calogic CORPORATION

N-Channel JFET High Frequency Amplifier

2N3821 / 2N3822

FEATURES

- **Low Capacitance**
- **Up to 6500μs Transconductance**

PIN CONFIGURATION

5010

ABSOLUTE MAXIMUM RATINGS

(T_A = 25°C unless otherwise noted)

Gate-Source Voltage	-50V
Gate-Drain Voltage	-50V
Gate Current	10mA
Storage Temperature Range	-65°C to +200°C
Operating Temperature Range	-55°C to +175°C
Lead Temperature (Soldering, 10sec)	+300°C
Power Dissipation	300mW
Derate above 25°C	2.0mW/°C

NOTE: Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ORDERING INFORMATION

Part	Package	Temperature Range
2N3821	Hermetic TO-72	-55°C to +175°C
X2N3821	Sorted Chips in Carriers	-55°C to +175°C
2N3822	Hermetic TO-72	-55°C to +175°C
X2N3822	Sorted Chips in Carriers	-55°C to +175°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

SYMBOL	PARAMETER	2N3821		2N3822		UNITS	TEST CONDITIONS	
		MIN	MAX	MIN	MAX			
I_{GSS}	Gate Reverse Current		-0.1		-0.1	nA	V_{GS} = -30V, V_{DS} = 0	
			-0.1		-0.1	μA		T_A = 150°C
BV_{GSS}	Gate-Source Breakdown Voltage	-50		-50		V	I_G = -1μA, V_{DS} = 0	
$V_{GS(off)}$	Gate-Source Cutoff Voltage		-4		-6		V_{DS} = 15V, I_D = 0.5nA	
V_{GS}	Gate-Source Voltage	-0.5	-2				V_{DS} = 15V, I_D = 50μA	
				-1	-4		V_{DS} = 15V, I_D = 200μA	
I_{DSS}	Saturation Drain Current (Note 1)	0.5	2.5	2	10	mA	V_{DS} = 15V, V_{GS} = 0	

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ELECTRICAL CHARACTERISTICS (Continued) (T_A = 25°C unless otherwise specified)

SYMBOL	PARAMETER	2N3821		2N3822		UNITS	TEST CONDITIONS	
		MIN	MAX	MIN	MAX			
g_{fs}	Common-Source Forward Transconductance (Note 1)	1500	4500	3000	6500	µs	V_{DS} = 15V, V_{GS} = 0	f = 1kHz
$\lvert y_{fs} \rvert$	Common-Source Forward Transadmittance (Note 2)	1500		3000				f = 100MHz
g_{os}	Common-Source Output Conductance (Note 1)		10		20			f = 1kHz
C_{iss}	Common-Source Input Capacitance (Note 2)		6		6	pF		f = 1MHz
C_{rss}	Common-Source Reverse Transfer Capacitance (Note 2)		3		3			
NF	Noise Figure (Note 2)		5		5	dB	V_{DS} = 15V, V_{GS} = 0, R_{gen} = 1meg, BW = 5Hz	f = 10Hz
$\bar{e}_n$	Equivalent Input Noise Voltage (Note 2)		200		200	$\frac{nV}{\sqrt{Hz}}$	V_{DS} = 15V, V_{GS} = 0, BW = 5Hz	

NOTES: 1. These parameters are measured during a 2ms interval 100ms after DC power is applied.
2. For design reference only, not 100% tested.