

NTE451 Silicon N-Channel JFET Transistor VHF/UHF Amplifier

Absolute Maximum Ratings:

Drain-Gate Voltage, V_{DG}	25V
Reverse Gate-Source Voltage, V_{GSR}	25V
Drain Current, I_D	30mA
Total Device Dissipation ($T_C = +25^\circ\text{C}$), P_D	350mW
Derate Above 25°C	2.8mW/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	-65° to $+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-65° to $+150^\circ\text{C}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	$I_G = -1\mu\text{A}, V_{DS} = 0$	-25	-	-	V
Gate Reverse Current	I_{GSS}	$V_{GS} = -20\text{V}, V_{DS} = 0$	-	-	-1.0	nA
		$V_{GS} = -20\text{V}, V_{DS} = 0, T_A = +100^\circ\text{C}$	-	-	-0.2	nA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$I_D = 10\text{nA}, V_{DS} = 15\text{V}$	-0.5	-	-4.0	V
ON Characteristics						
Zero-Gate-Voltage Drain Current	I_{DSS}	$V_{DS} = 15\text{V}, V_{GS} = 0$	4	-	20	mA
Small Signal Characteristics Characteristics						
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1\text{kHz}$	3500	-	7000	μmho
Input Admittance	$\text{Re}(y_{is})$	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 400\text{MHz}$	-	-	1000	μmho
Output Admittance	$ y_{os} $	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1\text{kHz}$	-	-	60	μmho
Output Conductance	$\text{Re}(y_{os})$	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 400\text{MHz}$	-	-	100	μmho
Forward Transconductance	g_{fs}	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 400\text{MHz}$	3000	-	-	μmho
Input Capacitance	C_{iss}	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1\text{MHz}$	-	-	5	pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1\text{MHz}$	-	-	1	pF
Output Capacitance	C_{oss}	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1\text{MHz}$	-	-	2	pF

Electrical Characteristics Cont'd): ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Functional Characteristics							
Noise Figure	NF	$V_{DS} = 15\text{V}, I_D = 4\text{mA}, R_G \approx 1\text{k}\Omega$	$f = 100\text{MHz}$	-	-	2	dB
			$f = 400\text{MHz}$	-	-	4	dB
Common Source Power Gain	G_{ps}	$V_{DS} = 15\text{V}, I_D = 4\text{mA}$	$f = 100\text{MHz}$	18	-	30	dB
			$f = 400\text{MHz}$	10	-	20	dB

