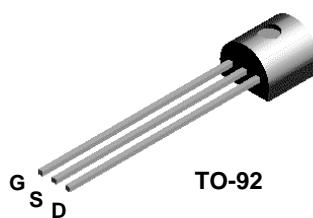


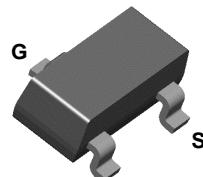


**2N5460
2N5461
2N5462**



TO-92

**MMBF5460
MMBF5461
MMBF5462**

SOT-23
Mark: 6E / 61U / 61VNOTE: 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	$I_G = 10 \mu A, V_{DS} = 0$	40			V
I_{GSS}	Gate Reverse Current	$V_{GS} = 20 V, V_{DS} = 0$ $V_{GS} = 20 V, V_{DS} = 0, T_A = 100^\circ C$			5.0 1.0	nA μA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = 15 V, I_D = 1.0 \mu A$ 5460 5461 5462	0.75 1.0 1.8		6.0 7.5 9.0	V V V
V_{GS}	Gate-Source Voltage	$V_{DS} = 15 V, I_D = 0.1 mA$ 5460 $V_{DS} = 15 V, I_D = 0.2 mA$ 5461 $V_{DS} = 15 V, I_D = 0.4 mA$ 5462	0.5 0.8 1.5		4.0 4.5 6.0	V V V

ON CHARACTERISTICS

I_{bss}	Zero-Gate Voltage Drain Current*	$V_{DS} = 15 V, V_{GS} = 0$	5460 5461 5462	- 1.0 - 2.0 - 4.0		- 5.0 - 9.0 - 16	mA mA mA
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SMALL SIGNAL CHARACTERISTICS

g_{fs}	Forward Transfer Conductance	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 \text{ kHz}$ 5460 5461 5462	1000 1500 2000		4000 5000 6000	μmhos μmhos μmhos
g_{os}	Output Conductance	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 \text{ kHz}$			75	μmhos
C_{iss}	Input Capacitance	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 \text{ MHz}$		5.0	7.0	pF
C_{rss}	Reverse Transfer Capacitance	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 \text{ MHz}$		1.0	2.0	pF
NF	Noise Figure	$V_{DS} = 15 V, V_{GS} = 0,$ $R_G = 1.0 \text{ megohm}, f = 100 \text{ Hz},$ $BW = 1.0 \text{ Hz}$		1.0	2.5	dB
e_n	Equivalent Short-Circuit Input Noise Voltage	$V_{DS} = 15 V, V_{GS} = 0, f = 100 \text{ Hz},$ $BW = 1.0 \text{ Hz}$		60	115	nV/ $\sqrt{\text{Hz}}$

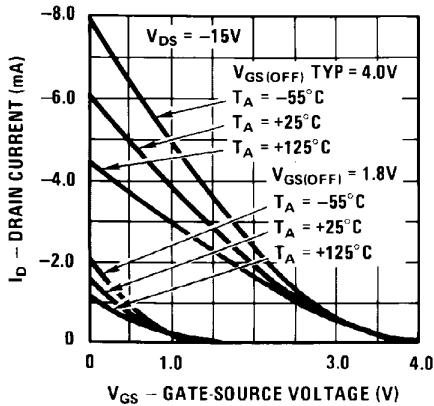
*Pulse Test: Pulse Width $\leq 300 \text{ ms}$, Duty Cycle $\leq 2\%$

P-Channel General Purpose Amplifier

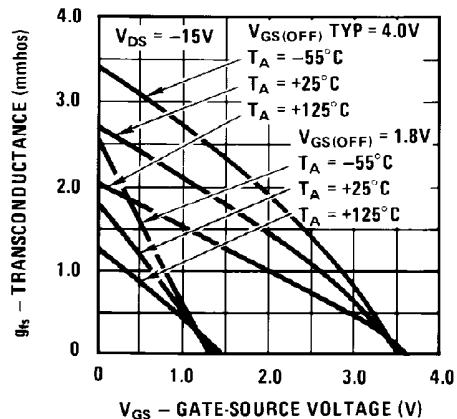
(continued)

Typical Characteristics (continued)

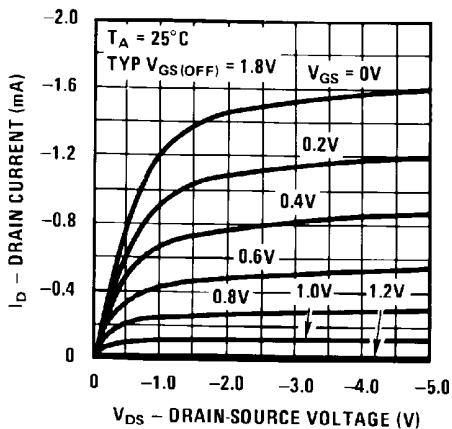
Transfer Characteristics



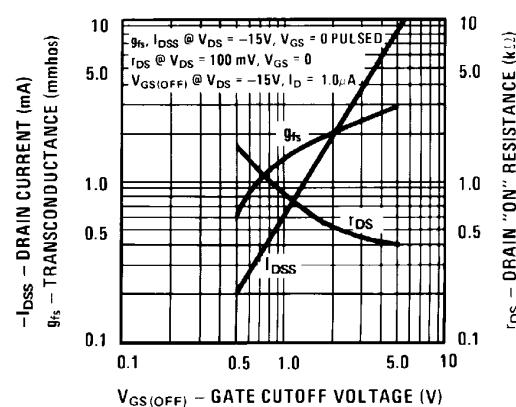
Transfer Characteristics



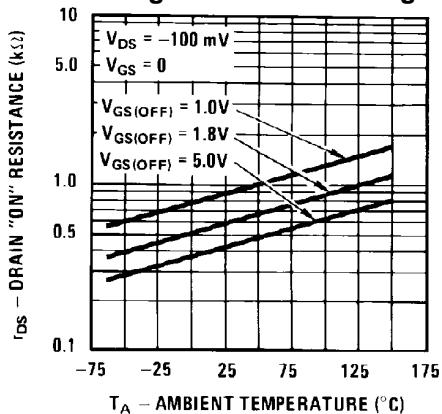
Common Drain-Source



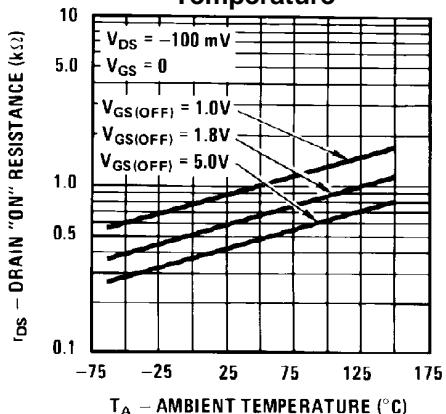
Parameter Interactions



Leakage Current vs. Voltage



Channel Resistance vs. Temperature

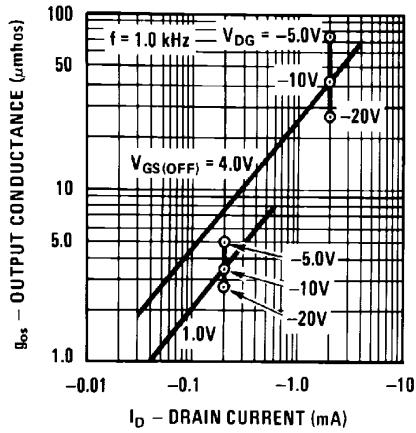


P-Channel General Purpose Amplifier

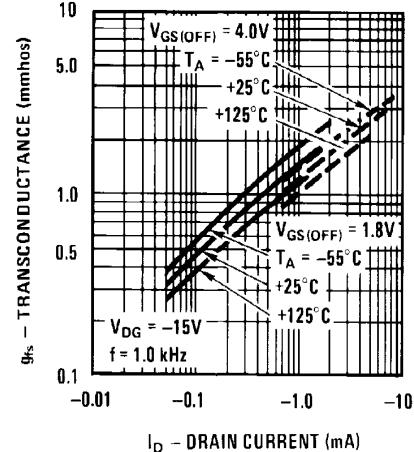
(continued)

Typical Characteristics (continued)

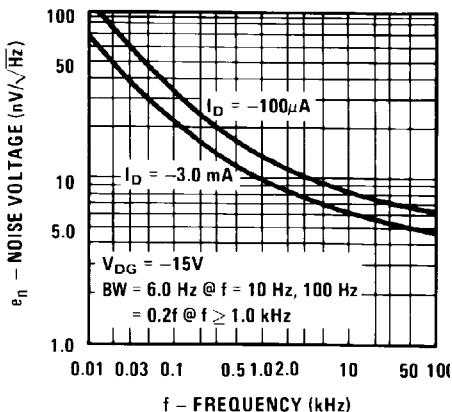
Output Conductance vs.
Drain Current



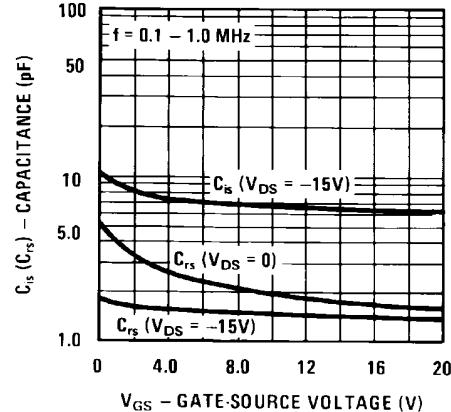
Transconductance vs.
Drain Current



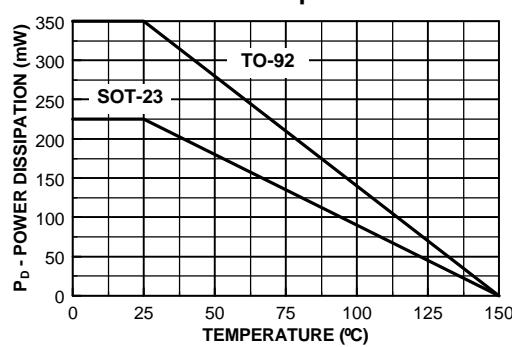
Noise Voltage vs. Frequency



Capacitance vs. Voltage



Power Dissipation vs.
Ambient Temperature



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