J308, J309

N-Channel Silicon Junction Field-Effect Transistor

- Mixers
- Oscillators
- VHF/UHF Amplifiers

Absolute maximum ratings at T_A = 25°C

Reverse Gate Source & Reverse Gate Drain Voltage	– 25 V
Continuous Forward Gate Current	10 mA
Continuous Device Power Dissipation	360 mW
Power Derating	3.27 mW/°C

At 25°C free air temperature: Static Electrical Characteristics		J308			J309			Process NJ72		
		Min	Typ	Max	Min	Typ	Max	Unit	Test Conditions	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	– 25			– 25			V	I_G = – 1µA, V_{DS} = ØV	
Gate Reverse Current	I_{GSS}			– 1			– 1	nA	V_{GS} = – 15V, V_{DS} = ØV	
				– 1			– 1	µA	V_{GS} = – 15V, V_{DS} = ØV	T_A = +125°C
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	– 1		– 6.5	– 1		– 4	V	V_{DS} = 10V, I_D = 1 nA	
Gate Source Forward Voltage	$V_{GS(F)}$			1			1	V	V_{DS} = ØV, I_G = 1 mA	
Drain Saturation Current (Pulsed)	I_{DSS}	12		60	12		30	mA	V_{DS} = 10V, V_{GS} = ØV	
Dynamic Electrical Characteristics										
Common Source Forward Transconductance	g_{fs}	8000	17000		10000	17000		µS	V_{DS} = 10V, I_D = 10 mA	f = 1 kHz
Common Source Output Conductance	g_{os}			250			250	µS	V_{DS} = 10V, I_D = 10 mA	f = 1 kHz
Common Gate Forward Transconductance	g_{fg}		13000			13000		µS	V_{DS} = 10V, I_D = 10 mA	f = 1 kHz
Common Gate Output Transconductance	g_{og}		150			100		µS	V_{DS} = 10V, I_D = 10 mA	f = 1 kHz
Gate Drain Capacitance	C_{dg}		1.8	2.5		1.8	2.5	pF	V_{DS} = ØV, V_{GS} = – 10V	f = 1 MHz
Gate Source Capacitance	C_{gs}		4	5		4	5	pF	V_{DS} = ØV, V_{GS} = – 10V	f = 1 MHz
Equivalent Short Circuit Input Noise Voltage	$\bar{e}_N$		10			10		nV/√Hz	V_{DS} = 10V, I_D = 10 mA	f = 100 kHz
Common Source Forward Transconductance	$Re_{(Yfs)}$		12			12		µS	V_{DS} = 10V, I_D = 10 mA	f = 105 MHz
Common Gate Input Conductance	$Re_{(Yig)}$		14			14		µS	V_{DS} = 10V, I_D = 10 mA	f = 105 MHz
Common Source Input Conductance	$Re_{(Yis)}$		0.4			0.4		µS	V_{DS} = 10V, I_D = 10 mA	f = 105 MHz
Common Source Output Conductance	$Re_{(Gos)}$		0.15			0.15		µS	V_{DS} = 10V, I_D = 10 mA	f = 105 MHz
Common Gate Power Gain at Noise Match	G_{pg}		16			16		dB	V_{DS} = 10V, I_D = 10 mA	f = 105 MHz
			11			11		dB	V_{DS} = 10V, I_D = 10 mA	f = 450 MHz
Noise Figure	NF		1.5			1.5		dB	V_{DS} = 15V, I_D = 10 mA	f = 105 MHz
			2.7			2.7		dB	V_{DS} = 15V, I_D = 10 mA	f = 450 MHz

TO-226AA Package
Dimensions in Inches (mm)

Pin Configuration
1 Drain, 2 Source, 3 Gate

Surface Mount
SMPJ308, SMPJ309

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