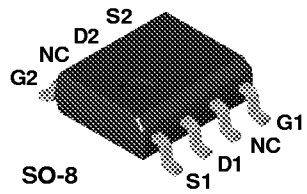
FAIRCHILD SEMICONDUCTOR

Discrete POWER & Signal Technologies

NPDS402
NPDS403
NPDS404
NPDS406



N-Channel General Purpose Dual Amplifier

Sourced from Process 98.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{DG}	Drain-Gate Voltage	50	V
V_{GS}	Gate-Source Voltage	50	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)

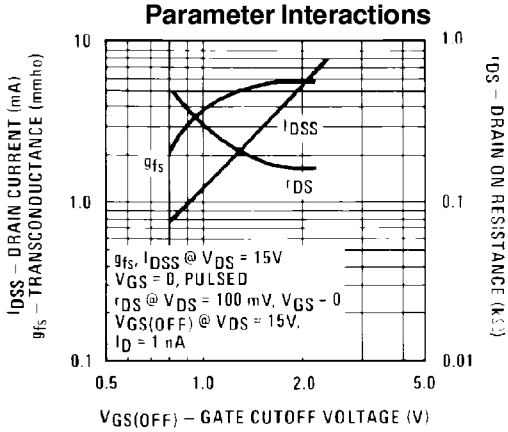
Electrical Characteristics
TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	I_G = 1.0 µA, V_{DS} = 0	- 50		V
I_{GSS}	Gate Reverse Current	V_{GS} = 30 V, V_{DS} = 0		25	pA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	V_{DS} = 15 V, I_D = 1.0 nA	- 0.5	- 2.5	V
V_{GS}	Gate-Source Voltage	V_{DG} = 15 V, I_D = 200 µA		- 2.3	V
$V_{G1 - G2}$	Voltage Gate 1-Gate 2	I_G = 1.0 µA, V_{DS} = 0	+ / - 50		V
ON CHARACTERISTICS					
I_{DSS}	Zero-Gate Voltage Drain Current*	V_{DS} = 10 V, V_{GS} = 0	0.5	10	mA
SMALL SIGNAL CHARACTERISTICS					
g_{fs}	Common Source Forward Transconductance	V_{DS} = 10 V, V_{GS} = 0, f = 1.0 kHz V_{DS} = 15 V, I_D = 200µA, f = 1.0 kHz	2000 1000	7000 2000	µmhos µmhos
g_{oss}	Common Source Output Conductance	V_{DS} = 10 V, V_{GS} = 0, f = 1.0 kHz		20	µmhos
g_{os}	Common Source Output Conductance	V_{DS} = 15 V, I_D = 200µA, f = 1.0 kHz		2.0	µmhos
C_{iss}	Input Capacitance	V_{DG} = 15 V, I_D = 200 µA, f = 1.0 MHz		8.0	pF
C_{rss}	Reverse Transfer Capacitance	V_{DG} = 15 V, I_D = 200 µA, f = 1.0 MHz		3.0	pF
CMMR	Common Mode Rejection	V_{DG} = 10 to 20 V, I_D = 200 µA	95		dB
$V_{GS1} - V_{GS2}$	Differential Match	V_{DG} = 10 V, I_D = 200 µA, **NPDS402** **NPDS403** **NPDS404** **NPDS406**		 10 10 15 40	 mV mV mV mV
$\Delta V_{GS1} - V_{GS2}$	Differential Drift	V_{DG} = 10 V, I_D = 200 µA, T_A = -55 to 25 °C **NPDS402** **NPDS403** **NPDS404** **NPDS406** V_{DG} = 10 V, I_D = 200 µA T_A = 25 to 125 °C **NPDS402** **NPDS403** **NPDS404** **NPDS406**		 10 25 25 80 10 25 25 80	 µV/°C µV/°C µV/°C µV/°C µV/°C µV/°C µV/°C µV/°C

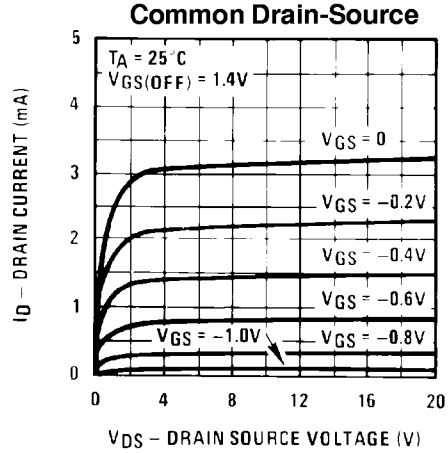
*Pulse Test: Pulse Width ≤ 300 ms, Duty Cycle ≤ 2%

Typical Characteristics (continued)

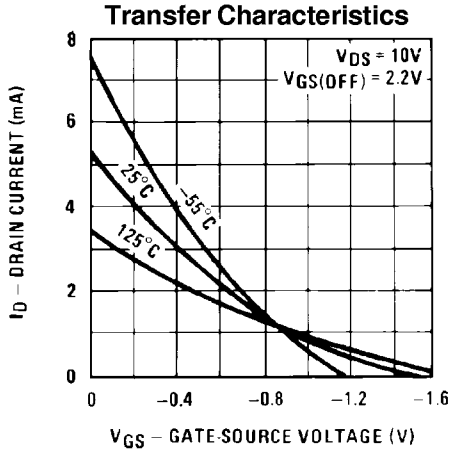
Parameter Interactions



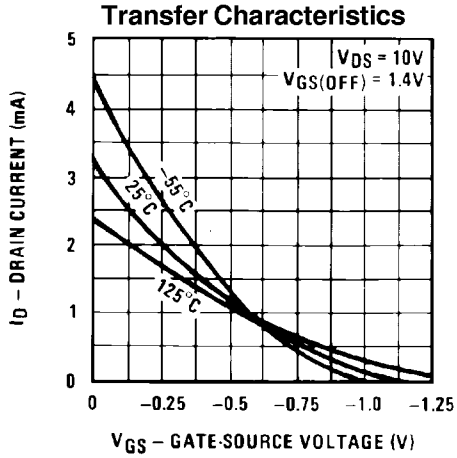
Common Drain-Source



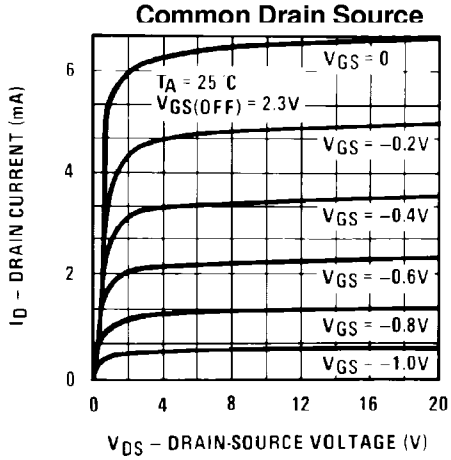
Transfer Characteristics



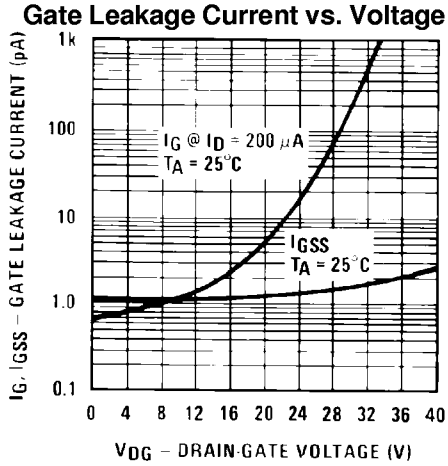
Transfer Characteristics



Common Drain Source

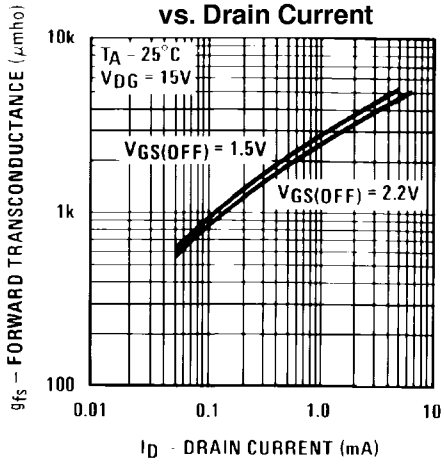


Gate Leakage Current vs. Voltage

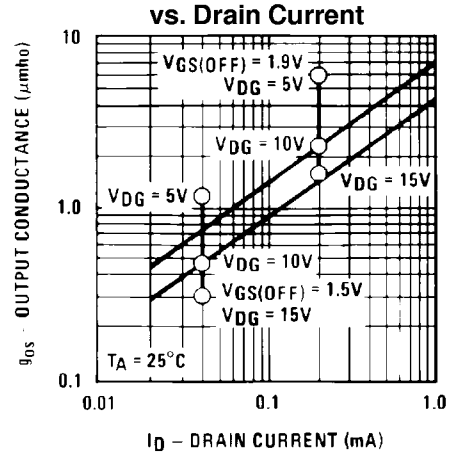


Typical Characteristics (continued)

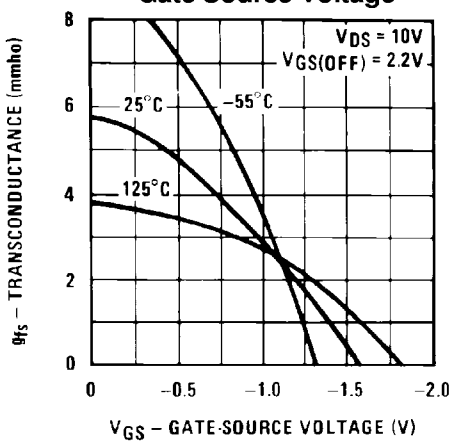
Forward Transconductance vs. Drain Current



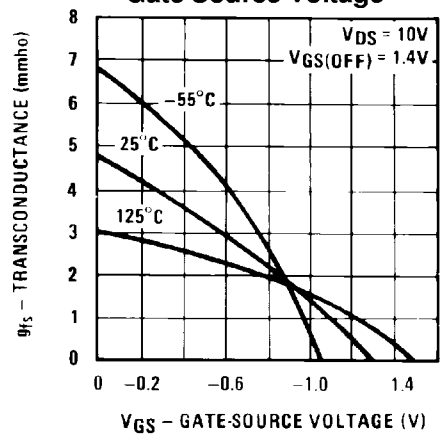
Output Conductance vs. Drain Current



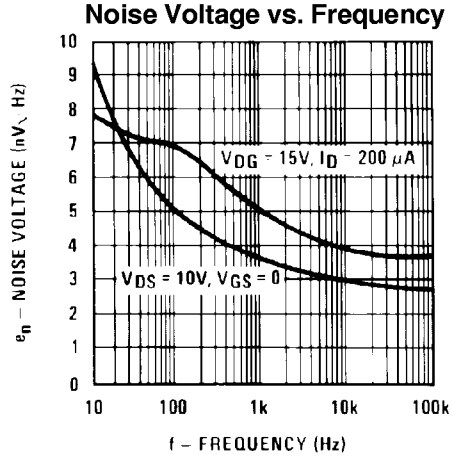
Transconductance vs. Gate Source Voltage



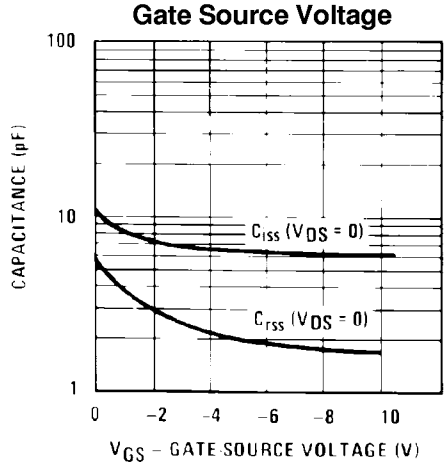
Transconductance vs. Gate Source Voltage



Noise Voltage vs. Frequency

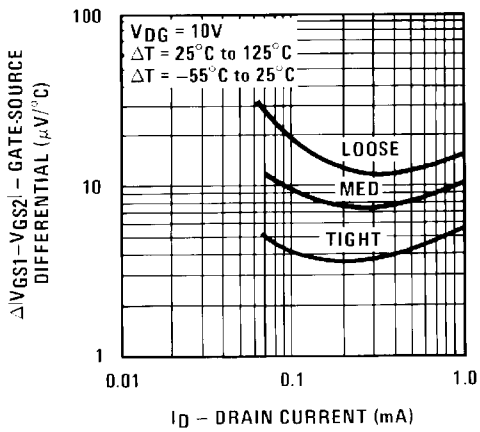


Capacitance vs. Gate Source Voltage

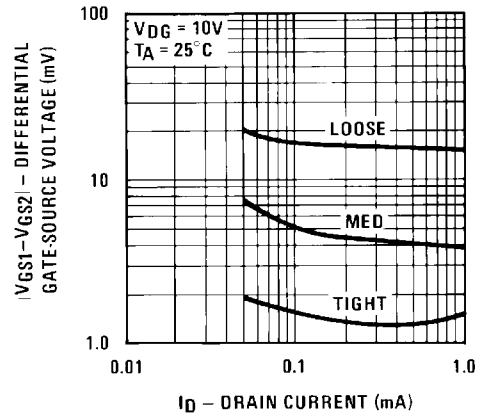


Typical Characteristics (continued)

Differential Drift



Differential Offset



CMRR vs. Drain Current