



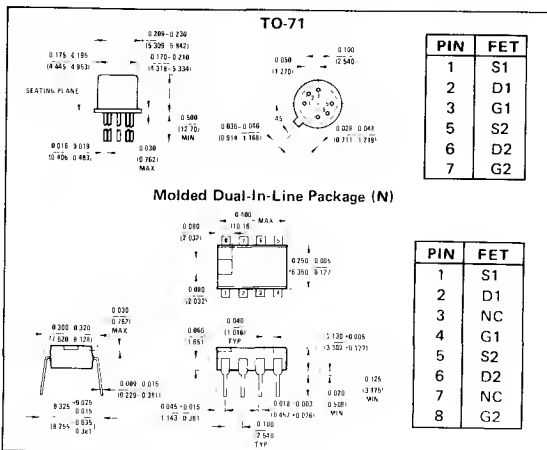
2N5564-66/NPD5564-66 N-Channel Monolithic Dual JFETs

General Description

The 2N/NPD5564 thru 2N/NPD5566 series of N-channel monolithic dual JFETs is designed for broadband low noise differential amplifier or applications requiring dual matched moderate ON resistance analog switches.

Absolute Maximum Ratings (25°C)

Gate-to-Gate Voltage	±40V
Gate-Drain or Gate-Source Voltage	-40V
Gate Current	50 mA
Device Dissipation (Each Side), $T_A = 25^\circ\text{C}$ (Derate 2.2 mW/°C)	325 mW
Total Device Dissipation, $T_A = 25^\circ\text{C}$ (Derate 3.3 mW/°C)	650 mW
Storage Temperature Range	-65°C to +200°C
Lead Temperature (1/16" from case for 10 seconds)	300°C



Electrical Characteristics (25°C unless otherwise noted)

PARAMETER		CONOITIONS		MIN	MAX	UNITS
IGSS	Gate-Reverse Current	VGS = -20V, VDS = 0			-100	pA
			150°C		-200	nA
BVGSS	Gate-Source Breakdown Voltage	IG = -1μA, VDS = 0		-40		V
VGS(OFF)	Gate-Source Cutoff Voltage	VDS = 15V, ID = 1 nA		-0.5	3	
VGS(f)	Gate-Source Voltage	VDS = 0V, IG = 2 mA			10	
IDSS	Saturation Drain Current	VDS = 15V, VGS = 0, (Note 1)		5	30	mA
rDS(ON)	Static Drain-Source "ON" Resistance	ID = 1 mA, VGS = 0			100	Ω
gfs	Common-Source Forward Transconductance (Note 1)	VDG = 15V, ID = 2 mA	f = 1 kHz	7500	12,500	μmho
			f = 100 MHz	7000		
gos	Common-Source Output Conductance		f = 1 kHz		45	
Crss	Common-Source Reverse Transfer Capacitance				3	pF
Ciss	Common-Source Input Capacitance		f = 1 MHz		12	
NF	Spot Noise Figure		f = 10 Hz, Rq = 1M		10	
en	Equivalent Input Noise Voltage		f = 10 Hz		50	nV √Hz

Matching Characteristics

PARAMETER	COONITIONS	NPO/2N5564		NPO/2N5565		NPO/2N5566		UNITS
I_{DSS1} I_{DSS2} Saturation Drain Current Ratio	$V_{DS} = 15V, V_{GS} = 0, (\text{Note 1})$	0.95	1	0.95	1	0.95	1	
$ V_{GS1} - V_{GS2} $ Differential Gate-Source Voltage	$V_{DS} = 15V, I_D = 2\text{ mA}$		5		10		20	mV
$\frac{\Delta V_{GS1} - V_{GS2} }{\Delta T}$ Gate Source Voltage Differential Drift (Note 2)		$T_A = 25^\circ\text{C}$ $T_B = 125^\circ\text{C}$	10		25		50	$\mu V/^\circ\text{C}$
		$T_A = -55^\circ\text{C}$ $T_B = 25^\circ\text{C}$	10		25		50	
$\frac{g_{fs1}}{g_{fs2}}$ Transconductance Ratio		$f = 1\text{ kHz}$	0.95	1	0.90	1	0.90	1

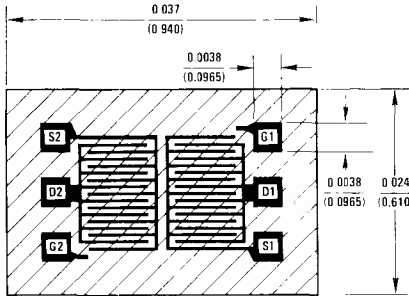
Note 1: Pulse test required, pulse width 300 μs , duty cycle $\leq 3\%$.

Note 2: Measured at end points, T_A and T_B .



Process 96 N-Channel JFET

Process 96



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.

CHARACTERISTIC	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Gate-Source Breakdown Voltage	BV_{GSS}	$V_{DS} = 0V, I_G = -1 \mu A$	-40	-55		V
Zero Gate Voltage Drain Current	I_{OSS}	$V_{OS} = 15V, V_{GS} = 0$	5.0	15	30	mA
Forward Transconductance	g_{fs}	$V_{DS} = 15V, V_{GS} = 0$	9.0	18	30	mmhos
Forward Transconductance	g_{fs}	$V_{DG} = 15V, I_D = 2 mA$	7.5	9.0		mmhos
Output Conductance	g_{os}	$V_{DG} = 15V, I_D = 2 mA$		15	45	$\mu mhos$
Pinch Off Voltage	$V_{GS(OFF)}$	$V_{DS} = 15V, I_D = 1 nA$		-1.8	-3.0	V
"ON" Resistance	r_{DS}	$V_{DS} = 100 mV, V_{GS} = 0$	35	70	120	Ω
Gate Current	I_{GSS}	$V_{GS} = -20V, V_{DS} = 0$		-8.0	-100	pA
Gate Current	I_G	$V_{DG} = 15V, I_D = 2 mA$		15	200	pA
Noise Voltage	e_n	$V_{DG} = 15V, I_D = 2 mA, f = 100 Hz$		4.5	10	$nV/\sqrt{Hz}$
Feedback Capacitance	C_{rs}	$V_{DG} = 15V, I_D = 2 mA, f = 1 MHz$		2.5	3.0	pF
Input Capacitance	C_{is}	$V_{DG} = 15V, I_D = 2 mA, f = 1 MHz$		10	12	pF
Differential Voltage	$V_{GS1} - V_{GS2}$	$V_{DG} = 15V, I_D = 2 mA$		8.0	25	mV
Differential Voltage	ΔV_{GS}	$V_{DG} = 15V, I_D = 2 mA$		9.0	50	$\mu V/^\circ C$
Common Mode Rejection	CMRR	$V_{DG} = 15V, I_D = 2 mA$	76	95		dB

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

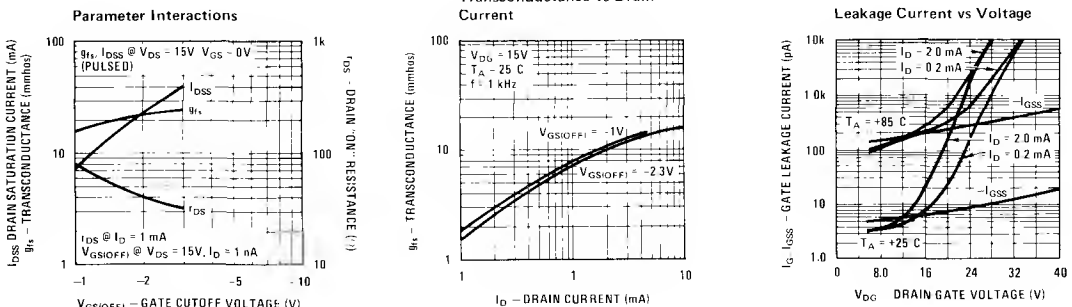
TO-71 (CASE 12)

*2N5564
*2N5565
*2N5566

8-Pin DIP (CASE 67)

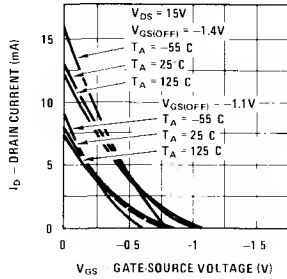
*NPD5564
*NPD5565
*NPD5566

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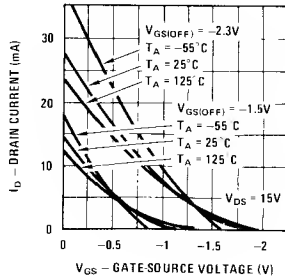


Process 96

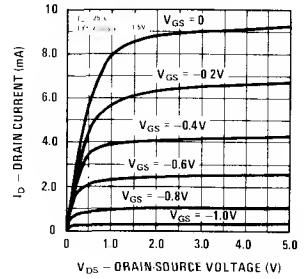
Transfer Characteristics



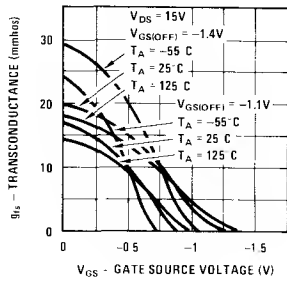
Transfer Characteristics



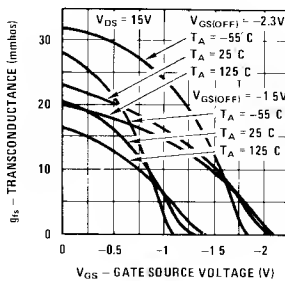
Common Drain-Source Characteristics



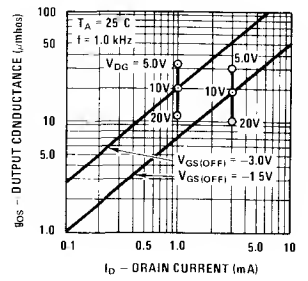
Transfer Characteristics



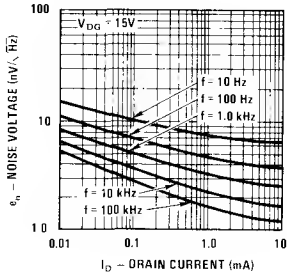
Transfer Characteristics



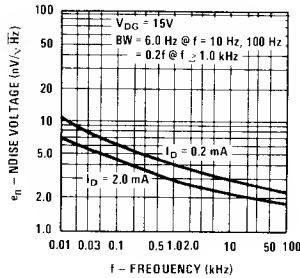
Output Conductance vs Drain Current



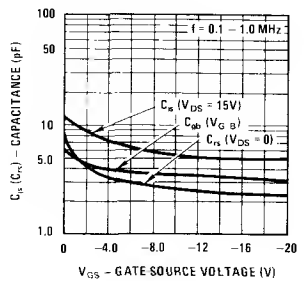
Noise Voltage vs Current



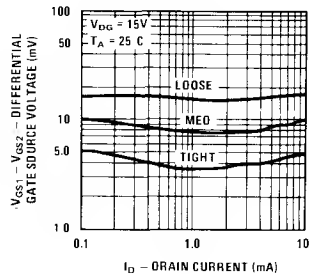
Noise Voltage vs Frequency



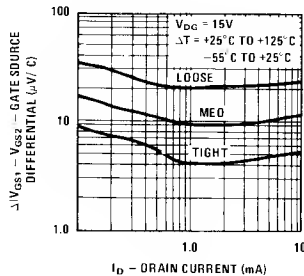
Capacitance vs Voltage



Differential Offset



Differential Drift



CMRR vs Drain Current

