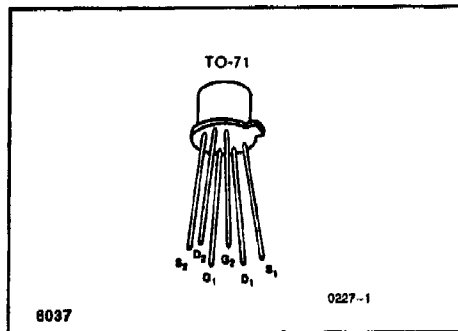


2N5452-2N5454 Dual N-Channel JFET General Purpose Amplifier

GENERAL DESCRIPTION

Matched FET pairs for differential amplifiers. This family of general purpose FETs is characterized for low and medium frequency differential amplifier applications requiring low drift and low offset voltage.

PIN CONFIGURATION



FEATURES

- Low Offset Voltage
- Low Drift
- Low Capacitance
- Low Output Conductance

ABSOLUTE MAXIMUM RATINGS

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Gate-Source or Gate Drain Voltage (Note 1)	-50V	
Gate Current (Note 1)	50mA	
Storage Temperature Range	-65°C to +200°C	
Operating Temperature Range	-55°C to +150°C	
Lead Temperature (Soldering, 10sec)	+300°C	
Power Dissipation ($T_C = 85^\circ\text{C}$)	One Side	250mW
	Both Sides	500mW
Derate above 25°C	2.9mW/°C	4.3mW/°C

NOTE: Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

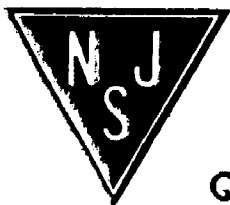
ORDERING INFORMATION

TO-71
2N5452
2N5453
2N5454

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	2N5452		2N5453		2N5454		Units
			Min	Max	Min	Max	Min	Max	
I_{GSS}	Gate Reverse Current	$V_{GS} = -30V, V_{DS} = 0$ $T_A = 160^\circ\text{C}$		-100		-100		-100	μA
I_{GSS}	Gate Reverse Current	$V_{GS} = -30V, V_{DS} = 0$		-200		-200		-200	nA
BV_{GSS}	Gate-Source Breakdown Voltage	$V_{DS} = 0, I_G = -1\mu\text{A}$	-60		-60		-60		V
$V_{GS(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = 20V, I_D = 1\text{nA}$	-1	-4.5	-1	-4.5	-1	-4.5	V
V_{GS}	Gate-Source Voltage	$V_{DS} = 20V, I_D = 50\mu\text{A}$	-0.2	-4.2	-0.2	-4.2	-0.2	-4.2	V
$V_{GS(f)}$	Gate-Source Forward Voltage	$V_{DS} = 0, I_G = 1\text{mA}$		2		2		2	V
I_{DSS}	Saturation Drain Current	$V_{DS} = 20V, V_{GS} = 0$	0.5	5.0	0.5	5.0	0.5	5.0	mA

NJ Semi-Conductors reserves the right to change test conditions, parameters limits and package dimensions without notice information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.



2N5452-2N5454

ELECTRICAL CHARACTERISTICS (Continued) ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	2N5452		2N5453		2N5454		Units	
			Min	Max	Min	Max	Min	Max		
g_{fs}	Common-Source Forward Transconductance (Note 2)	$V_{DS} = 20\text{V}, V_{GS} = 0$	$f = 1\text{kHz}$	1000	3000	1000	3000	1000	3000	μs
			$f = 100\text{MHz}$	1000		1000		1000		
g_{os}	Common-Source Output Conductance	$V_{DS} = 20\text{V}, I_D = 200\mu\text{A}$	$f = 1\text{kHz}$		3.0		3.0		3.0	μs
					1.0		1.0		1.0	
C_{iss}	Common-Source Input Capacitance (Note 2)	$V_{DS} = 20\text{V}, V_{GS} = 0$		4.0		4.0		4.0	pF	
C_{rse}	Common-Source Reverse Transfer Capacitance (Note 2)			1.2		1.2		1.2		
C_{dgs}	Drain-Gate Capacitance (Note 2)	$V_{DS} = 10\text{V}, I_S = 0$		1.5		1.5		1.5		
\bar{e}_n	Equivalent Short Circuit Input Noise Voltage	$V_{DS} = 20\text{V}, V_{GS} = 0$	$f = 1\text{kHz}$		20		20		20	$\frac{\text{nV}}{\sqrt{\text{Hz}}}$
NF	Common-Source Spot Noise Figure (Note 2)	$V_{DS} = 20\text{V}, V_{GS} = 0$ $R_G = 10\text{M}\Omega$	$f = 100\text{Hz}$		0.5		0.5		0.5	dB
I_{DSS1}/I_{DSS2}	Drain Saturation Current Ratio	$V_{DS} = 20\text{V}, V_{GS} = 0$		0.95	1.0	0.95	1.0	0.95	1.0	
$ V_{GS1} - V_{GS2} $	Differential Gate-Source Voltage	$V_{DS} = 20\text{V}, I_D = 200\mu\text{A}$			5.0		10.0		15.0	mV
$\frac{\Delta V_{GS1} - V_{GS2} }{\Delta T}$	Gate-Source Voltage Differential Change with Temperature		$T = 25^\circ\text{C}$ to -55°C		0.4		0.8		2.0	
			$T = 25^\circ\text{C}$ to $+125^\circ\text{C}$		0.5		1.0		2.5	
g_{fs1}/g_{fs2}	Transconductance Ratio		$f = 1\text{kHz}$	0.97	1.0	0.97	1.0	0.95	1.0	
$ g_{os1} - g_{os2} $	Differential Output Conductance				0.25		0.25		0.25	μs

NOTES: 1. Per transistor.
2. For design reference only, not 100% tested.