

## J310

## N-Channel Silicon Junction Field-Effect Transistor

- Mixer
- Oscillator
- VHF/UHF Amplifier

Absolute maximum ratings at  $T_A = 25^\circ\text{C}$ 

Reverse Gate Source Voltage	- 25 V
Reverse Gate Drain Voltage	- 25 V
Continuous Forward Gate Current	10 mA
Continuous Device Power Dissipation	360 mW

At  $25^\circ\text{C}$  free air temperature:

## Static Electrical Characteristics

		J310			Process NJ72		
		Min	Typ	Max	Unit	Test Conditions	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	- 25			V	$I_G = -1\ \mu\text{A}$ , $V_{DS} = 0\text{V}$	
Gate Reverse Current	$I_{GSS}$			- 1	nA	$V_{GS} = -15\text{V}$ , $V_{DS} = 0\text{V}$	
				- 1	$\mu\text{A}$	$V_{GS} = -15\text{V}$ , $V_{DS} = 0\text{V}$	$T_A = +125^\circ\text{C}$
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	- 2		- 6.5	V	$V_{DS} = 10\text{V}$ , $I_D = 1\text{ nA}$	
Gate Source Forward Voltage	$V_{GS(F)}$			1	V	$V_{DS} = 0\text{V}$ , $I_G = 1\text{ mA}$	
Drain Saturation Current (Pulsed)	$I_{DSS}$	24		60	mA	$V_{DS} = 10\text{V}$ , $V_{GS} = 0\text{V}$	

## Dynamic Electrical Characteristics

Common Source Forward Transconductance	$g_{fs}$	8000	17000		$\mu\text{S}$	$V_{DS} = 10\text{V}$ , $I_D = 10\text{ mA}$	$f = 1\text{ kHz}$
Common Source Output Conductance	$g_{os}$			250	$\mu\text{S}$	$V_{DS} = 10\text{V}$ , $I_D = 10\text{ mA}$	$f = 1\text{ kHz}$
Common Gate Forward Transconductance	$g_{fg}$		1200		$\mu\text{S}$	$V_{DS} = 10\text{V}$ , $I_D = 10\text{ mA}$	$f = 1\text{ kHz}$
Common Gate Output Transconductance	$g_{og}$		150		$\mu\text{S}$	$V_{DS} = 10\text{V}$ , $I_D = 10\text{ mA}$	$f = 1\text{ kHz}$
Gate Drain Capacitance	$C_{dg}$		1.8	2.5	pF	$V_{DS} = 0\text{V}$ , $V_{GS} = -10\text{V}$	$f = 1\text{ MHz}$
Gate Source Capacitance	$C_{gs}$		4	5	pF	$V_{DS} = 0\text{V}$ , $V_{GS} = -10\text{V}$	$f = 1\text{ MHz}$
Equivalent Short Circuit Input Noise Voltage	$\bar{e}_N$		10		nV/ $\sqrt{\text{Hz}}$	$V_{DS} = 10\text{V}$ , $I_D = 10\text{ mA}$	$f = 100\text{ Hz}$
Common Source Forward Transconductance	$\text{Re}(Y_{fs})$		12		$\mu\text{S}$	$V_{DS} = 10\text{V}$ , $I_D = 10\text{ mA}$	$f = 105\text{ MHz}$
Common Gate Input Conductance	$\text{Re}(Y_{ig})$		14		$\mu\text{S}$	$V_{DS} = 10\text{V}$ , $I_D = 10\text{ mA}$	$f = 105\text{ MHz}$
Common Source Input Conductance	$\text{Re}(Y_{is})$		0.4		$\mu\text{S}$	$V_{DS} = 10\text{V}$ , $I_D = 10\text{ mA}$	$f = 105\text{ MHz}$
Common Source Output Conductance	$\text{Re}(g_{os})$		0.15		$\mu\text{S}$	$V_{DS} = 10\text{V}$ , $I_D = 10\text{ mA}$	$f = 105\text{ MHz}$
Common Gate Power Gain at Noise Match	$G_{pg}$		16		dB	$V_{DS} = 10\text{V}$ , $I_D = 10\text{ mA}$	$f = 105\text{ MHz}$
			11		dB	$V_{DS} = 10\text{V}$ , $I_D = 10\text{ mA}$	$f = 450\text{ MHz}$
Noise Figure	NF		1.5		dB	$V_{DS} = 15\text{V}$ , $I_D = 10\text{ mA}$	$f = 105\text{ MHz}$
			2.7		dB	$V_{DS} = 15\text{V}$ , $I_D = 10\text{ mA}$	$f = 450\text{ MHz}$

## TO-226AA Package

Dimensions in Inches (mm)

## Pin Configuration

1 Drain, 2 Source, 3 Gate

## Surface Mount

SMPJ310



1000 N. Shiloh Road, Garland, TX 75042  
(972) 487-1287 FAX (972) 276-3375

[www.interfet.com](http://www.interfet.com)