

## J304, J305

## 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	- 30 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

		J304			J305			Unit	Process NJ26	
		Min	Typ	Max	Min	Typ	Max		Test Conditions	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	- 30			- 30			V	$I_G = - 1\mu\text{A}$ , $V_{DS} = 0\text{V}$	
Gate Reverse Current	$I_{GSS}$			- 100			- 100	pA	$V_{GS} = - 20\text{V}$ , $V_{DS} = 0\text{V}$	
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	- 2		- 6	- 0.5		- 3	V	$V_{DS} = 15\text{V}$ , $I_D = 1\text{nA}$	
Drain Saturation Current (Pulsed)	$I_{DSS}$	5		15	1		8	mA	$V_{DS} = 15\text{V}$ , $V_{GS} = 0\text{V}$	

## Dynamic Electrical Characteristics

		4500		7500		3000		Unit	Test Conditions	f
		Min	Typ	Min	Typ	Min	Typ			
Common Source Forward Transconductance	$g_{fs}$						3000	$\mu\text{S}$	$V_{DS} = 15\text{V}$ , $V_{GS} = 0\text{V}$	f = 1 kHz
								$\mu\text{S}$	$V_{DS} = 15\text{V}$ , $V_{GS} = 0\text{V}$	f = 100 MHz
		4200						$\mu\text{S}$	$V_{DS} = 15\text{V}$ , $V_{GS} = 0\text{V}$	f = 400 MHz
Common Source Output Conductance	$g_{os}$			50			50	$\mu\text{S}$	$V_{DS} = 15\text{V}$ , $V_{GS} = 0\text{V}$	f = 1 kHz
Common Source Input Capacitance	$C_{iss}$		3			3		pF	$V_{DS} = 15\text{V}$ , $V_{GS} = 0\text{V}$	f = 1 MHz
Common Source Reverse Transfer Capacitance	$C_{rss}$		0.85			0.85		pF	$V_{DS} = 15\text{V}$ , $V_{GS} = 0\text{V}$	f = 1 MHz
Common Source Output Capacitance	$C_{oss}$		1			1		pF	$V_{DS} = 15\text{V}$ , $V_{GS} = 0\text{V}$	f = 1 MHz
Common Source Output Conductance	$g_{os}$		60			60		$\mu\text{S}$	$V_{DS} = 15\text{V}$ , $V_{GS} = 0\text{V}$	f = 100 MHz
			80					$\mu\text{S}$	$V_{DS} = 15\text{V}$ , $V_{GS} = 0\text{V}$	f = 400 MHz
Common Source Output Susceptance	$b_{os}$		800			800		$\mu\text{S}$	$V_{DS} = 15\text{V}$ , $V_{GS} = 0\text{V}$	f = 100 MHz
			3600					$\mu\text{S}$	$V_{DS} = 15\text{V}$ , $V_{GS} = 0\text{V}$	f = 400 MHz
Common Source Input Conductance	$g_{is}$		80			80		$\mu\text{S}$	$V_{DS} = 15\text{V}$ , $V_{GS} = 0\text{V}$	f = 100 MHz
			800					$\mu\text{S}$	$V_{DS} = 15\text{V}$ , $V_{GS} = 0\text{V}$	f = 400 MHz
Common Source Input Susceptance	$b_{is}$		2000			2000		$\mu\text{S}$	$V_{DS} = 15\text{V}$ , $V_{GS} = 0\text{V}$	f = 100 MHz
			7500					$\mu\text{S}$	$V_{DS} = 15\text{V}$ , $V_{GS} = 0\text{V}$	f = 400 MHz
Common Source Power Gain	$G_{ps}$		20					dB	$V_{DS} = 15\text{V}$ , $I_D = 5\text{mA}$	f = 100 MHz
			11					dB	$V_{DS} = 15\text{V}$ , $I_D = 5\text{mA}$	f = 400 MHz
Noise Figure	NF		1.7					dB	$V_{DS} = 15\text{V}$ , $I_D = 5\text{mA}$	f = 100 MHz
			3.8					dB	$R_G = 1\ \Omega$	f = 400 MHz

## TO-226AA Package

Dimensions in Inches (mm)

## Pin Configuration

1 Drain, 2 Source, 3 Gate

## Surface Mount

SMPJ304, SMPJ305



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