INTERSIL

J308-J310
N-Channel Silicon JFET

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APPLICATIONS
- VHF/UHF Amplifiers
- Oscillators
- Mixers

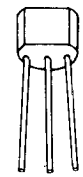
FEATURES
- Industry Standard Part In Low Cost Plastic Package
- High Power Gain
  - 11 dB Typical at 450 MHz
  - Common-Gate
- Low Noise - 2.7 dB Typical at 450 MHz
- Wide Dynamic Range Greater than 100 dB
- Easily Matches to 75 Ω Input

ABSOLUTE MAXIMUM RATINGS (25°C)

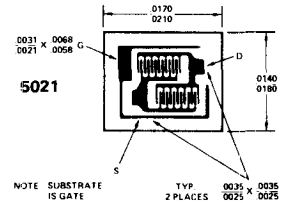
Drain-Gate Voltage 25V
Source-Gate Voltage 25V
Forward Gate Current ..... 10 mA
Total Device Dissipation (T_{LEAD} = 25°C) ..... 625 mW
Derate above 25°C ..... 5.68 mW/°C
Storage Temperature Range ..... -55 to +150°C
Operating Junction Temperature Range .... -55 to +135°C

PIN CONFIGURATION

TO-92



CHIP TOPOGRAPHY



ORDERING INFORMATION

TO-92	WAFER	DICE
J30X	J30X/W	J30X/D

ELECTRICAL CHARACTERISTICS

TEST CONDITIONS: 25°C unless otherwise noted

		PARAMETERS		J308 MIN	J308 TYP	J308 MAX	J309 MIN	J309 TYP	J309 MAX	J310 MIN	J310 TYP	J310 MAX	UNIT	TEST CONDITIONS	
1	STATIC	BV_{GSS}	Gate-Source Breakdown Voltage	-25			-25			-25			V	I_G = -1μA, V_{DS} = 0	
2	STATIC	I_{GSS}	Gate Reverse Current			-1.0			-1.0			-1.0	nA	V_{GS} = -15V,	
3	STATIC					-1.0			-1.0			-1.0	μA	V_{DS} = 0	T = +125°C
4	STATIC	$V_{GS(off)}$	Gate-Source Cutoff Voltage	-1.0		-6.5	-1.0		-4.0	-2.0		-6.5	V	V_{DS} = 10V, I_D = 1nA	
5	STATIC	I_{DSS}	Saturation Drain Current (Note 1)	12		60	12		30	24		60	mA	V_{DS} = 10V, V_{GS} = 0	
6	STATIC	$V_{GS(f)}$	Gate-Source Forward Voltage			1.0			1.0			1.0	V	V_{DS} = 0, I_G = 1 mA	
7	DYNAMIC	g_{fs}	Common-Source Forward Transconductance	8,000		20,000	10,000		20,000	8,000		18,000	μmhos	V_{DS} = 10V, I_D = 10mA	f = 1 kHz
8	DYNAMIC	g_{os}	Common-Source Output Conductance			200			200			200	μmhos	V_{DS} = 10V, I_D = 10mA	f = 1 kHz
9	DYNAMIC	g_{fg}	Common-Gate Forward Transconductance		13,000			13,000			12,000		μmhos	V_{DS} = 10V, I_D = 10mA	f = 1 kHz
10	DYNAMIC	g_{og}	Common Gate Output Conductance		150			150			150		μmhos	V_{DS} = 10V, I_D = 10mA	f = 1 kHz
11	DYNAMIC	C_{gd}	Gate-Drain Capacitance		1.8	2.5		1.8	2.5		1.8	2.5	pF	V_{DS} = 0, V_{GS} = -10V	f = 1 MHz
12	DYNAMIC	C_{gs}	Gate-Source Capacitance		4.3	5.0		4.3	5.0		4.3	5.0	pF	V_{DS} = 0, V_{GS} = -10V	f = 1 MHz
13	DYNAMIC	e_n	Equivalent Short-Circuit Input Noise Voltage		10			10			10		$\frac{nV}{\sqrt{Hz}}$	V_{DS} = 10V, I_D = 10 mA	f = 100 Hz
14	HF	$Re_{(Vfs)}$	Common-Source Forward Transconductance		12			12			12		mmho	V_{DS} = 10V, I_D = 10mA	f = 105 MHz
15	HF	$Re_{(Vfg)}$	Common-Gate Input Conductance		14			14			14		mmho	V_{DS} = 10V, I_D = 10mA	f = 105 MHz
16	HF	$Re_{(Vis)}$	Common-Source Input Conductance		0.4			0.4			0.4		mmho	V_{DS} = 10V, I_D = 10mA	f = 105 MHz
17	HF	$Re_{(Vos)}$	Common-Source Output Conductance		0.15			0.15			0.15		mmho	V_{DS} = 10V, I_D = 10mA	f = 105 MHz
18	HF	G_{pg}	Common-Gate Power Gain at Noise Match		16			16			16		dB	V_{DS} = 10V, I_D = 10mA	f = 450 MHz
19	HF	NF	Noise Figure		1.5			1.5			1.5		dB	V_{DS} = 10V, I_D = 10mA	f = 450 MHz
20	HF	G_{pg}	Common-Gate Power Gain at Noise Match		11			11			11		dB	V_{DS} = 10V, I_D = 10mA	f = 450 MHz
21	HF	NF	Noise Figure		2.7			2.7			2.7		dB	V_{DS} = 10V, I_D = 10mA	f = 450 MHz

NOTE: 1. Pulse test PW 300 μs, duty cycle ≤ 3%.