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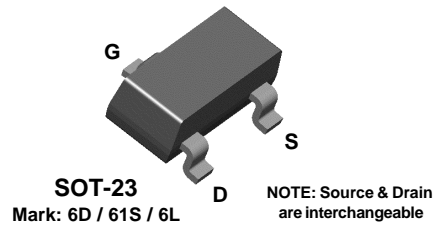
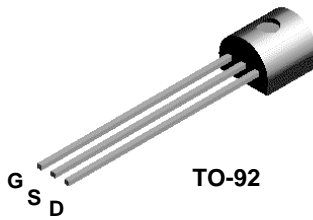
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2N5457
2N5458
2N5459

MMBF5457
MMBF5458
MMBF5459



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
		2N5457-5459	*MMBF5457-5459	
P_D	Total Device Dissipation	625	350	mW
	Derate above 25°C	5.0	2.8	mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125		°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	556	°C/W

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

2N5457 / 5458 / 5459 / MMBF5457 / 5458 / 5459

N-Channel General Purpose Amplifier

(continued)

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
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OFF CHARACTERISTICS

V _{(BR)GSS}	Gate-Source Breakdown Voltage	I _G = 10 μA, V _{DS} = 0	- 25			V
I _{GSS}	Gate Reverse Current	V _{GS} = -15 V, V _{DS} = 0			- 1.0	nA
		V _{GS} = -15 V, V _{DS} = 0, T _A = 100°C			- 200	nA
V _{GS(off)}	Gate-Source Cutoff Voltage	V _{DS} = 15 V, I _D = 10 nA	5457	- 0.5	- 6.0	V
			5458	- 1.0	- 7.0	V
			5459	- 2.0	- 8.0	V
V _{GS}	Gate-Source Voltage	V _{DS} = 15 V, I _D = 100 μA	5457		- 2.5	V
		V _{DS} = 15 V, I _D = 200 μA	5458		- 3.5	V
		V _{DS} = 15 V, I _D = 400 μA	5459		- 4.5	V

ON CHARACTERISTICS

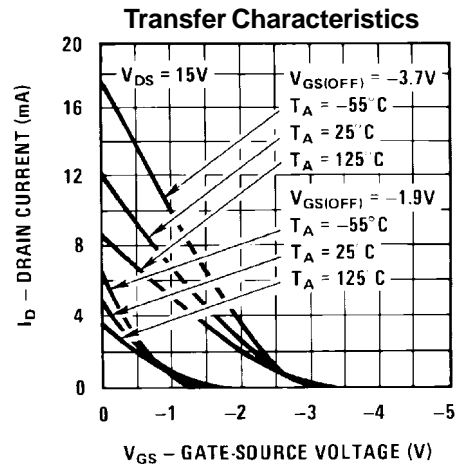
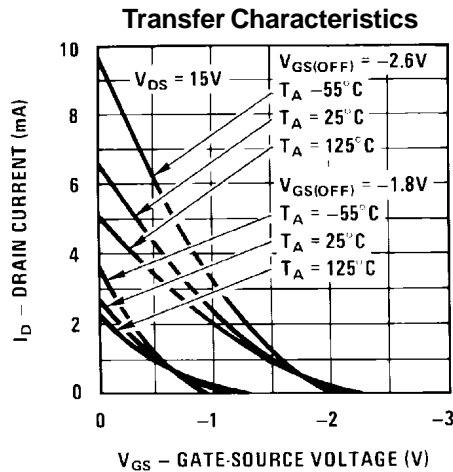
I _{DSS}	Zero-Gate Voltage Drain Current*	V _{DS} = 15 V, V _{GS} = 0	5457	1.0	3.0	5.0	mA
			5458	2.0	6.0	9.0	mA
			5459	4.0	9.0	16	mA

SMALL SIGNAL CHARACTERISTICS

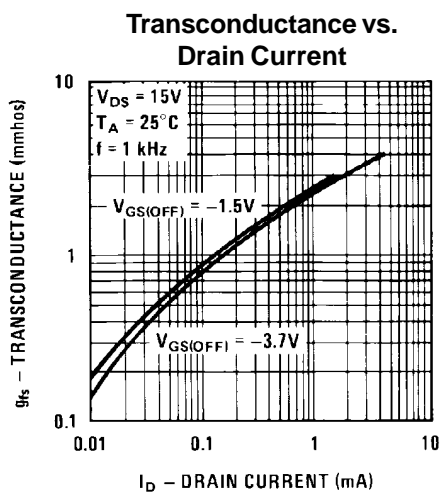
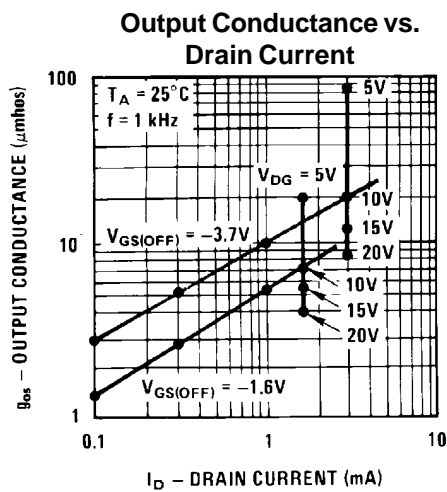
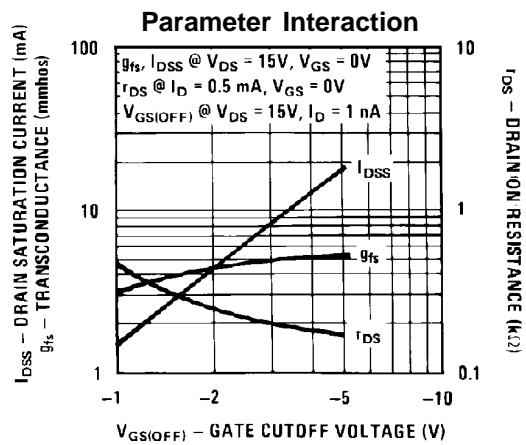
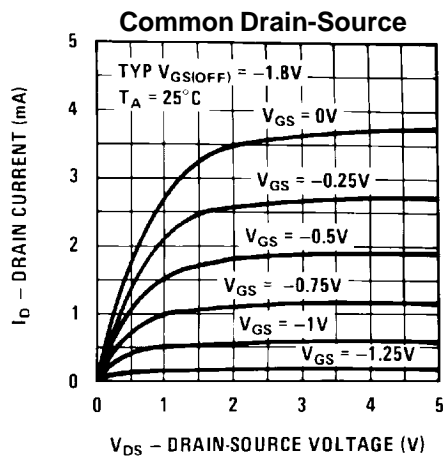
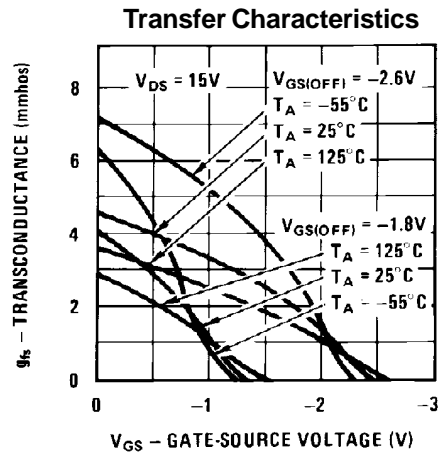
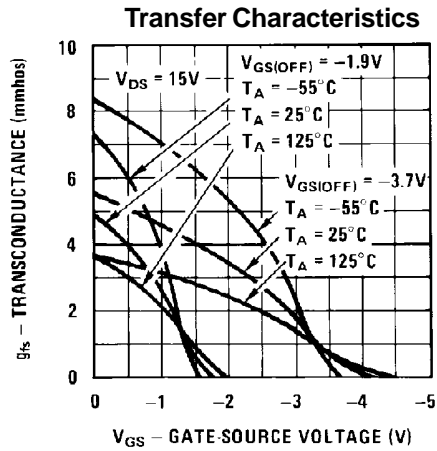
g _{fs}	Forward Transfer Conductance*	V _{DS} = 15 V, V _{GS} = 0, f = 1.0 kHz	5457	1000	5000	μmhos
			5458	1500	5500	μmhos
			5459	2000	6000	μmhos
g _{os}	Output Conductance*	V _{DS} = 15 V, V _{GS} = 0, f = 1.0 kHz		10	50	μmhos
C _{iSS}	Input Capacitance	V _{DS} = 15 V, V _{GS} = 0, f = 1.0 MHz		4.5	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 ≤ 300 ms, Duty Cycle ≤ 2%

Typical Characteristics



Typical Characteristics (continued)



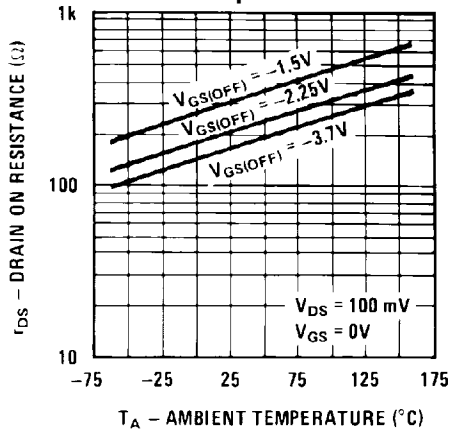
N-Channel General Purpose Amplifier

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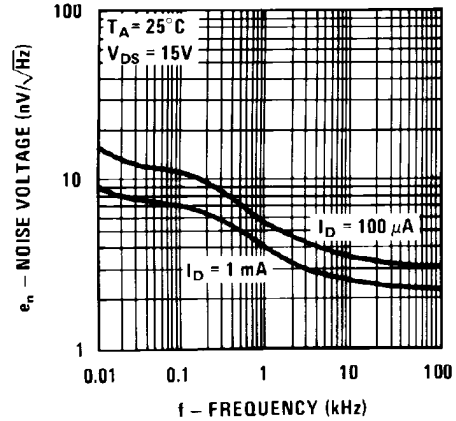
2N5457 / 5458 / 5459 / MMBF5457 / 5458 / 5459

Typical Characteristics (continued)

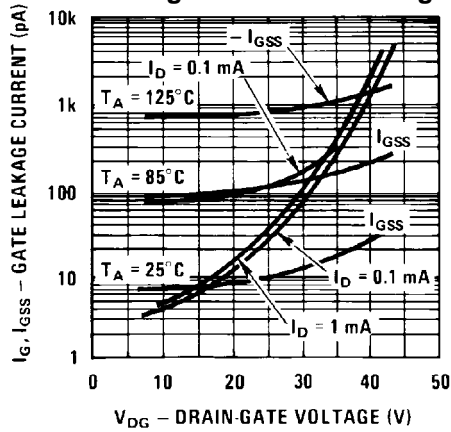
Channel Resistance vs. Temperature



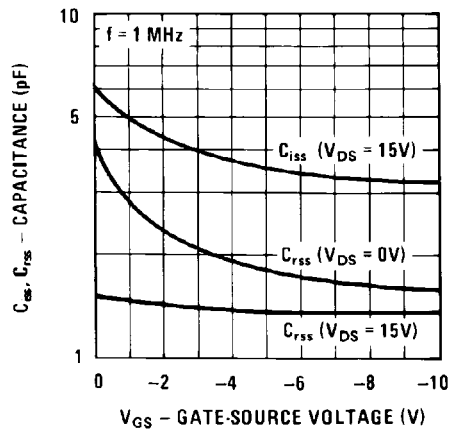
Noise Voltage vs. Frequency



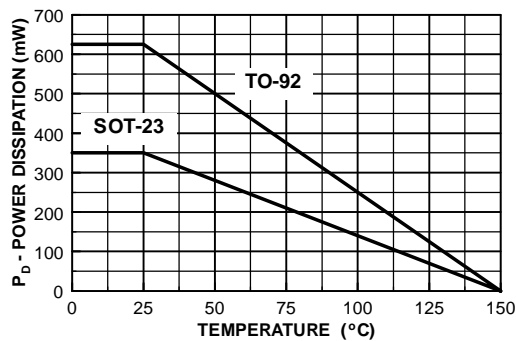
Leakage Current vs. Voltage



Capacitance vs. Voltage



Power Dissipation vs. Ambient Temperature



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