

Low Noise GaAs FETs

August 2006 - Rev 03-Aug-06

CFB0103 Series



CELERITEK

CFB0103 Series

Product Specifications December 1997

(1 of 2)

Low-Noise GaAs FETs

Features

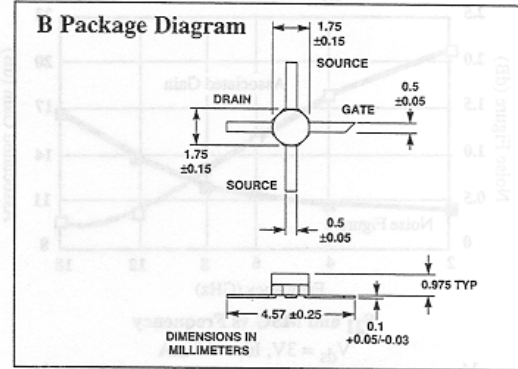
- High Gain
- Super Low-Noise
- Pseudomorphic HEMT
- 70 Mil Stripline Commercial Package

Applications

- Point-to-Point Radio Receivers
- Commercial Communications
- Industrial Applications

Description

The CFB0103-L series is a family of low-noise, high-gain FETs intended for point-to-point radio, commercial and industrial applications. Manufactured in Celeritek's proprietary, state-of-the-art PHEMT process and assembled in an industry standard, 70 mil stripline commercial package, this



cost-effective family of devices is ideally suited for commercial communications 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
NF _{opt}	3.0		15.0	12.0	dB	L1	—	0.7	0.8
						L2	—	0.9	1.0
						L3	—	0.9	1.2
G _a	3.0		15.0	12.0	dB	L1	9.5	10.0	—
						L2	9.0	9.5	—
						L3	8.0	9.0	—
S ₂₁ ²	3.0		15.0	2.0	dB	13.9			
				10.0	dB	9.8			
				18.0	dB	7.0			
P _{1dB}	6.0		40.0	12.0	dBm	19.0			
g _m	Vds = 3.0V	Vgs = 0V			mS	90.0			
I _{dss}	Vds = 3.0V	Vgs = 0V			mA	30.0	60.0	120.0	
V _p	Vds = 3.0V	Ids = 1mA			Volts	-0.5	-1.3	-2.5	
BV _{gd}	I _{gd} = 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 = 3V, Ids = 15 mA)

Parameter	Freq (GHz)	NF _{opt}	G _A (dB)	Gamma Mag	Opt Ang	Rn/50
Drain-Source Voltage	2.0	0.45	21.9	0.83	27	0.52
Gate-Source Voltage	4.0	0.48	17.8	0.70	55	0.36
Drain Current	6.0	0.54	14.8	0.60	78	0.23
Continuous Dissipation	8.0	0.63	12.7	0.52	99	0.15
RF Power In	10.0	0.75	11.2	0.47	120	0.11
Channel Temperature	12.0	0.90	10.3	0.44	142	0.09
Storage Temperature	14.0	1.09	9.8	0.41	168	0.11
	16.0	1.31	9.4	0.40	-160	0.15
	18.0	1.56	9.2	0.39	-120	0.21

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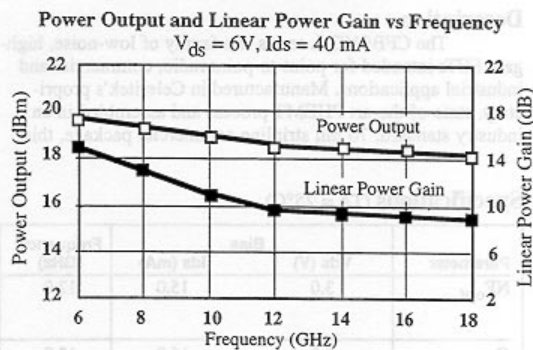
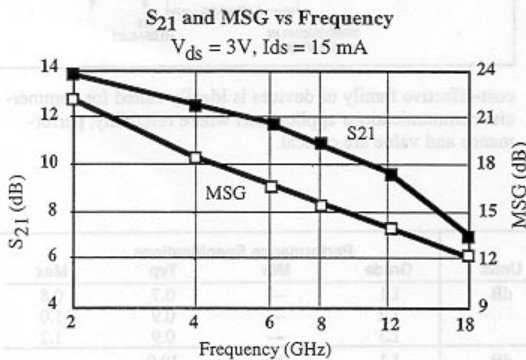
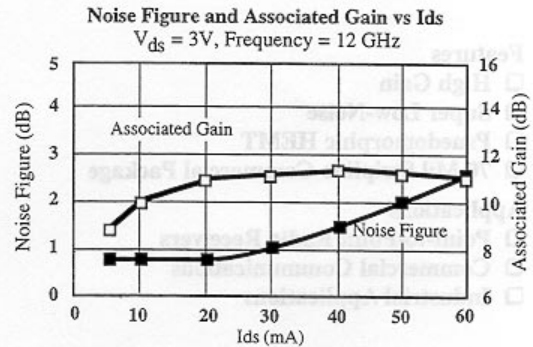
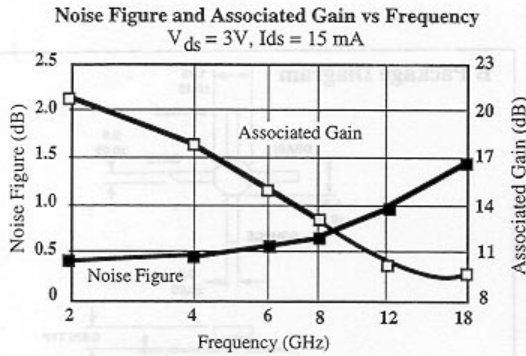
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CFB0103 Series

Product Specifications - December 1997
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Typical Performance (TA = 25°C)



Typical Scattering Parameters (TA = 25°C, Vds = 3V, Ids = 15mA)

CFB0103

Frequency (GHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂		MSG (dB)		
	(Mag)	(Ang)	(dB)	(Mag)	(Ang)	(dB)	(Mag)	(Ang)			
2.0	0.97	-27	13.9	4.95	152	-30.3	0.03	73	0.54	-19	22.1
4.0	0.86	-63	12.5	4.22	118	-24.6	0.06	51	0.52	-45	18.6
6.0	0.75	-90	11.3	3.67	90	-22.1	0.08	37	0.49	-64	16.7
8.0	0.60	-103	11.0	3.55	63	-20.1	0.10	23	0.40	-78	15.5
10.0	0.54	-165	9.8	3.09	33	-19.2	0.11	5	0.28	-116	14.5
12.0	0.49	170	8.9	2.79	11	-19.0	0.11	-2	0.32	-130	14.0
14.0	0.51	128	8.2	2.57	-14	-18.2	0.12	-16	0.22	-157	13.2
16.0	0.58	110	7.3	2.32	-38	-17.8	0.13	-26	0.29	157	12.6
18.0	0.58	85	7.0	2.24	-62	-17.0	0.14	-40	0.34	144	12.0

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