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

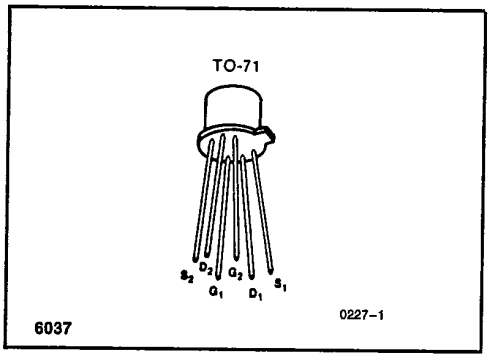
GENERAL DESCRIPTION

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.

FEATURES

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

PIN CONFIGURATION



ABSOLUTE MAXIMUM RATINGS

(T_A = 25°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

	One Side	Both Sides
Power Dissipation (T_C = 85°C) ..	250mW	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°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		−100		−100		−100	pA
	T_A = 150°C			−200		−200		−200	nA
BV_{GSS}	Gate-Source Breakdown Voltage	V_{DS} = 0, I_G = −1μA	−50		−50		−50		V
$V_{GS(off)}$	Gate-Source Cutoff Voltage	V_{DS} = 20V, I_D = 1nA	−1	−4.5	−1	−4.5	−1	−4.5	
V_{GS}	Gate-Source Voltage	V_{DS} = 20V, I_D = 50μA	−0.2	−4.2	−0.2	−4.2	−0.2	−4.2	
$V_{GS(f)}$	Gate-Source Forward Voltage	V_{DS} = 0, I_G = 1mA		2		2		2	
I_{DSS}	Saturation Drain Current	V_{DS} = 20V, V_{GS} = 0	0.5	5.0	0.5	5.0	0.5	5.0	mA

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NOTE: All typical values have been characterized but are not tested.

2N5452-2N5454

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ELECTRICAL CHARACTERISTICS (Continued) (T_A = 25°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} = 20V, V_{GS} = 0	f = 1kHz	1000	3000	1000	3000	1000	3000	μs
			f = 100MHz	1000		1000		1000		
g_{os}	Common-Source Output Conductance	V_{DS} = 20V, I_D = 200μA	f = 1kHz		3.0		3.0		3.0	
					1.0		1.0		1.0	
C_{iss}	Common-Source Input Capacitance (Note 2)	V_{DS} = 20V, V_{GS} = 0	f = 1MHz		4.0		4.0		4.0	pF
C_{rss}	Common-Source Reverse Transfer Capacitance (Note 2)				1.2		1.2		1.2	
C_{dgo}	Drain-Gate Capacitance (Note 2)	V_{DG} = 10V, I_S = 0			1.5		1.5		1.5	
$\bar{e}_n$	Equivalent Short Circuit Input Noise Voltage	V_{DS} = 20V, V_{GS} = 0	f = 1kHz		20		20		20	$\frac{nV}{\sqrt{Hz}}$
NF	Common-Source Spot Noise Figure (Note 2)	V_{DS} = 20V, V_{GS} = 0, R_G = 10MΩ	f = 100Hz		0.5		0.5		0.5	dB
I_{DSS1}/I_{DSS2}	Drain Saturation Current Ratio	V_{DS} = 20V, V_{GS} = 0		0.95	1.0	0.95	1.0	0.95	1.0	
$\lvert V_{GS1}-V_{GS2}\rvert$	Differential Gate-Source Voltage	V_{DS} = 20V, I_D = 200μA			5.0		10.0		15.0	mV
$\frac{\Delta\lvert V_{GS1}-V_{GS2}\rvert}{\Delta T}$	Gate-Source Voltage Differential Change with Temperature		T = 25°C to −55°C		0.4		0.8		2.0	
			T = 25°C to +125°C		0.5		1.0		2.5	
g_{fs1}/g_{fs2}	Transconductance Ratio		f = 1kHz	0.97	1.0	0.97	1.0	0.95	1.0	
$\lvert g_{os1}-g_{os2}\rvert$	Differential Output Conductance				0.25		0.25		0.25	μs

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

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NOTE: All typical values have been characterized but are not tested.

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