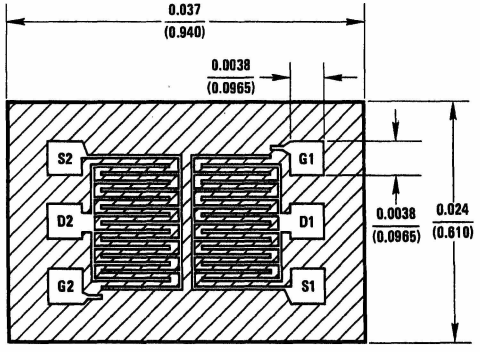
National Semiconductor

Process 96
N-Channel Monolithic Dual JFET



TL/G/10035–53

DESCRIPTION

Process 96 is a monolithic dual JFET with a diode isolated substrate. It is intended for wide band, low noise, single ended video amplifier input stages. Also ideal for matched voltage variable resistor applications over 60 dB tracking range.

Electrical Characteristics (T_A = 25°C)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
BV_{GSS}	Gate-Source Breakdown Voltage	V_{DS} = 0V, I_G = −1 μA	−40	−55		V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 15V, V_{GS} = 0V	5.0	15	30	mA
g_{fs}	Forward Transconductance	V_{DS} = 15V, V_{GS} = 0V	9.0	18	30	mmhos
g_{fs}	Forward Transconductance	V_{DG} = 15V, I_D = 2 mA	7.5	9.0		mmhos
g_{os}	Output Conductance	V_{DG} = 15V, I_D = 2 mA		15	45	μmhos
$V_{GS(OFF)}$	Pinch Off Voltage	V_{DS} = 15V, I_D = 1 nA	−0.5	−1.8	−3.0	V
$r_{DS(ON)}$	ON Resistance	V_{DS} = 100 mV, V_{GS} = 0V	35	70	120	Ω
I_{GSS}	Gate Current	V_{GS} = −20V, V_{DS} = 0V		−8.0	−100	pA
I_G	Gate Current	V_{DG} = 15V, I_D = 2 mA		15	200	pA
e_n	Noise Voltage	V_{DG} = 15V, I_D = 2 mA, f = 100 Hz		4.5	10	$nV/\sqrt{Hz}$
C_{rs}	Feedback Capacitance	V_{DG} = 15V, I_D = 2 mA, f = 1 MHz		2.5	3.0	pF
C_{is}	Input Capacitance	V_{DG} = 15V, I_D = 2 mA, f = 1 MHz		10	12	pF
$\lvert V_{GS1}-V_{GS2}\rvert$	Differential Voltage	V_{DG} = 15V, I_D = 2 mA		8.0	25	mV
$\Delta V_{GS1-GS2}$	Differential Voltage Drift	V_{DG} = 15V, I_D = 2 mA		9.0	50	μV/°C
CMRR	Common-Mode Rejection	V_{DG} = 15V, I_D = 2 mA	76	95		dB

This process is available in the following device types. *Denotes preferred parts.

TO-71 (NS Package 12)	8-Pin DIP (NS Package 67)
*2N5564	*NPD5564
*2N5565	*NPD5565
*2N5566	*NPD5566

Pin	67
1	S1
2	D1
3	NC
4	G1
5	S2
6	D2
7	NC
8	G2

Note: SO-8 to be announced.

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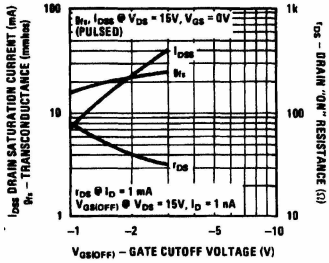
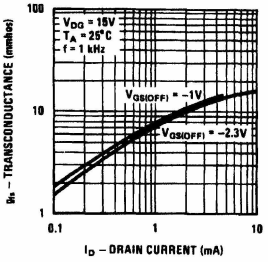
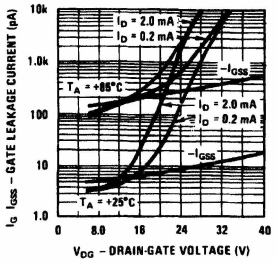
Parameter Interactions



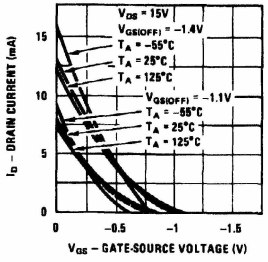
Transconductance vs Drain Current



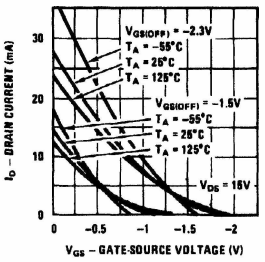
Leakage Current vs Voltage



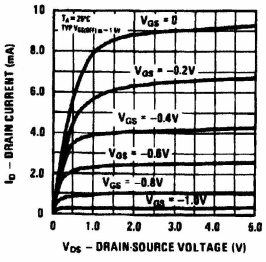
Transfer Characteristics



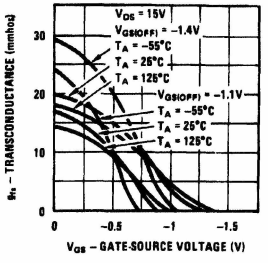
Transfer Characteristics



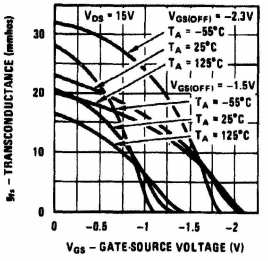
Common Drain-Source Characteristics



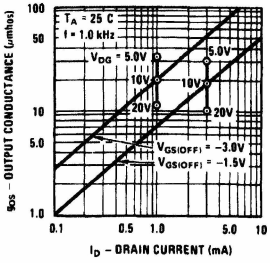
Transfer Characteristics



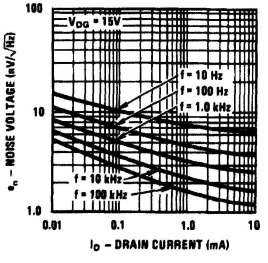
Transfer Characteristics



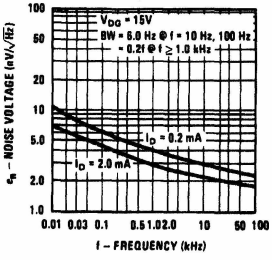
Output Conductance vs Drain Current



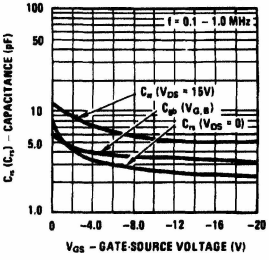
Noise Voltage vs Current



Noise Voltage vs Frequency



Capacitance vs Voltage



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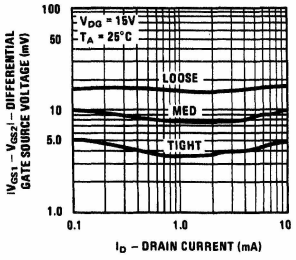
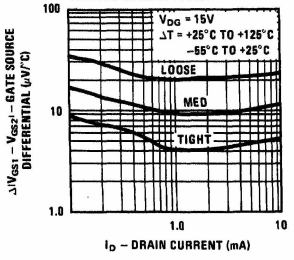
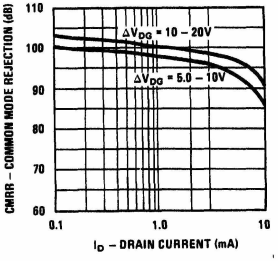
Differential Offset



Differential Drift



CMRR vs Drain Current



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