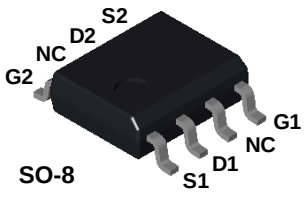
FAIRCHILD SEMICONDUCTOR TM

Discrete POWER & Signal Technologies

NPDS5911
NPDS5912



N-Channel General Purpose Dual Amplifier

Sourced from Process 93.

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

Symbol	Parameter	Value	Units
V_{DG}	Drain-Gate Voltage	25	V
V_{GS}	Gate-Source Voltage	25	V
I_{GF}	Forward 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.

General Purpose Dual Amplifier
(continued)

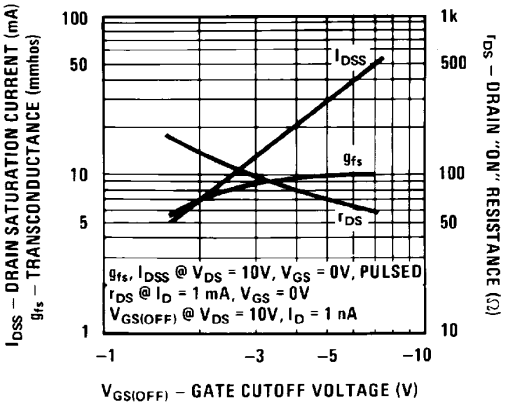
Electrical Characteristics
TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	I_G = 1.0 µA, V_{DS} = 0	- 25		V
I_{GSS}	Gate Reverse Current	V_{GS} = 15 V, V_{DS} = 0 V_{GS} = 15 V, V_{DS} = 0, T_A = 150 °C		100 250	pA nA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	V_{DS} = 10 V, I_D = 1.0 nA	- 1.0	- 5.0	V
V_{GS}	Gate-Source Voltage	V_{DG} = 10 V, I_D = 5.0 mA	- 0.3	- 4.0	V
$V_{G1 - G2}$	Voltage Gate 1 - Gate 2	V_{DS} = 0, I_G = + / - 1.0 µA	+ / - 25		V
ON CHARACTERISTICS					
I_{DSS}	Zero-Gate Voltage Drain Current*	V_{DS} = 10 V, V_{GS} = 0	7.0	40	mA
SMALL SIGNAL CHARACTERISTICS					
g_{fs}	Common Source Forward Transconductance	V_{DS} = 10 V, I_D = 5.0mA, f = 1.0 kHz V_{DS} = 10 V, I_D = 5.0 mA, f = 100 MHz	5000 5000	10,000 10,000	µmhos µmhos
g_{oss}	Common Source Output Conductance	V_{DS} = 10 V, I_D = 5.0mA, f = 1.0 kHz V_{DS} = 10V, I_D = 5.0mA, f = 100 MHz		100 150	µmhos µmhos
C_{iss}	Input Capacitance	V_{DG} = 10 V, I_D = 5.0mA, f =1.0 MHz		5.0	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 10 V, I_D = 5.0mA, f = 1.0 kHz		1.2	pF
e_n	Equivalent Short-Circuit Input Noise Voltage	V_{DG} = 10 V, I_D = 5.0 mA, f = 10 kHz		20	nV/√Hz
NF	Noise Figure	V_{DG} = 10 V, I_D = 5.0 mA, f = 10 kHz R_G = 100 kΩ		1.0	dB
I_{DSS1} -I_{DSS2}	I_{DSS} Match	V_{DS} = 10 V, V_{GS} = 0		5.0	%
g_{fs1} - g_{fs2}	g_{fs} Match	V_{DS} = 10 V, I_D = 5.0mA, f = 1.0 kHz		5.0	%
g_{oss1} -g_{oss2}	g_{oss} Match	V_{DS} = 10 V, I_D = 5.0mA, f = 1.0 kHz		20	µmhos
I_{G1} - I_{G2}	I_G Match	V_{DS} = 10 V, I_D = 5.0mA, T_A = 125°C		20	nA
V_{GS1} - V_{GS2}	Differential Match	V_{DG} = 10 V, I_D = 5.0 mA, **NPDS5911** **NPDS5912**		 10 15	 mV mV
ΔV_{GS1} - V_{GS2}	Differential Drift	V_{DG} = 10 V, V_{GS} = 0, I_D = 5.0 mA, T_A = 25 to 125 °C **NPDS5911** **NPDS5912** V_{DG} = 10 V, I_D = 5.0 mA, T_A = -55 to 25 °C **NPDS5911** **NPDS5912**		 20 40 20 40	 µV/°C µV/°C µV/°C µV/°C

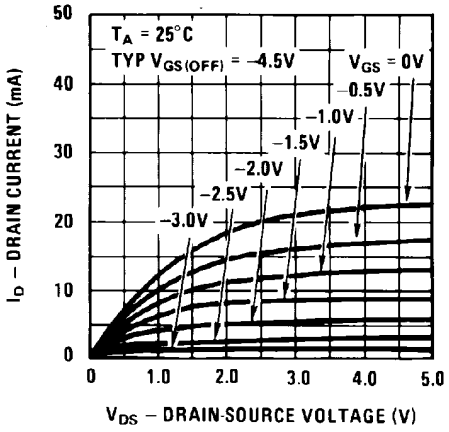
*Pulse Test: Pulse Width ≤ 300 ms, Duty Cycle ≤ 2%

Typical Characteristics (continued)

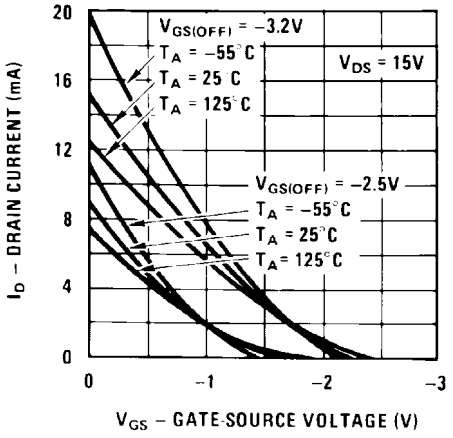
Parameter Interactions



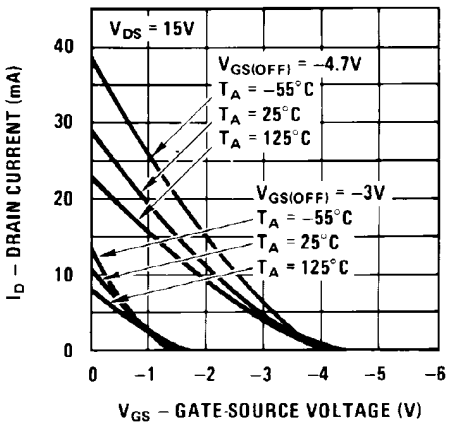
Common Drain-Source



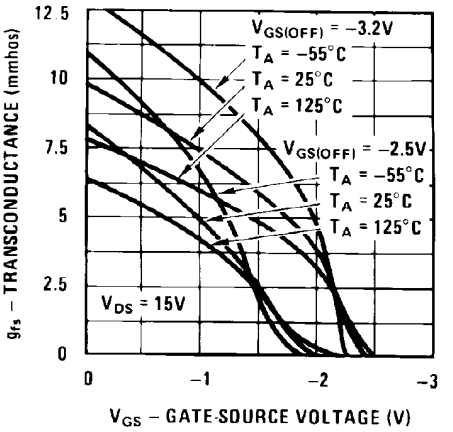
Transfer Characteristics



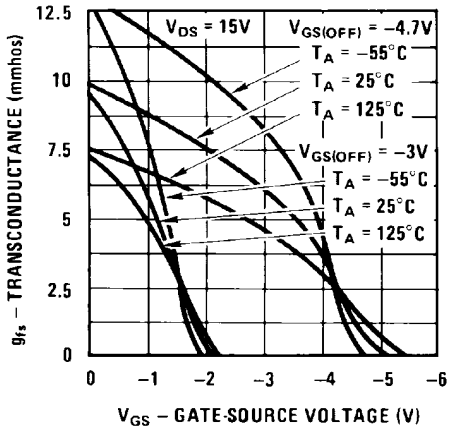
Transfer Characteristics



Transfer Characteristics

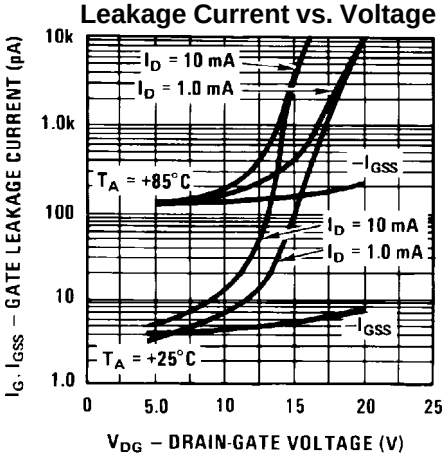


Transfer Characteristics

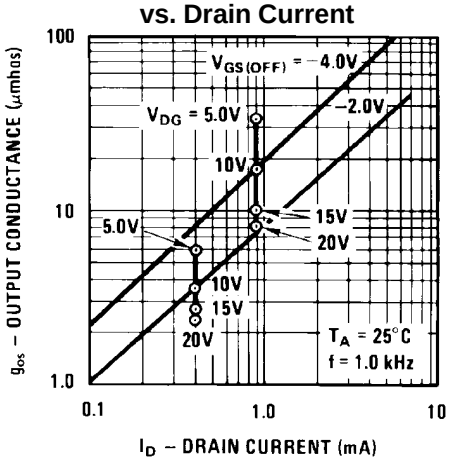


Typical Characteristics (continued)

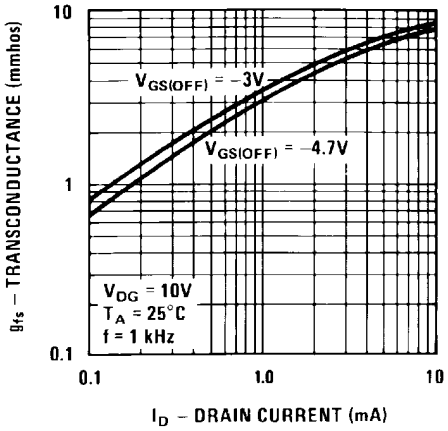
Leakage Current vs. Voltage



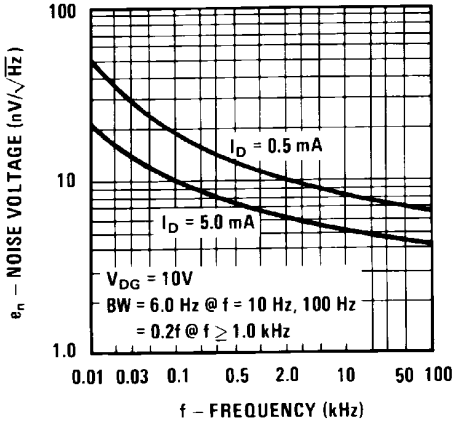
Output Conductance vs. Drain Current



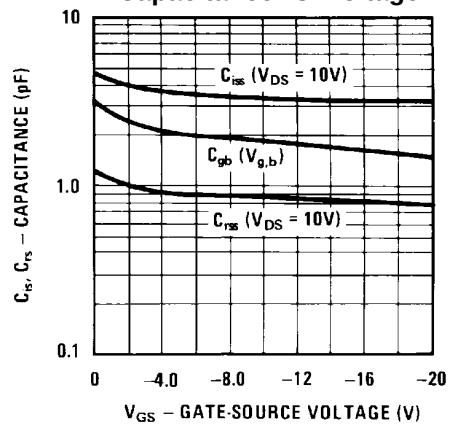
Transconductance vs. Drain Current



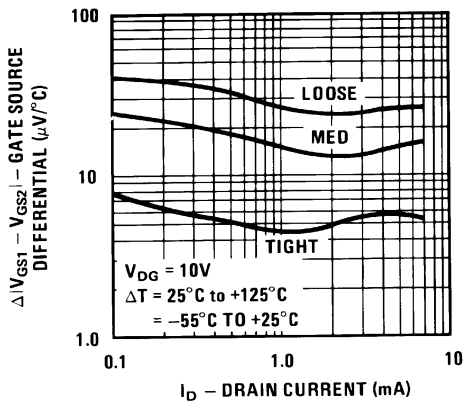
Noise Voltage vs. Frequency



Capacitance vs. Voltage

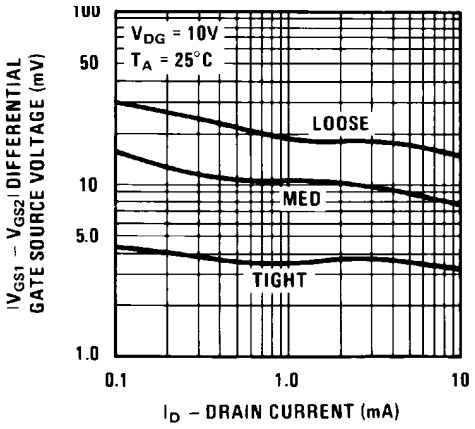


Differential Drift



Typical Characteristics (continued)

Differential Offset



CMRR vs. Drain Current