



ELECTRONICS, INC.
 44 FARRAND STREET
 BLOOMFIELD, NJ 07003
 (973) 748-5089
<http://www.nteinc.com>

2N4221A N-Channel Silicon JFET General Purpose Amp, Switch TO72 Type Package

Description:

The 2N4221A is an N-Channel junction silicon field-effect transistor in a TO72 type package designed for general purpose amplifier and switching applications.

Absolute Maximum Ratings:

Drain-Source Voltage, V_{DS}	30V
Drain-Gate Voltage, V_{DG}	30V
Gate-Source Voltage, V_{GS}	-30V
Drain Current, I_D	15mA
Total Device Dissipation ($T_A = +25^\circ\text{C}$), P_D	300mW
Derate Above 25°C	2mW/ $^\circ\text{C}$
Operating Junction Temperature, T_J	+175 $^\circ\text{C}$
Storage Temperature Range, T_{stg}	-65 $^\circ$ to +200 $^\circ\text{C}$

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	$V_{(BR)GSS}$	$V_{DS} = 0, I_G = -10\mu\text{A}$	-30	-	-	V
Gate Reverse Current	I_{GSS}	$V_{GS} = -15\text{V}, V_{DS} = 0$	-	-	-0.1	nA
		$V_{GS} = -15\text{V}, V_{DS} = 0, T_A = +150^\circ\text{C}$	-	-	-100	nA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 15\text{V}, I_D = 0.1\text{nA}$	-	-	-6	V
Gate-Source Voltage	V_{GS}	$V_{DS} = 15\text{V}, I_D = 200\mu\text{A}$	-1.0	-	-5.0	V
ON Characteristics						
Zero-Gate-Voltage Drain Current	I_{DSS}	$V_{DS} = 15\text{V}, V_{GS} = 0$, Note 1	2.0	-	6.0	mA
Static Drain-Source On Resistance	$r_{DS(on)}$	$V_{DS} = 0, V_{GS} = 0$	-	400	-	Ω

Note 1. Pulse test: Pulse Width = 630ms, Duty Cycle = 10%.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Small-Signal Characteristics						
Forward Transfer Admittance Common Source	$ y_{fs} $	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1\text{kHz}$, Note 1	2000	-	5000	μmhos
Output Admittance Common Source	$ y_{os} $	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1\text{kHz}$	-	-	20	μmhos
Input Capacitance	C_{iss}	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1\text{kHz}$	-	4.5	6.0	pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1\text{kHz}$	-	1.2	2.0	pF
Common-Source Output Capacitance	C_{osp}	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 30\text{MHz}$	-	1.5	-	pF
Functional Characteristics						
Noise Figure	NF	$V_{DS} = 15\text{V}, V_{GS} = 0, R_S = 1\text{M}\Omega, f = 100\text{Hz}$	-	-	2.5	dB

Note 1. Pulse test: Pulse Width = 630ms, Duty Cycle = 10%.

