U310

N-Channel Silicon Junction Field-Effect Transistor

- Mixer
- Oscillator
- VHF/UHF Amplifier

Absolute maximum ratings at T_A = 25°C.

Reverse Gate Source & Reverse Gate Drain Voltage	– 25 V
Continuous Forward Gate Current	20 mA
Continuous Device Power Dissipation	500 mW
Power Derating	4 mW/°C

At 25°C free air temperature:		U310			Process NJ72L		
Static Electrical Characteristics		**Min**	**Typ**	**Max**	**Unit**	**Test Conditions**	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	– 25			V	I_G = – 1 µA, V_{DS} = ØV	
Gate Reverse Current	I_{GSS}			– 150	pA	V_{GS} = – 15V, V_{DS} = ØV	
				– 150	nA	V_{GS} = – 15V, V_{DS} = ØV	T_A = 125°C
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	– 2.5		– 6	V	V_{DS} = 10V, I_D = 1 nA	
Gate Source Forward Voltage	$V_{GS(F)}$			1	V	V_{DS} = ØV, I_G = 10 mA	
Drain Saturation Current (Pulsed)	I_{DSS}	24		60	mA	V_{DS} = 10V, V_{GS} = ØV	
Dynamic Electrical Characteristics							
Common Gate Forward Transconductance		10	17		mS	V_{DS} = 10V, I_D = 10 mA	f = 1 kHz
	g_{fg}		15		mS	V_{DS} = 10V, I_D = 10 mA	f = 105 MHz
			14		mS	V_{DS} = 10V, I_D = 10 mA	f = 450 MHz
Common Gate Output Conductance				250	µS	V_{DS} = 10V, I_D = 10 mA	f = 1 kHz
	g_{og}		0.18		µS	V_{DS} = 10V, I_D = 10 mA	f = 105 MHz
			0.32		µS	V_{DS} = 10V, I_D = 10 mA	f = 450 MHz
Drain Gate Capacitance	C_{dg}			2.5	pF	V_{DS} = 10V, V_{GS} = – 10V	f = 1 MHz
Gate Source Capacitance	C_{gs}			5	pF	V_{DS} = 10V, V_{GS} = – 10V	f = 1 MHz
Equivalent Short Circuit Input Noise Voltage	$\bar{e}_N$		10		nV/√Hz	V_{DS} = 10V, I_D = 10 mA	f = 100 Hz
Common Gate Power Gain	G_{pg}	14	16		dB	V_{DS} = 10V, I_D = 10 mA	f = 105 MHz
		10	11		dB	V_{DS} = 10V, I_D = 10 mA	f = 450 MHz
Noise Figure	NF		1.5	2	dB	V_{DS} = 10V, I_D = 10 mA	f = 105 MHz
			2.7	3.5	dB	V_{DS} = 10V, I_D = 10 mA	f = 450 MHz

TO-52 Package
See Section G for Outline Dimensions

Surface Mount
SMPJ310

Pin Configuration
1 Source, 2 Drain, 3 Gate & Case

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