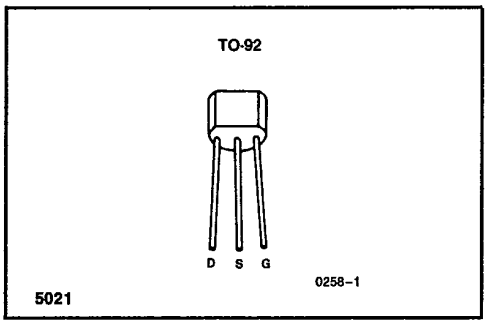
T-31-25

J308-J310
N-Channel JFET
High Frequency Amplifier

FEATURES
- Industry Standard Part In Low Cost Plastic Package
- High Power Gain
- Low Noise
- Dynamic Range Greater Than 100dB
- Easily Matched to 75Ω Input

PIN CONFIGURATION



APPLICATIONS
- VHF/UHF Amplifiers
- Oscillators
- Mixers

ABSOLUTE MAXIMUM RATINGS
(T_A = 25°C unless otherwise noted)

Drain-Gate Voltage	−25V
Drain-Source Voltage	−25V
Continuous Forward Gate Current	−10mA
Storage Temperature Range	−55°C to +150°C
Operating Temperature Range	−55°C to +135°C
Lead Temperature (Soldering, 10sec)	+300°C
Power Dissipation	360mW
Derate above 25°C	3.27mW/°C

ORDERING INFORMATION

TO-92
J3XX

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.*

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

Symbol	Parameter	Test Conditions		J308			J309			J310			Units
				Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
BV_{GSS}	Gate-Source Breakdown Voltage	I_G = −1μA, V_{DS} = 0		−25			−25			−25			V
I_{GSS}	Gate Reverse Current	V_{GS} = −15V,				−1.0			−1.0			−1.0	nA
		V_{DS} = 0	T_A = 125°C			−1.0			−1.0			−1.0	μA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	V_{DS} = 10V, I_D = 1nA		−1.0		−6.5	−1.0		−4.0	−2.0		−6.5	V
I_{DSS}	Saturation Drain Current (Note 1)	V_{DS} = 10V, V_{GS} = 0		12		60	12		30	24		60	mA
$V_{GS(f)}$	Gate-Source Forward Voltage	V_{DS} = 0, I_G = 1mA				1.0			1.0			1.0	V
g_{fs}	Common-Source Forward Transconductance	V_{DS} = 10V, I_D = 10mA, (Note 2)	f = 1kHz	8,000	17,000		10,000	17,000		8,000	17,000		μs
g_{os}	Common-Source Output Conductance					250			250			250	
g_{fg}	Common-Gate Forward Transconductance				13,000			13,000			12,000		
g_{og}	Common Gate Output Conductance				150			150			150		

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NOTE: All typical values have been characterized but are not tested.

J308–J310

J308–J310

INTERSIL

T-31-25

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

Symbol	Parameter	Test Conditions		J308			J309			J310			Units
				Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
C_{gd}	Gate-Drain Capacitance	V_{DS}=10V, V_{GS}=−10V	f=1MHz (Note 2)		1.8	2.5		1.8	2.5		1.8	2.5	pF
C_{gs}	Gate-Source Capacitance				4.3	5.0		4.3	5.0		4.3	5.0	
e_n	Equivalent Short-Circuit Input Noise Voltage	V_{DS}=10V, I_D=10mA	f=100Hz (Note 2)		10			10			10		$\frac{nV}{\sqrt{Hz}}$
$Re_{(Vfs)}$	Common-Source Forward Transconductance	V_{DS}=10V, I_D=10mA (Note 2)	f=105MHz		12			12			12		μs
$Re_{(Vfg)}$	Common-Gate Input Conductance				14			14			14		
$Re_{(Vis)}$	Common-Source Input Conductance				0.4			0.4			0.4		
$Re_{(Vos)}$	Common-Source Output Conductance				0.15			0.15			0.15		
G_{pg}	Common-Gate Power Gain at Noise Match				16			16			16		dB
NF	Noise Figure				1.5			1.5			1.5		
G_{pg}	Common-Gate Power Gain at Noise Match		f=450MHz		11			11			11		
NF	Noise Figure				2.7			2.7			2.7		

NOTES: 1. Pulse test PW 300μs, duty cycle≤3%.
2. For design reference only, not 100% tested.

NOTE: All typical values have been characterized but are not tested.