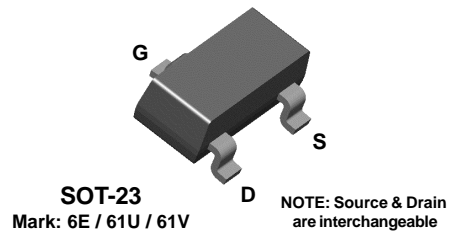
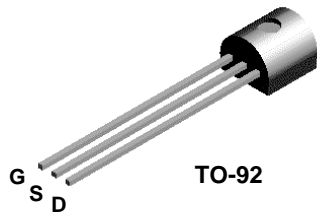


**2N5460**  
**2N5461**  
**2N5462**

**MMBF5460**  
**MMBF5461**  
**MMBF5462**



## 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	225	mW
		2.8	1.8	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."

2N5460 / 5461 / 5462 / MMBF5460 / MMBF5461 / MMBF5462

## P-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	$I_G = 10 \mu A, V_{DS} = 0$	40			V
$I_{GSS}$	Gate Reverse Current	$V_{GS} = 20 V, V_{DS} = 0$			5.0	nA
		$V_{GS} = 20 V, V_{DS} = 0, T_A = 100^\circ C$			1.0	$\mu A$
$V_{GS(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = 15 V, I_D = 1.0 \mu A$	<b>5460</b>	0.75	6.0	V
			<b>5461</b>	1.0	7.5	V
			<b>5462</b>	1.8	9.0	V
$V_{GS}$	Gate-Source Voltage	$V_{DS} = 15 V, I_D = 0.1 mA$	<b>5460</b>	0.5	4.0	V
			<b>5461</b>	0.8	4.5	V
			<b>5462</b>	1.5	6.0	V

#### ON CHARACTERISTICS

$I_{DSS}$	Zero-Gate Voltage Drain Current*	$V_{DS} = 15 V, V_{GS} = 0$	<b>5460</b>	- 1.0	- 5.0	mA
			<b>5461</b>	- 2.0	- 9.0	mA
			<b>5462</b>	- 4.0	- 16	mA

#### SMALL SIGNAL CHARACTERISTICS

$g_{fs}$	Forward Transfer Conductance	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz$				
		<b>5460</b>	1000		4000	$\mu mhos$
		<b>5461</b>	1500		5000	$\mu mhos$
		<b>5462</b>	2000		6000	$\mu mhos$
$g_{os}$	Output Conductance	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz$			75	$\mu mhos$
$C_{iss}$	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  $\leq 300 ms$ , Duty Cycle  $\leq 2\%$

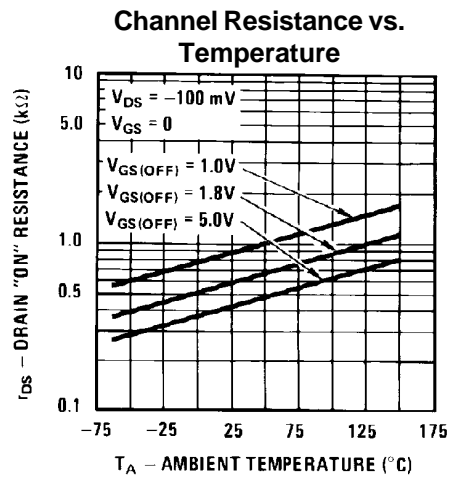
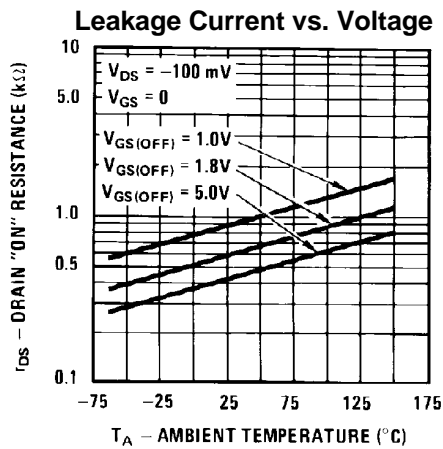
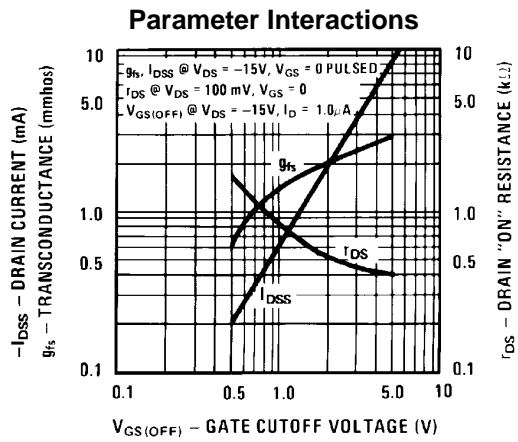
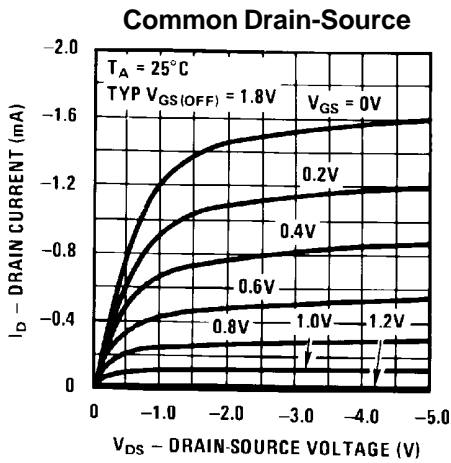
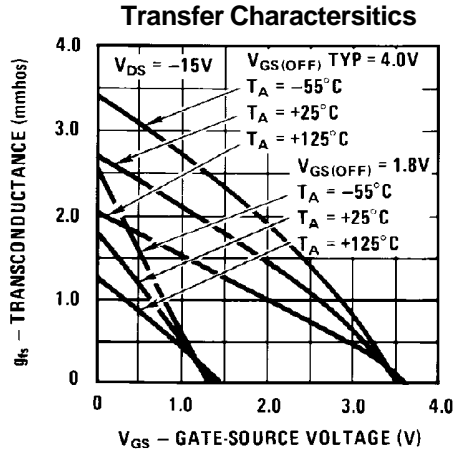
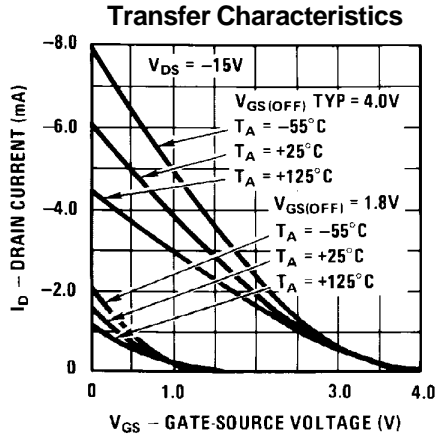
2N5460 / 5461 / 5462 / MMBF5460 / MMBF5461 / MMBF5462

# P-Channel General Purpose Amplifier

(continued)

2N5460 / 5461 / 5462 / MMBF5460 / MMBF5461 / MMBF5462

## Typical Characteristics (continued)



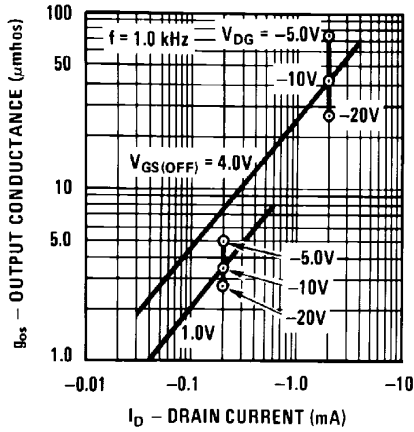
# P-Channel General Purpose Amplifier

(continued)

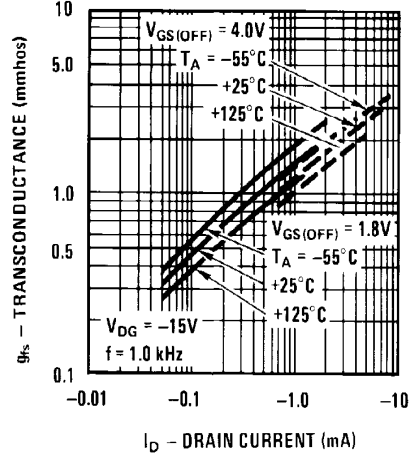
2N5460 / 5461 / 5462 / MMBF5460 / MMBF5461 / MMBF5462

## Typical Characteristics (continued)

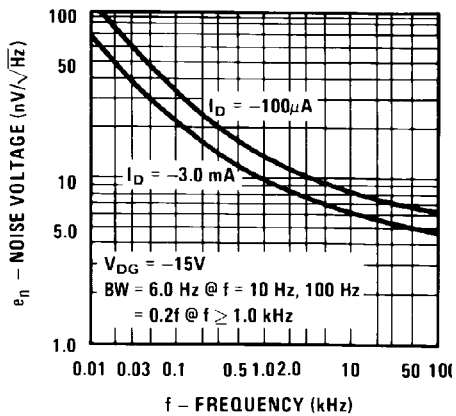
### Output Conductance vs. Drain Current



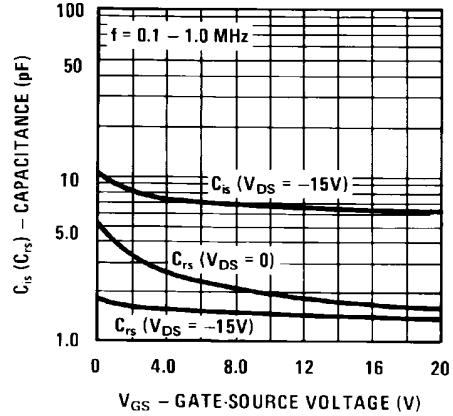
### Transconductance vs. Drain Current



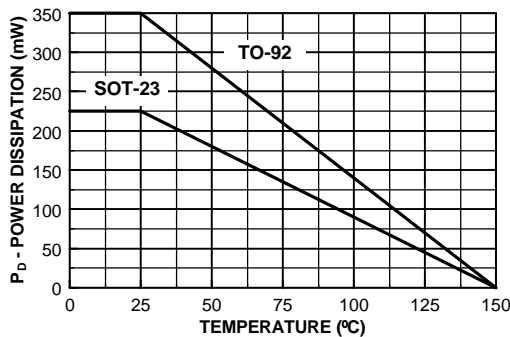
### Noise Voltage vs. Frequency



### Capacitance vs. Voltage



### Power Dissipation vs. Ambient Temperature



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EnSigna <sup>™</sup>	MicroFET <sup>™</sup>	SILENT SWITCHER <sup>®</sup>	
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