

U308, U309

N-Channel Silicon Junction Field-Effect Transistor

- Mixers
- Oscillators
- VHF/UHF Amplifiers

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

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:
Static Electrical Characteristics

		U308			U309			Process NJ72	
		Min	Typ	Max	Min	Typ	Max	Unit	Test Conditions
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	- 25			- 25			V	$V_{GS} = -1\mu\text{A}, V_{DS} = \emptyset\text{V}$
Gate Reverse Current	I_{GSS}			- 150			- 150	pA	$V_{GS} = -15\text{V}, V_{DS} = \emptyset\text{V}$
				- 150			- 150	nA	$V_{GS} = -15\text{V}, V_{DS} = \emptyset\text{V}$ $T_A = +125^\circ\text{C}$
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	- 1		- 6	- 1		- 4	V	$V_{DS} = 10\text{V}, I_D = 1\text{nA}$
Gate Source Forward Voltage	$V_{GS(F)}$			1			1	V	$V_{DS} = \emptyset\text{V}, I_G = 10\text{mA}$
Drain Saturation Current (Pulsed)	I_{DSS}	12		60	12		30	mA	$V_{DS} = 10\text{V}, V_{GS} = \emptyset\text{V}$

Dynamic Electrical Characteristics

Common Gate Forward Transconductance	G_{fs}	10	17		10	17		mS	$V_{DS} = 10\text{V}, I_D = 10\text{mA}$	f = 1 kHz
			15			15		mS	$V_{DS} = 10\text{V}, I_D = 10\text{mA}$	f = 105 MHz
			14			14		mS	$V_{DS} = 10\text{V}, I_D = 10\text{mA}$	f = 450 MHz
Common Gate Output Conductance	G_{og}			250			250	μS	$V_{DS} = 10\text{V}, I_D = 10\text{mA}$	f = 1 kHz
			0.18			0.18		μS	$V_{DS} = 10\text{V}, I_D = 10\text{mA}$	f = 105 MHz
			0.32			0.32		μS	$V_{DS} = 10\text{V}, I_D = 10\text{mA}$	f = 450 MHz
Drain Gate Capacitance	C_{dg}			2.5			2.5	pF	$V_{DS} = 10\text{V}, V_{GS} = -10\text{V}$	f = 1 MHz
Gate Source Capacitance	C_{gs}			5			5	pF	$V_{DS} = 10\text{V}, V_{GS} = -10\text{V}$	f = 1 MHz
Equivalent Short Circuit Input Noise Voltage	\hat{e}_N		10			10		nV/ $\sqrt{\text{Hz}}$	$V_{DS} = 10\text{V}, I_D = 10\text{mA}$	f = 100 kHz
Common Gate Power Gain	G_{pg}	14	16		14	16		dB	$V_{DS} = 10\text{V}, I_D = 10\text{mA}$	f = 105 MHz
		10	11		10	11		dB	$V_{DS} = 10\text{V}, I_D = 10\text{mA}$	f = 450 MHz
Noise Figure	NF		1.5	2		1.5	2	dB	$V_{DS} = 10\text{V}, I_D = 10\text{mA}$	f = 105 MHz
			2.7	3.5		2.7	3.5	dB	$V_{DS} = 10\text{V}, I_D = 10\text{mA}$	f = 450 MHz

TO-52 Package

Dimensions in Inches (mm)

Pin Configuration

1 Source, 2 Drain, 3 Gate & Case

Surface Mount

SMPJ308/J309



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

www.interfet.com