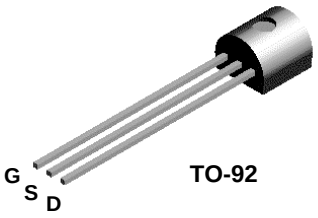
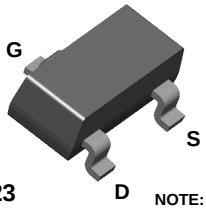
FAIRCHILD
SEMICONDUCTOR®

2N5460 / 2N5461 / 2N5462

MMBF5460 / MMBF5461 / MMBF5462



TO-92



SOT-23
Mark: 6E / 61U / 61V

NOTE: Source & Drain are interchangeable

P-Channel General Purpose Amplifier

This device is designed primarily for low level audio and general purpose applications with high impedance signal sources. Sourced from Process 89.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{DG}	Drain-Gate Voltage	- 40	V
V_{GS}	Gate-Source Voltage	40	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
		2N5460-5462	*MMBF5460-5462	
P_D	Total Device Dissipation Derate above 25°C	350 2.8	225 1.8	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."

P-Channel General Purpose Amplifier
(continued)

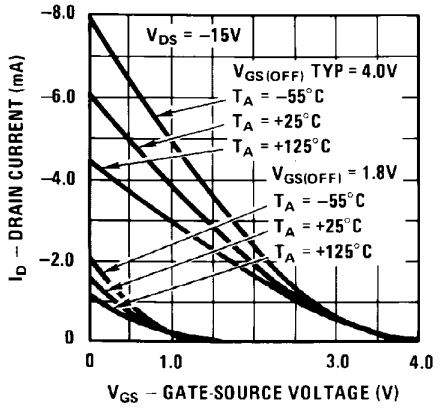
Electrical Characteristics
TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	I_G = 10 µA, V_{DS} = 0	40			V
I_{GSS}	Gate Reverse Current	V_{GS} = 20 V, V_{DS} = 0			5.0	nA
		V_{GS} = 20 V, V_{DS} = 0, T_A = 100°C			1.0	µA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	V_{DS} = 15 V, I_D = 1.0 µA **5460**	0.75		6.0	V
		5461	1.0		7.5	V
		5462	1.8		9.0	V
V_{GS}	Gate-Source Voltage	V_{DS} = 15 V, I_D = 0.1 mA **5460**	0.5		4.0	V
		V_{DS} = 15 V, I_D = 0.2 mA **5461**	0.8		4.5	V
		V_{DS} = 15 V, I_D = 0.4 mA **5462**	1.5		6.0	V
ON CHARACTERISTICS						
I_{DSS}	Zero-Gate Voltage Drain Current*	V_{DS} = 15 V, V_{GS} = 0 **5460**	- 1.0		- 5.0	mA
		5461	- 2.0		- 9.0	mA
		5462	- 4.0		- 16	mA
SMALL SIGNAL CHARACTERISTICS						
g_{fs}	Forward Transfer Conductance	V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz				
		5460	1000		4000	µmhos
		5461	1500		5000	µmhos
		5462	2000		6000	µmhos
g_{os}	Output Conductance	V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz			75	µmhos
C_{iss}	Input Capacitance	V_{DS} = 15 V, V_{GS} = 0, f = 1.0 MHz		5.0	7.0	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 15 V, V_{GS} = 0, f = 1.0 MHz		1.0	2.0	pF
NF	Noise Figure	V_{DS} = 15 V, V_{GS} = 0, R_G = 1.0 megohm, f = 100 Hz, BW = 1.0 Hz		1.0	2.5	dB
e_n	Equivalent Short-Circuit Input Noise Voltage	V_{DS} = 15 V, V_{GS} = 0, f = 100 Hz, BW = 1.0 Hz		60	115	$nV/\sqrt{Hz}$

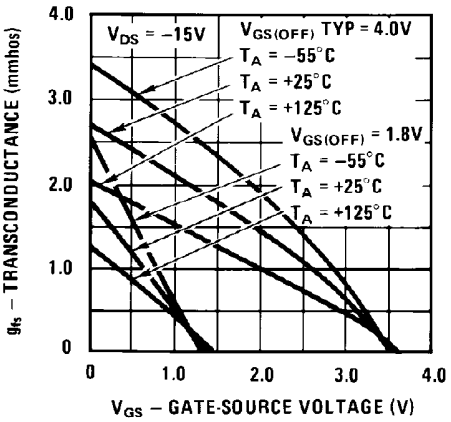
*Pulse Test: Pulse Width ≤ 300 ms, Duty Cycle ≤ 2%

Typical Characteristics (continued)

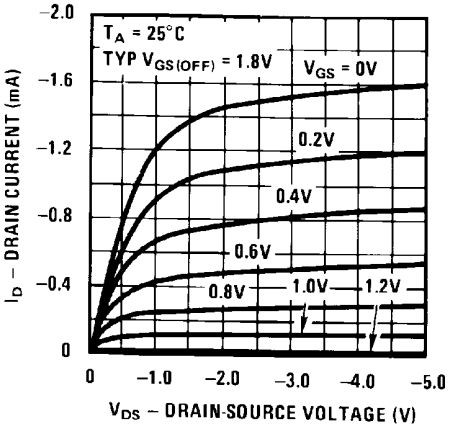
Transfer Characteristics



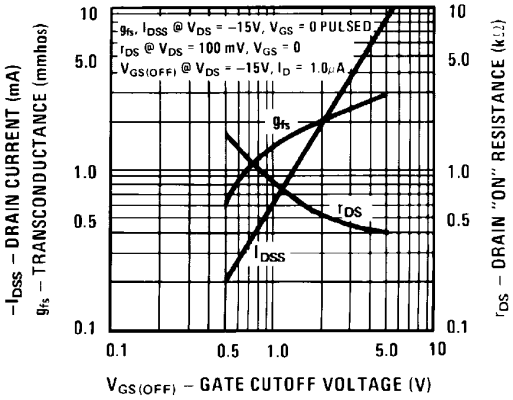
Transfer Charactersitics



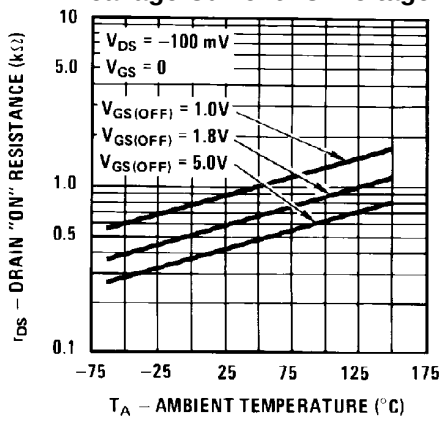
Common Drain-Source



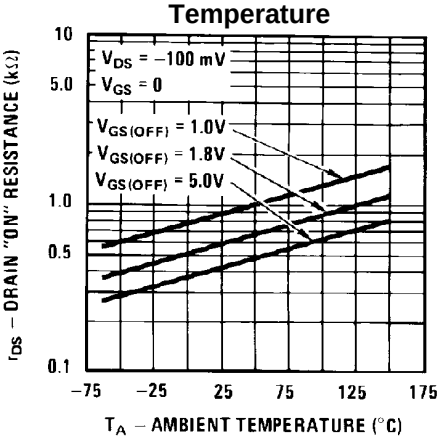
Parameter Interactions



Leakage Current vs. Voltage

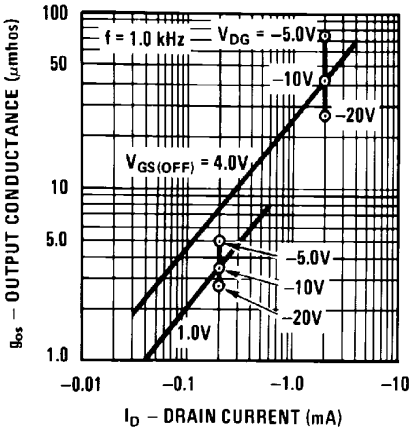


Channel Resistance vs. Temperature

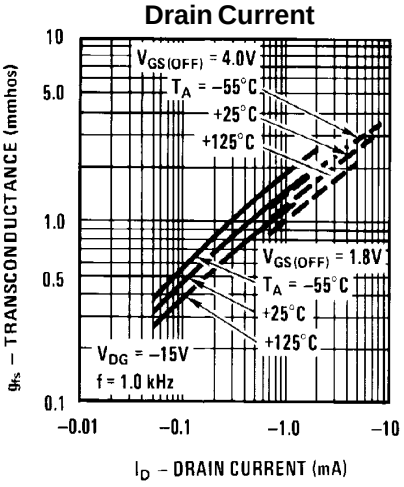


Typical Characteristics (continued)

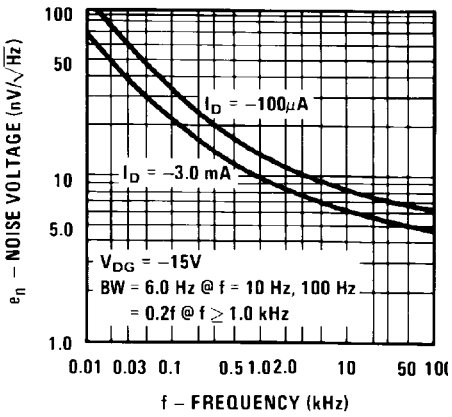
Output Conductance vs. Drain Current



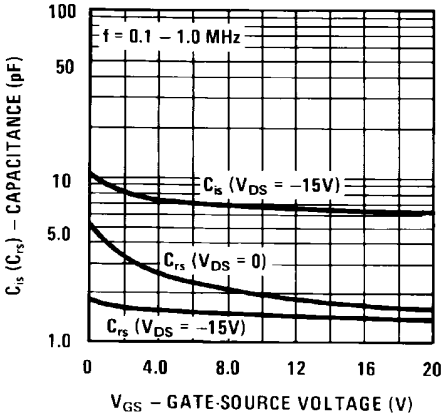
Transconductance vs. Drain Current



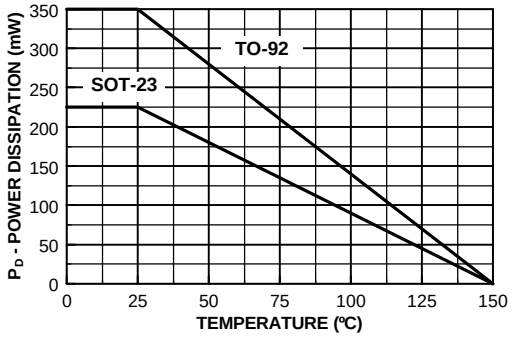
Noise Voltage vs. Frequency



Capacitance vs. Voltage



Power Dissipation vs. Ambient Temperature



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