
- Ion Implanted Material
- 70 Mil Stripline Commercial Package

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

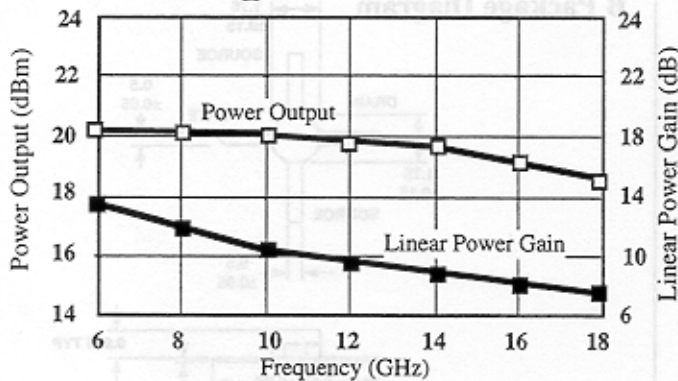
Parameter	Symbol	Rating
Drain-Source Voltage	Vds	8V
Gate-Source Voltage	Vgs	-5V
Drain Current	Ids	Idss
Continuous Dissipation	Pt	800mW
RF Power In	Pin	+17 dBm
Channel Temperature	Tch	175°C
Storage Temperature	Tstg	-65°C to +175°C

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

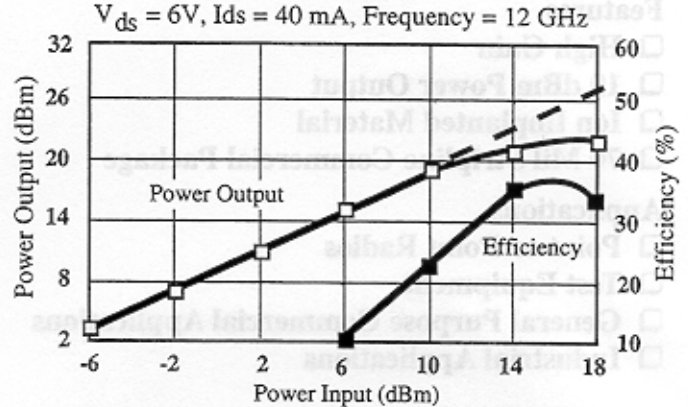
Freq (GHz)	NF _{opt}	G _A (dB)	Gamma Opt Mag	Gamma Opt Ang	Rn/50
2.0	1.06	21.2	0.76	39	1.51
4.0	1.33	17.0	0.60	80	0.62
6.0	1.68	14.6	0.50	119	0.14
8.0	2.00	12.7	0.46	157	0.04
10.0	2.30	11.5	0.46	175	0.16
12.0	2.60	10.7	0.50	-133	0.54
14.0	3.00	10.2	0.56	-100	1.07
16.0	3.49	10.0	0.62	-70	1.71
18.0	4.09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

Typical Performance (TA = 25°C)

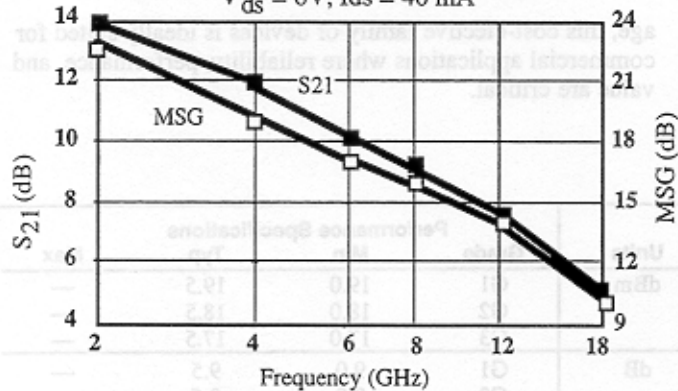
Power Output and Linear Power Gain vs Frequency
 $V_{ds} = 6V, I_{ds} = 40\text{ mA}$



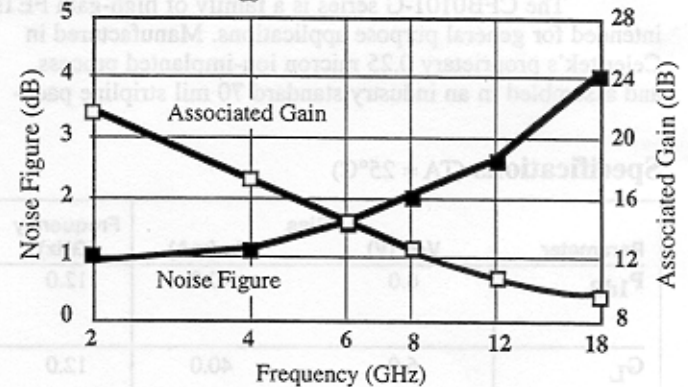
Power Output and Power Added Efficiency vs Power In
 $V_{ds} = 6V, I_{ds} = 40\text{ mA}, \text{Frequency} = 12\text{ GHz}$



S₂₁ 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} = 40mA)

CFB0101

Frequency (GHz)	S ₁₁		S ₂₁ (dB)	S ₁₂		S ₂₂		MSG (dB)
	(Mag)	(Ang)		(Mag)	(Ang)	(Mag)	(Ang)	
2.0	0.94	-35	14.0	0.03	63	0.53	-13	22.8
4.0	0.82	-77	12.1	0.05	47	0.53	-40	19.2
6.0	0.70	-110	10.6	0.06	35	0.52	-58	17.3
8.0	0.58	-152	9.9	0.08	25	0.45	-70	16.1
10.0	0.58	169	8.5	0.09	14	0.35	-104	14.9
12.0	0.55	142	7.5	0.09	10	0.40	-122	14.0
14.0	0.60	104	6.6	0.11	-2	0.32	-147	12.8
16.0	0.67	87	5.6	0.13	-13	0.39	166	11.7
18.0	0.69	60	4.9	0.15	-32	0.46	146	10.8

Celeritek reserves the right to make changes without further notice to any products herein. Celeritek makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Celeritek assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters can and do vary in different applications. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Celeritek does not convey any license under its patent rights nor the rights of others. Celeritek products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Celeritek product could create a situation where personal injury or death may occur. Should Buyer purchase or use Celeritek products for any such unintended or unauthorized application, Buyer shall indemnify and hold Celeritek and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Celeritek was negligent regarding the design or manufacture of the part. Celeritek is a registered trademark of Celeritek, Inc. Celeritek, Inc. is an Equal Opportunity/Affirmative Action Employer.