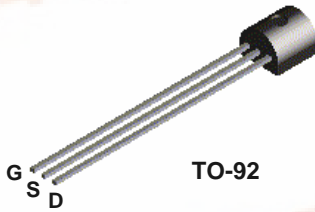




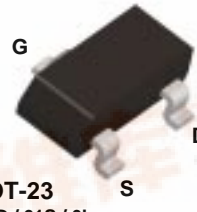
Discrete POWER & Signal Technologies

**2N5457
2N5458
2N5459**

**MMBF5457
MMBF5458
MMBF5459**



TO-92



SOT-23

Mark: 6D / 61S / 6L

N-Channel General Purpose Amplifier

This device is a low level audio amplifier and switching transistors, and can be used for analog switching applications. Sourced from Process 55.

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.

Thermal Characteristics

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max		Units
		2N5457	*MMBF5457	
P _D	Total Device Dissipation Derate above 25°C	625	350	mW
		5.0	2.8	mW/°C
R _{θJC}	Thermal Resistance, Junction to Case	83.3		°C/W
R _{θJA}	Thermal Resistance, Junction to Ambient	200	357	°C/W

*Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06."

2N5457 / 2N5458 / 2N5459 / MMBF5457 / MMBF5458 / MMBF5459



N-Channel General Purpose Amplifier

(continued)

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	$I_G = 10 \mu A, V_{DS} = 0$	- 25			V
I_{GSS}	Gate Reverse Current	$V_{GS} = -15 V, V_{DS} = 0$ $V_{GS} = -15 V, V_{DS} = 0, T_A = 100^\circ C$			- 1.0 - 200	nA nA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = 15 V, I_D = 10 nA$	2N5457 2N5458 2N5459	- 0.5 - 1.0 - 2.0	- 6.0 - 7.0 - 8.0	V V V
V_{GS}	Gate-Source Voltage	$V_{DS} = 15 V, I_D = 100 \mu A$ $V_{DS} = 15 V, I_D = 200 \mu A$ $V_{DS} = 15 V, I_D = 400 \mu A$	2N5457 2N5458 2N5459	- 2.5 - 3.5 - 4.5		V V V

ON CHARACTERISTICS

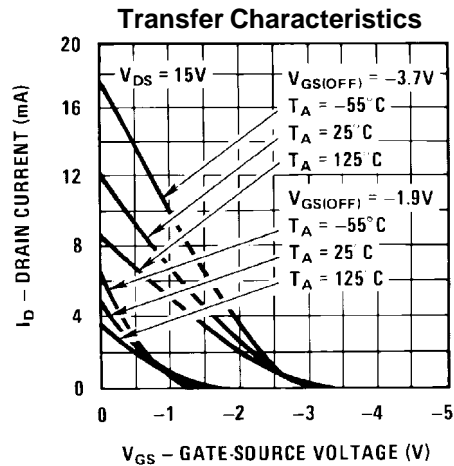
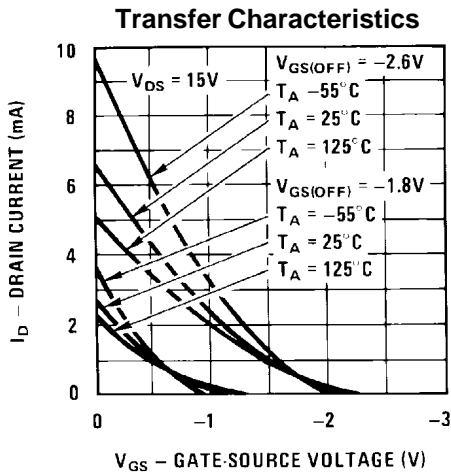
I_{DSS}	Zero-Gate Voltage Drain Current*	$V_{DS} = 15 V, V_{GS} = 0$	2N5457 2N5458 2N5459	1.0 2.0 4.0	3.0 6.0 9.0	5.0 9.0 16	mA mA mA
-----------	----------------------------------	-----------------------------	---	-------------------	-------------------	------------------	----------------

SMALL SIGNAL CHARACTERISTICS

g_{fs}	Forward Transfer Conductance*	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz$	2N5457 2N5458 2N5459	1000 1500 2000		5000 5500 6000	$\mu mhos$ $\mu mhos$ $\mu mhos$
g_{os}	Output Conductance*	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz$			10	50	$\mu mhos$
C_{iss}	Input Capacitance	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 MHz$			4.5	7.0	pF
C_{rss}	Reverse Transfer Capacitance	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 MHz$			1.5	3.0	pF
NF	Noise Figure	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz,$ $R_G = 1.0 megohm, BW = 1.0 Hz$				3.0	dB

*Pulse Test: Pulse Width $\leq 300 ms$, Duty Cycle $\leq 2\%$

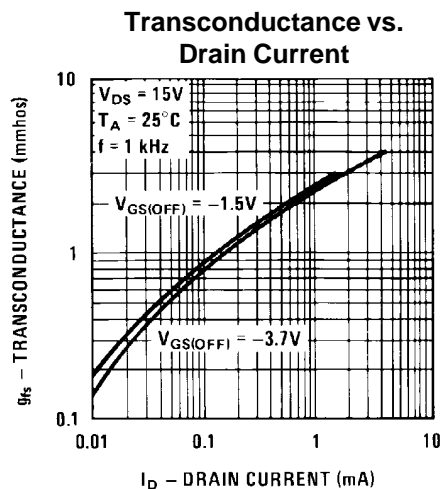
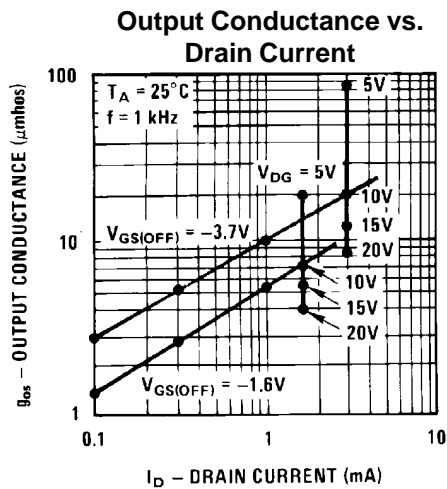
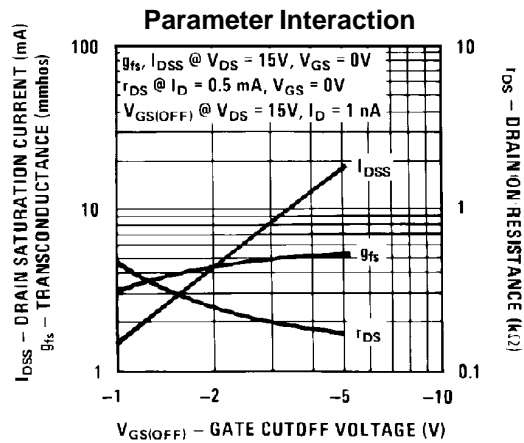
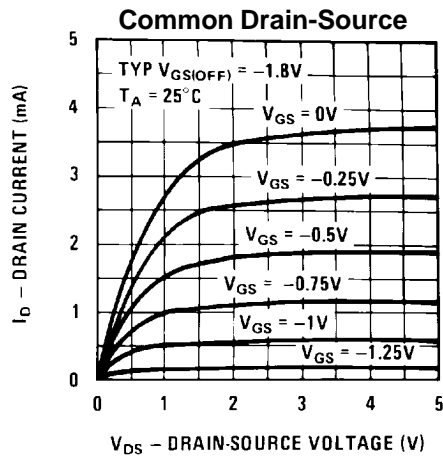
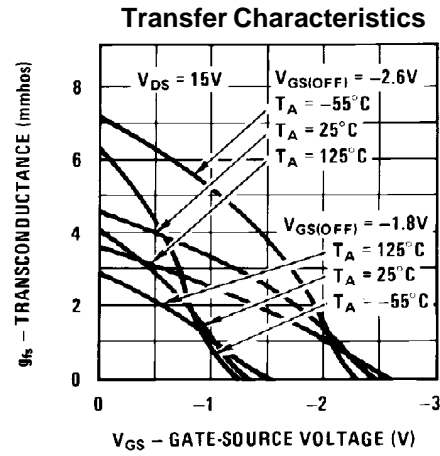
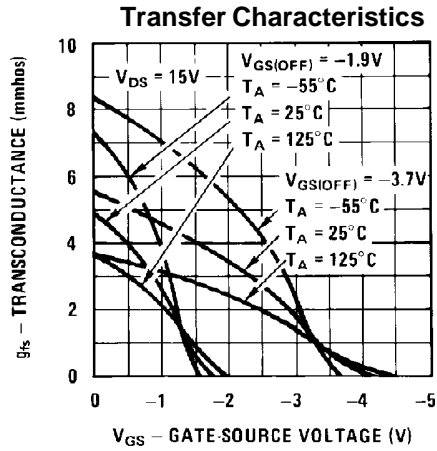
Typical Characteristics



N-Channel General Purpose Amplifier

(continued)

Typical Characteristics (continued)



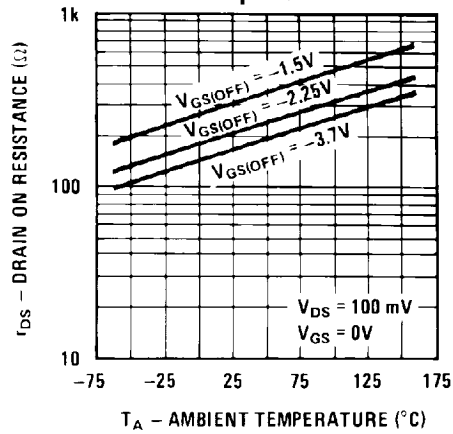
2N5457 / 2N5458 / 2N5459 / MMBF5457 / MMBF5458 / MMBF5459

N-Channel General Purpose Amplifier

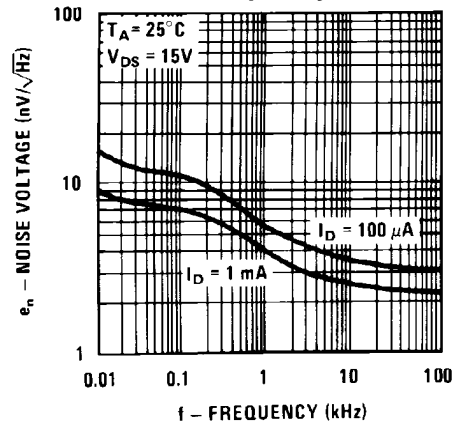
(continued)

Typical Characteristics (continued)

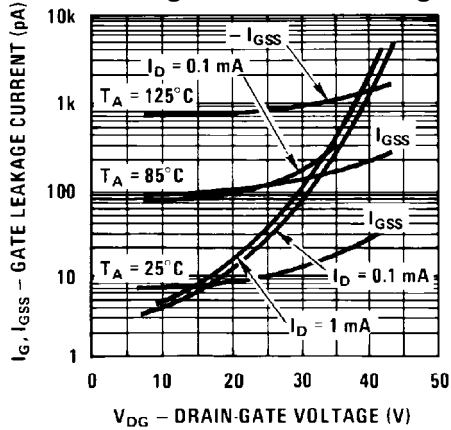
Channel Resistance vs. Temperature



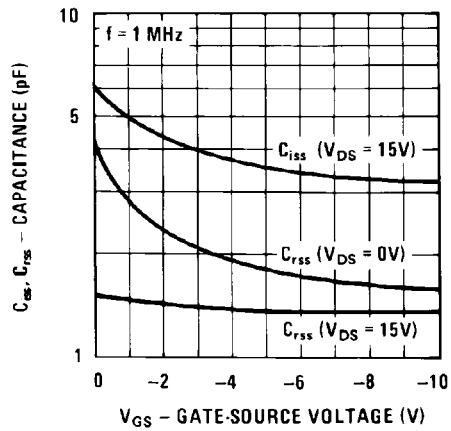
Noise Voltage vs. Frequency



Leakage Current vs. Voltage



Capacitance vs. Voltage



2N5457 / 2N5458 / 2N5459 / MMBF5457 / MMBF5458 / MMBF5459