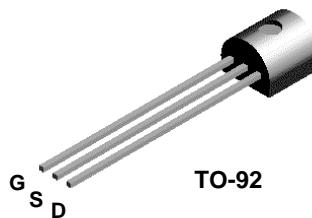
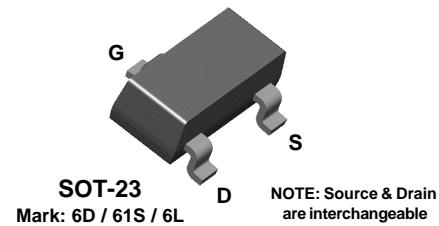




**2N5457
2N5458
2N5459**



**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 Derate above 25°C	625 5.0	350 2.8	mW 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."

N-Channel General Purpose Amplifier

(continued)

Electrical Characteristics

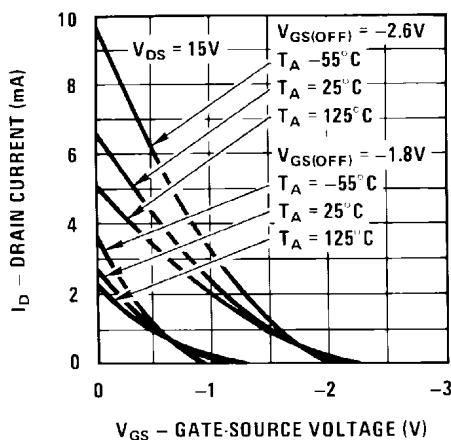
TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units	
OFF CHARACTERISTICS							
V _{(BR)GSS}	Gate-Source Breakdown Voltage	I _G = 10 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 = 100°C			- 1.0 - 200	nA 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 V _{DS} = 15 V, I _D = 200 µA V _{DS} = 15 V, I _D = 400 µA	5457 5458 5459		- 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	5457 5458 5459	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	5457 5458 5459	1000 1500 2000		5000 5500 6000	µmhos µmhos 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

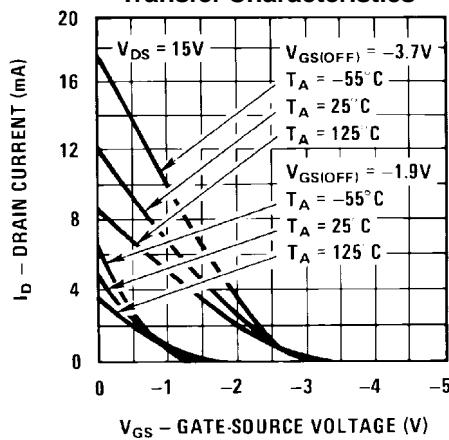
* Pulse Test: Pulse Width ≤ 300 ms, Duty Cycle ≤ 2%

Typical Characteristics

Transfer Characteristics



Transfer Characteristics

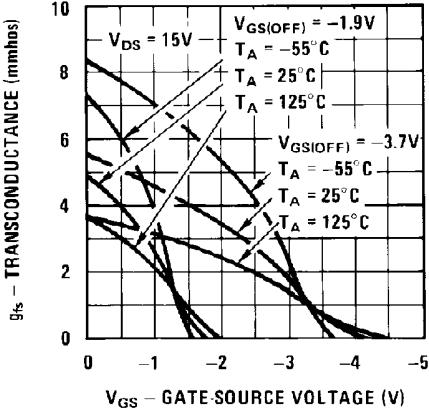


N-Channel General Purpose Amplifier

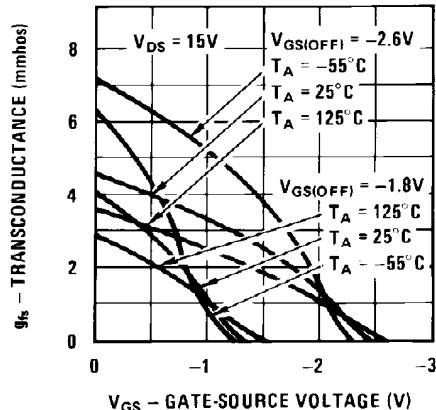
(continued)

Typical Characteristics (continued)

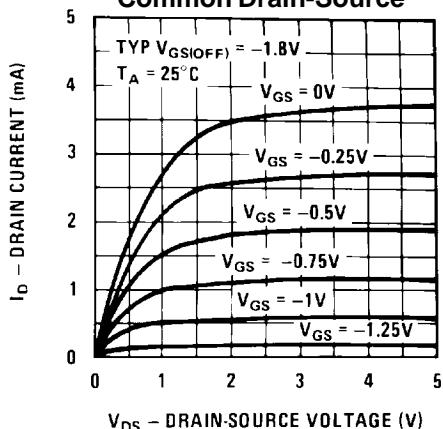
Transfer Characteristics



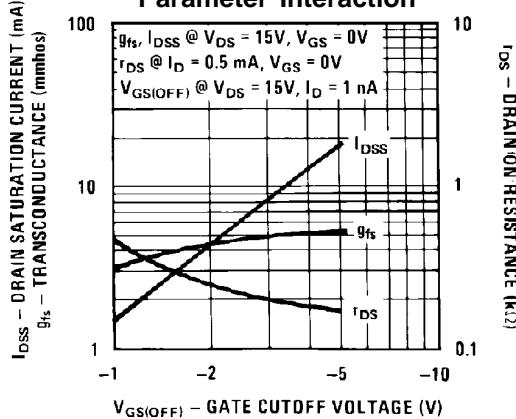
Transfer Characteristics



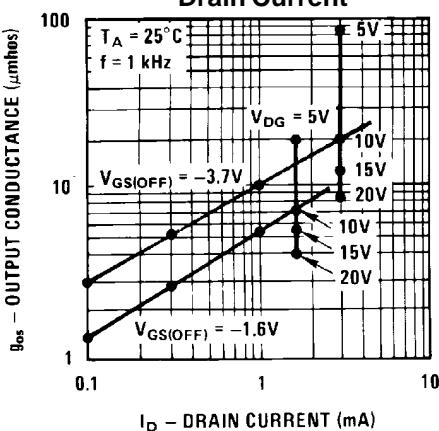
Common Drain-Source



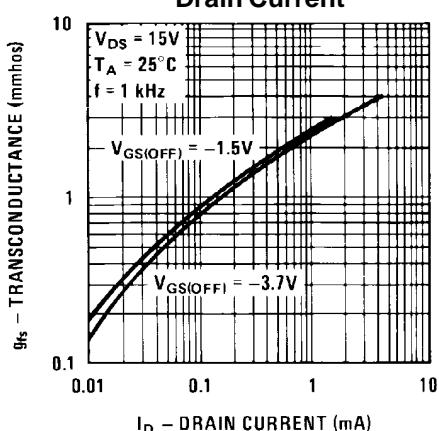
Parameter Interaction



Output Conductance vs. Drain Current



Transconductance vs. Drain Current

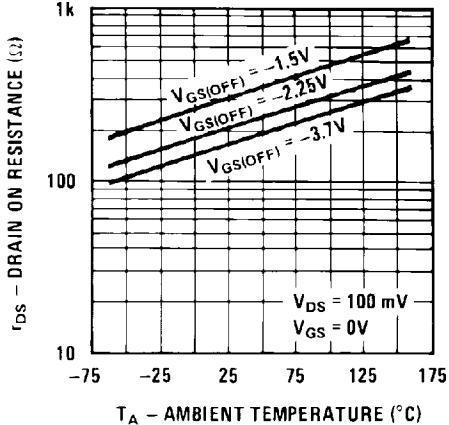


N-Channel General Purpose Amplifier

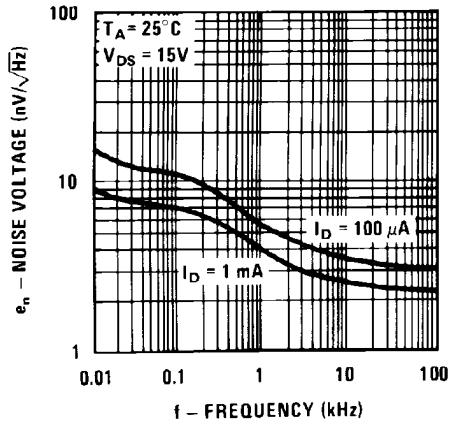
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Typical Characteristics (continued)

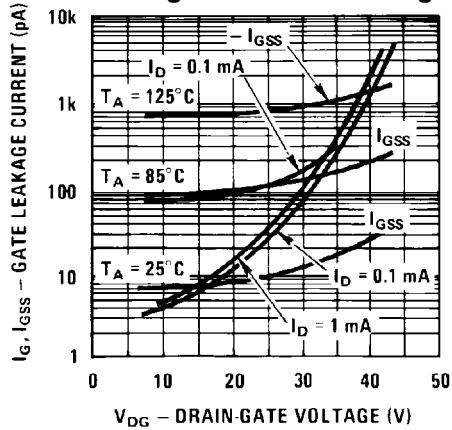
Channel Resistance vs. Temperature



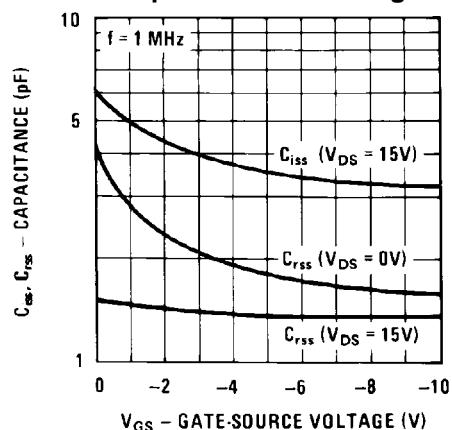
Noise Voltage vs. Frequency



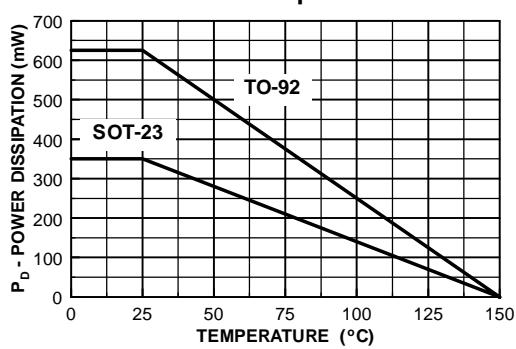
Leakage Current vs. Voltage



Capacitance vs. Voltage



Power Dissipation vs. Ambient Temperature



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EnSigna™	OPTOLOGIC™	SMART START™	
FACT™	OPTOPLANAR™	SuperSOT™-3	
FACT Quiet Series™	PACMAN™	SuperSOT™-6	
FAST®	POP™	SuperSOT™-8	

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