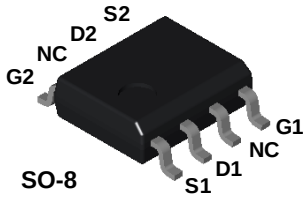
FAIRCHILD SEMICONDUCTOR™

Discrete POWER & Signal Technologies

NPDS5565
NPDS5566



N-Channel General Purpose Dual Amplifier

Sourced from Process 96.

Absolute Maximum Ratings* TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{DG}	Drain-Gate Voltage	40	V
V_{GS}	Gate-Source Voltage	40	V
I_{GF}	Gate Current	10	mA
T_J ,T_{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:
1) These ratings are based on a maximum junction temperature of 150 degrees C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

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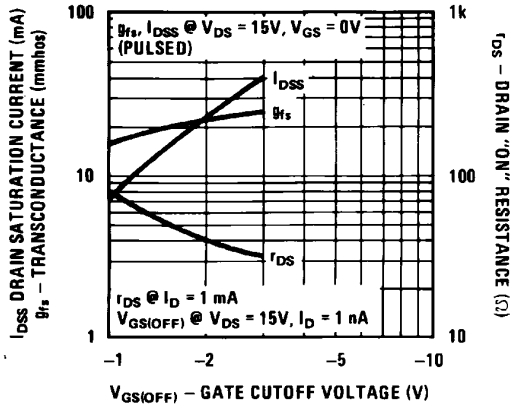
General Purpose Dual Amplifier
(continued)

Electrical Characteristics
TA = 25°C unless otherwise noted

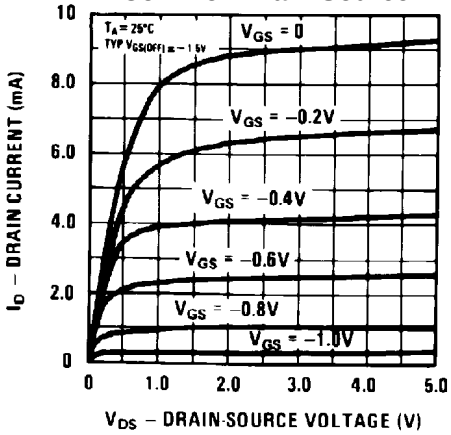
Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	I_G = 1.0 µA, V_{DS} = 0	- 40		V
I_{GSS}	Gate Reverse Current	V_{GS} = 20 V, V_{DS} = 0 V_{GS} = 20 V, V_{DS} = 0, T_A = 150 °C		100 200	pA µA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	V_{DS} = 15 V, I_D = 1.0 nA	- 0.5	- 3.0	V
$V_{GS(f)}$	Forward Gate-Source Voltage	V_{DS} = 0, I_D = 2.0 mA		1.0	V
$V_{G1 - G2}$	Voltage Gate 1 - Gate 2	V_{DS} = 0, I_G = + / - 1.0 µA	+ / - 40		V
ON CHARACTERISTICS					
I_{DSS}	Zero-Gate Voltage Drain Current*	V_{DS} = 15 V, V_{GS} = 0	5.0	30	mA
$r_{DS(on)}$	Drain-Source On Resistance	I_D = 1.0 mA, V_{GS} = 0		100	Ω
SMALL SIGNAL CHARACTERISTICS					
g_{fs}	Common Source Forward Transconductance	V_{DS} = 15 V, I_D = 2.0mA, f = 1.0 kHz V_{DS} = 15 V, I_D = 2.0 mA, f = 100 MHz	7500 7000	12,500	µmhos µmhos
g_{oss}	Common Source Output Conductance	V_{DS} = 15 V, I_D = 2.0mA, f = 1.0 kHz		45	µmhos
C_{iss}	Input Capacitance	V_{DG} = 15 V, I_D = 2.0mA, f = 1.0MHz		12	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 15 V, I_D = 2.0mA, f = 1.0 kHz		3.0	pF
e_n	Equivalent Short-Circuit Input Noise Voltage	V_{DG} = 15 V, I_D = 2.0 mA, f = 10 Hz		50	nV/√Hz
NF	Noise Figure	V_{DG} = 15 V, I_D = 2.0 mA, f = 10 Hz R_G = 1.0 mΩ		1.0	dB
I_{DSS1} - I_{DSS2}	I_{DSS} Match	V_{DS} = 15 V, V_{GS} = 0		5.0	%
g_{fs1} - g_{fs2}	g_{fs} Match	V_{DS} = 15 V, I_D = 2.0mA, f = 1.0 kHz		10	%
V_{GS1} - V_{GS2}	Differential Match	V_{DG} = 15 V, I_D = 2.0 mA, **NPDS5565** **NPDS5566**		 10 20	 mV mV
ΔV_{GS1} - V_{GS2}	Differential Drift	V_{DS} = 10 V, V_{GS} = 0, f = 1.0 kHz T_A = 25 to 125 °C **NPDS5565** **NPDS5566** V_{DG} = 15 V, I_D = 2.0 mA, T_A = -55 to 25 °C **NPDS5565** **NPDS5566**		 25 50 25 50	 µV/°C µV/°C µV/°C µV/°C

Typical Characteristics (continued)

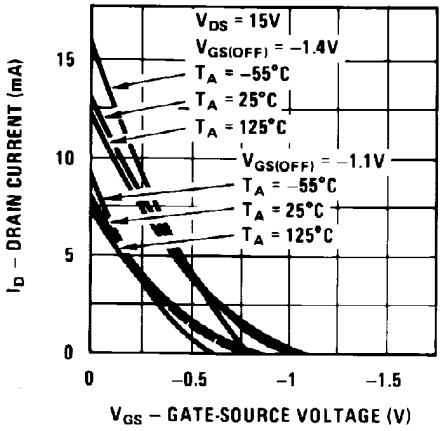
Parameter Interactions



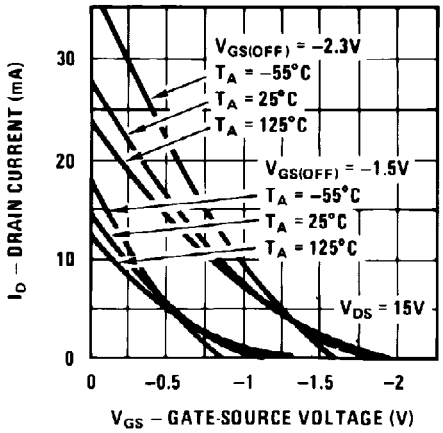
Common Drain-Source



Transfer Characteristics



Transfer Characteristics



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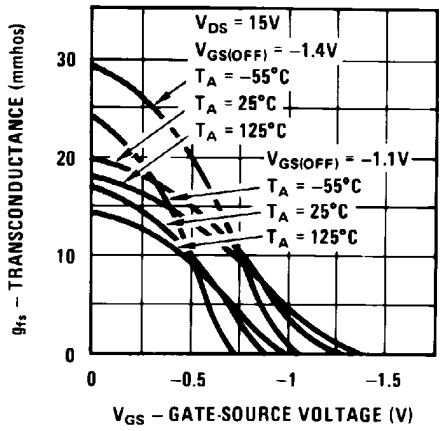
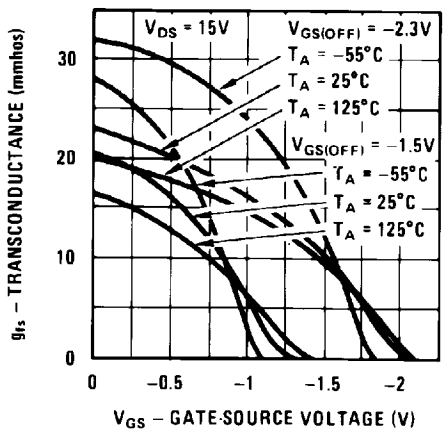
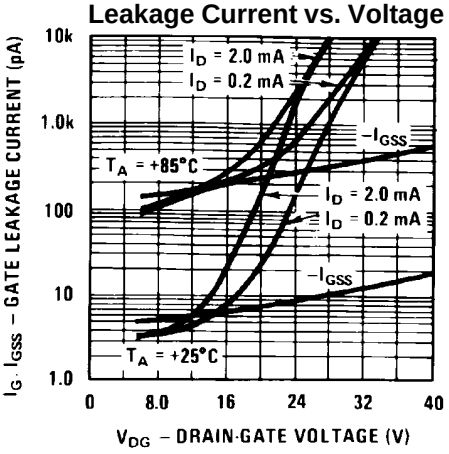


Transfer Characteristics

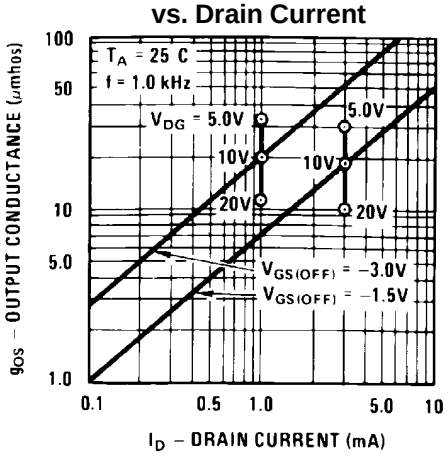


Typical Characteristics (continued)

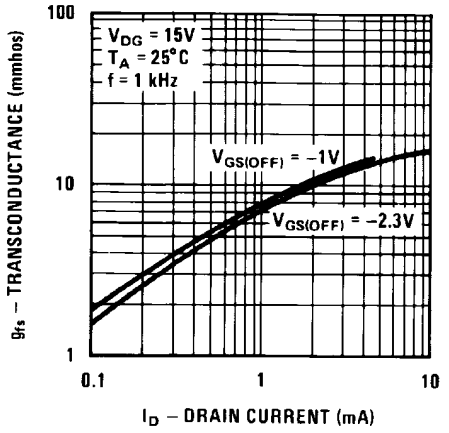
Leakage Current vs. Voltage



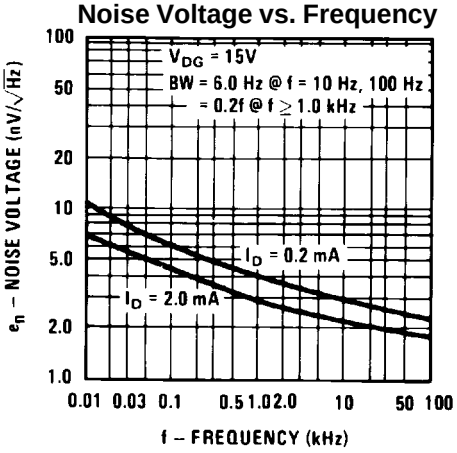
Output Conductance vs. Drain Current



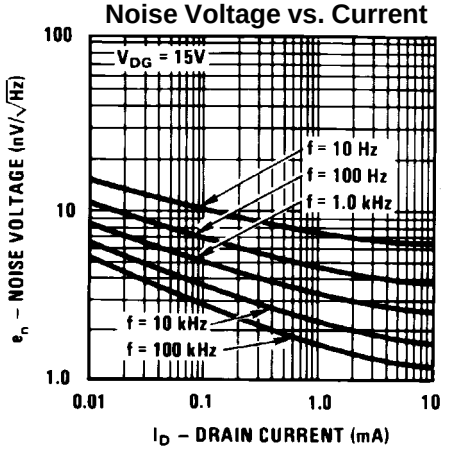
Transconductance vs. Drain Current



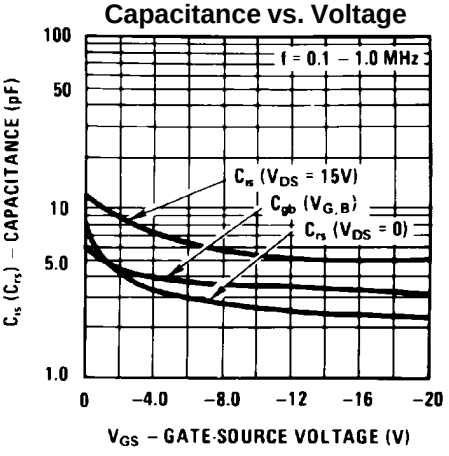
Noise Voltage vs. Frequency



Noise Voltage vs. Current

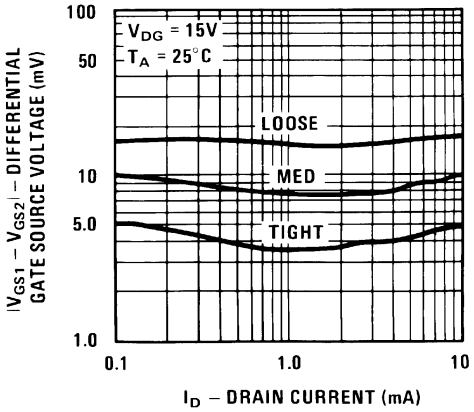


Capacitance vs. Voltage

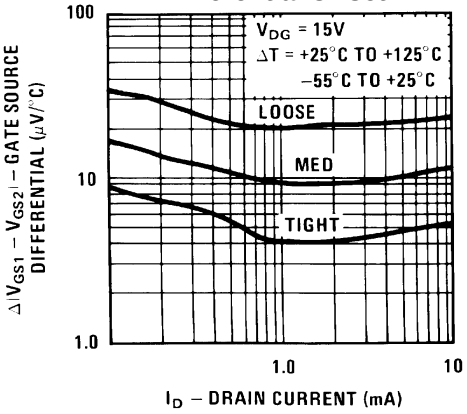
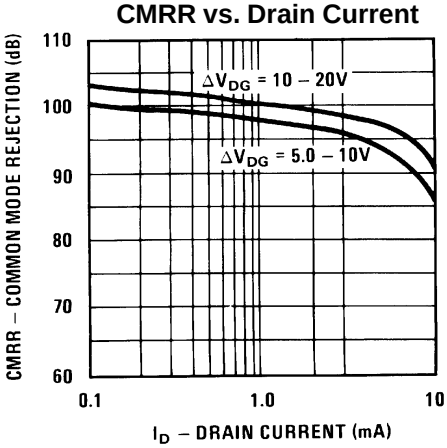


Typical Characteristics (continued)

Differential Drift



Differential Offset



CMRR vs. Drain Current