



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

## NTE489

### Silicon P-Channel JFET Transistor

### General Purpose AF Amplifier

### TO92 Type Package

**Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Gate-Drain Voltage (Note 1), $V_{GD}$ .....	30V
Gate-Source Voltage (Note 1), $V_{GS}$ .....	30V
Gate Current, $I_G$ .....	-50mA
Total Device Dissipation ( $T_A = +25^\circ\text{C}$ ), $P_D$ .....	360mW
Derate Above $25^\circ\text{C}$ .....	3.27mW/ $^\circ\text{C}$
Operating Junction Temperature Range, $T_J$ .....	-55° to +135°C
Storage Temperature Range, $T_{stg}$ .....	-55° to +150°C
Lead Temperature (During Soldering, 1/16" from case for 10sec), $T_L$ .....	+300°C

Note 1. Geometry is symmetrical. Units may be operated with source and drain leads interchanged.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	$I_G = 1^\circ\text{A}, V_{DS} = 0$	30	-	-	V
Gate Reverse Current	$I_{GSS}$	$V_{GS} = 20\text{V}, V_{DS} = 0$ , Note 2	-	-	200	pA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$I_D = -1\text{nA}, V_{DS} = -15\text{V}$	0.5	-	2.0	V
Gate Current	$I_G$	$I_D = -2\text{mA}, V_{DG} = -15\text{V}$ , Note 2	-	15	-	pA
Saturation Drain Current	$I_{DSS}$	$V_{DS} = -15\text{V}, V_{GS} = 0$	-2	-	-15	mA
<b>Dynamic Characteristics</b>						
Common-Source Forward Transconductance	$g_{fs}$	$V_{DS} = -15\text{V}, V_{GS} = 0, f = 1\text{kHz}$ , Note 3	6000	-	15000	$^\circ\text{mho}$
Common-Source Output Conductance	$g_{os}$	$V_{DS} = -15\text{V}, V_{GS} = 0, f = 1\text{kHz}$	-	-	200	$^\circ\text{mho}$
Common-Source Input Capacitance	$C_{iss}$	$V_{DS} = -15\text{V}, V_{GS} = 0, f = 1\text{MHz}$	-	32	-	pF
Common-Source Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = -15\text{V}, V_{GS} = 0, f = 1\text{MHz}$	-	4	-	pF
Equivalent Short-Circuit Input Noise Voltage	$e_n$	$V_{DS} = -10\text{V}, I_D = -2\text{mA}, f = 1\text{kHz}$	-	6	-	$\frac{\text{nV}}{\sqrt{\text{Hz}}}$

Note 2. Approximately doubles for every  $10^\circ\text{C}$  increase in  $T_A$ .

Note 3. Pulse test duration = 2ms.

