

Product Specifications December 1997

(1 of 2)

General Purpose GaAs FETs

Features

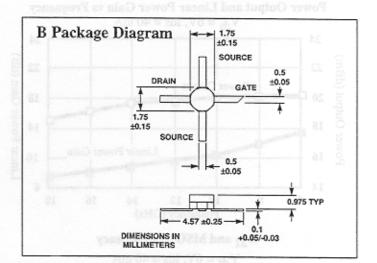
- ☐ High Gain
- ☐ 19 dBm Power Output
- ☐ Ion Implanted Material
- ☐ 70 Mil Stripline Commercial Package

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-efective family of devices is ideally suited for commercial applications where reliability, performance, and value are critical.

Specifications (TA = 25°C)

	Bias Ids (mA)	Frequency (GHz)	Units				
Vds (V)				Grade	Min	Тур	Max
6.0	40.0	12.0	dBm	- G1	19.0	19.5	
		0		G2	18.0	18.5	
9 à		2	91	G3	17.0	17.5	- 2
6.0	40.0	12.0	dB	G1	9.0	9.5	
				G2	9.0	9.5	
				G3	8.0	8.5	0 1
6.0	40.0	2.0	dB		AND DESCRIPTION OF THE PARTY OF	14.0	or more
		10.0	dB				
cell	Sig	18.0	dB	res		4.9	
A) (6.0)	40.0	12.0	dB	(dB) (Mag	(Ang)	2.8	(xHE)
Vds = 3.0V	Vgs = 0V	-31.6	mS	14.0 5.01	-35	60.0	2.0
Vds = 3.0V	Vgs = 0V	-26.3	mA	12.1 4.03	40.0	60.0	120.0
Vds = 3.0V	Ids = 1mA	1.95°	Volts	PI 0 0	-0.7	-1.3	-2.5
Igd = 100 μA	0.09 14	-21.3	Volts	8.5 2.60	-5.5	-8.0	10.01
0,49	0.09 10 0.11 ·2	-20.5	°C/W	6.6 2.14	791	250	14.0
	6.0 6.0 Vds = 3.0V Vds = 3.0V Vds = 3.0V	Vds (V) Ids (mA) 6.0 40.0 6.0 40.0 6.0 40.0 6.0 40.0 Vds = 3.0V Vgs = 0V Vds = 3.0V Vgs = 0V Vds = 3.0V Ids = 1mA Igd = 100 μA	Vds (V) Ids (mA) (GHz) 6.0 40.0 12.0 6.0 40.0 12.0 6.0 40.0 10.0 18.0 18.0 Vds = 3.0V Vgs = 0V Vds = 3.0V Vgs = 0V Vds = 3.0V Ids = 1mA Igd = 100 μA	Vds (V) Ids (mA) Frequency (GHz) Units 6.0 40.0 12.0 dBm 6.0 40.0 12.0 dB 6.0 40.0 2.0 dB dB 10.0 dB 18.0 dB dB 6.0 40.0 12.0 dB dB Vds = 3.0V Vgs = 0V mS Vds = 3.0V Vgs = 0V mA Vds = 3.0V Ids = 1mA Volts Igd = 100 μA Volts	Vds (V)	Vds (V) Ids (mA) Frequency (GHz) Units Performance Spec Min 6.0 40.0 12.0 dBm G1 19.0 G2 18.0 G3 17.0 6.0 40.0 12.0 dB G1 9.0 G2 9.0 G3 8.0 6.0 40.0 2.0 dB 18.0 dB dB 6.0 40.0 12.0 dB Vds = 3.0V Vgs = 0V mS Vds = 3.0V Vgs = 0V mA 40.0 Vds = 3.0V Ids = 1mA Volts -0.7 Igd = 100 μA Volts -5.5	Vds (V) Ids (mA) Frequency (GHz) Units Performance Specifications Min Typ 6.0 40.0 12.0 dBm G1 19.0 19.5 G2 18.0 18.5 G3 17.0 17.5 6.0 40.0 12.0 dB G1 9.0 9.5 G2 9.0 9.5 G3 8.0 8.5 6.0 40.0 2.0 dB 14.0 10.0 dB 8.5 8.5 18.0 dB 4.9 6.0 40.0 12.0 dB 2.8 Vds = 3.0V Vgs = 0V mS 60.0 Vds = 3.0V Ids = 1mA Volts -0.7 -1.3 Igd = 100 μA Volts -5.5 -8.0

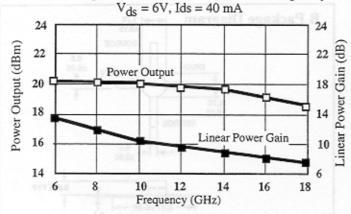
Absolute Maximum Ratings

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

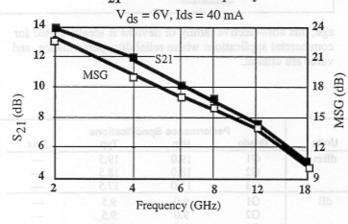
Symbol	Rating	Freq	NFopt	GA	Gamma Opt		Rn/50				
Vde	QV .		1.06				1.51				
Yus	malamana "izalawi" panomah	hardraudhlining St. Ceithra		hadroned delegation	ac minimization in		1.51				
Vgs	-5V	4.0	1.33	17.0	0.60	80	0.62				
	ni pinencan Idee (seu tol bacho	6.0	1.68	14.6	0.50	119	0.14				
105	she're the failure of the Caledteic	8.0	2.00	12.7	0.46	157	0.04				
Pt	800mW	10.0					0.16				
Pin	+17 dBm	12.0	2.60	10.7	0.50	-133	0.54				
Tch	175°C	14.0	3.00	10.2	0.56	-100	1.07				
	650C to 11750C	16.0	3.49	10.0	0.62	-70	1.71				
isig	-03 C to +173 C	18.0	4.09	9.8	0.67	-42	2.38				
	Vds Vgs Ids Pt Pin	Vds 8V Vgs -5V Ids Idss Pt 800mW Pin +17 dBm Tch 175°C	Vds 8V 2.0 Vgs -5V 4.0 Ids Idss 6.0 Pt 800mW 10.0 Pin +17 dBm 12.0 Tch 175°C 14.0 Tstg -65°C to +175°C 16.0	Vds 8V 2.0 1.06 Vgs -5V 4.0 1.33 Ids Idss 6.0 1.68 Pt 800mW 10.0 2.30 Pin +17 dBm 12.0 2.60 Tch 175°C 14.0 3.00 Tstg -65°C to +175°C 16.0 3.49	Vds 8V 2.0 1.06 21.2 Vgs -5V 4.0 1.33 17.0 Ids Idss 6.0 1.68 14.6 Pt 800mW 10.0 2.30 11.5 Pin +17 dBm 12.0 2.60 10.7 Tch 175°C 14.0 3.00 10.2 Tsta -65°C to +175°C 16.0 3.49 10.0	Vds 8V 2.0 1.06 21.2 0.76 Vgs -5V 4.0 1.33 17.0 0.60 Ids Idss 6.0 1.68 14.6 0.50 Pt 800mW 10.0 2.30 11.5 0.46 Pin +17 dBm 12.0 2.60 10.7 0.50 Tch 175°C 14.0 3.00 10.2 0.56 Tstg -65°C to +175°C 16.0 3.49 10.0 0.62	Vds 8V 2.0 1.06 21.2 0.76 39 Vgs -5V 4.0 1.33 17.0 0.60 80 Ids Idss 6.0 1.68 14.6 0.50 119 Pt 800mW 10.0 2.30 11.5 0.46 157 Pin +17 dBm 12.0 2.60 10.7 0.50 -133 Tch 175°C 14.0 3.00 10.2 0.56 -100 Tstg -65°C to +175°C 16.0 3.49 10.0 0.62 -70				

Typical Performance (TA = 25°C)

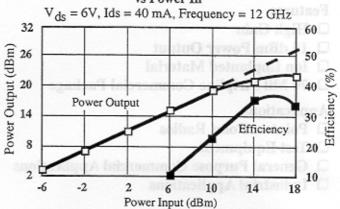
Power Output and Linear Power Gain vs Frequency



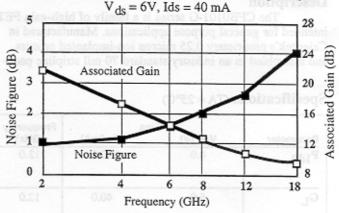
S21 and MSG vs Frequency



Power Output and Power Added Efficiency vs Power In



Noise Figure and Associated Gain vs Frequency



Typical Scattering Parameters (TA = 25°C, Vds = 6V, Ids = 40mA) CFB0101

Frequency (GHz)	€ S ₁₁			S ₂₁	ab_	0.81 S ₁₂			S ₂₂		MSG
	(Mag)	(Ang)	(dB)	(Mag)	(Ang)	(dB)	(Mag)	(Ang)	(Mag)	(Ang)	(dB)
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 0.01	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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