N-Channel JFET
High Frequency Amplifier

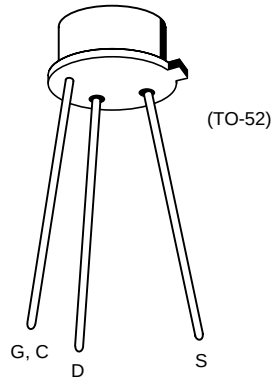
calogic LLC

U308 – U310

FEATURES

- **High Power Gain**
- **Low Noise**
- **Dynamic Range Greater The 100dB**
- **Easily Matched to 75Ω Input**

PIN CONFIGURATION



5021

ABSOLUTE MAXIMUM RATINGS

(T_A = 25°C unless otherwise specified)

Gate-Drain or Gate-Source Voltage . . . . . -25V
Gate Current 20mA
Storage Temperature . . . . . -65°C to +200°C
Operating Temperature Range . . . . . -55°C to +150°C
Lead Temperature (Soldering, 10sec) . . . . . +300°C
Power Dissipation 500mW
Derate above 25°C . . . . . 4mW/°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
U308-10	Hermetic TO-52	-55°C to +150°C
XU308-10	Sorted Chips in Carriers	-55°C to +150°C

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

SYMBOL	PARAMETER	U308			U309			U310			UNITS	TEST CONDITIONS	
		MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX			
I_{GSS}	Gate Reverse Current			-150			-150			-150	pA	V_{GS} = -15V	
				-150			-150			-150	nA	V_{GS} = 0	T_A = 125°C
BV_{GSS}	Gate-Source Breakdown Voltage	-25			-25			-25			V	I_G = -1μA, V_{DS} = 0	
$V_{GS(off)}$	Gate-Source Cutoff Voltage	-1.0		-6.0	-1.0		-4.0	-2.5		-6.0		V_{DS} = 10V, I_D = 1nA	
I_{DSS}	Saturation Drain Current (Note 1)	12		60	12		30	24		60	mA	V_{DS} = 10V, V_{GS} = 0	
$V_{GS(f)}$	Gate-Source Forward Voltage			1.0			1.0			1.0	V	I_G = 10mA, V_{DS} = 0	
g_{fg}	Common-Gate Forward Transconductance (Note 1)	10	17		10	17		10	17		mS	V_{DS} = 10V, I_D = 10mA	f = 1kHz
g_{ogs}	Common Gate Output Conductance			250			250			250	μS		
C_{gd}	Drain-Gate Capacitance			2.5			2.5			2.5	pF	V_{GS} = -10V, V_{DS} = 10V	f = 1MHz (Note 2)
C_{gs}	Gate-Source Capacitance			5.0			5.0			5.0			
$\bar{e}_n$	Equivalent Short Circuit Input Noise Voltage		10			10			10		$\frac{nV}{\sqrt{Hz}}$	V_{DS} = 10V, I_D = 10mA	f = 100Hz (Note 2)

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

SYMBOL	PARAMETER	U308			U309			U310			UNITS	TEST CONDITIONS	
		MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX			
g_{fg}	Common-Gate Forward Transconductance		15			15			15		µS	V_{DS} = 10V, I_D = 10mA (Note 2)	f = 100MHz
			14			14			14				f = 450MHz
g_{ogs}	Common-Gate Output Conductance		0.18			0.18			0.18				f = 100MHz
			0.32			0.32			0.32				f = 450MHz
G_{pg}	Common-Gate Power Gain	14	16		14	16		14	16		dB		f = 100MHz
		10	11		10	11		10	11				f = 450MHz
NF	Noise Figure		1.5	2.0		1.5	2.0		1.5	2.0			f = 100MHz
			2.7	3.5		2.7	3.5		2.7	3.5			f = 450MHz

NOTES: **1.** Pulse test duration = 2ms.
2. For design reference only, not 100% tested.