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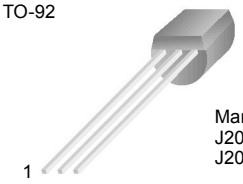
FAIRCHILD SEMICONDUCTOR®

January 2008

J201 - J202 / MMBFJ201 - MMBFJ203
N-Channel General Purpose Amplifier

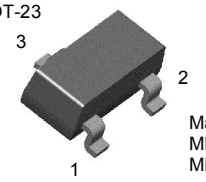
- This device is designed primarily for low level audio and general purpose applications with high impedance signal sources.
- Sourced from Process 52.

TO-92



1. Drain 2. Source 3. Gate

SOT-23



Marking
MMBFJ201 : 62P
MMBFJ202 : 62Q

1. Drain 2. Source 3. Gate

Absolute Maximum Ratings * T_a=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	50	mA
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 ~ 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°C.

2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics* T_a=25°C unless otherwise noted

Symbol	Parameter	Value		Units
		J201 - J202	MMBFJ201 - MMBFJ203	
P_D	Total Device Dissipation Derate above 25°C	625 5.0	350 2.8	W 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" × 1.6" × 0.06"

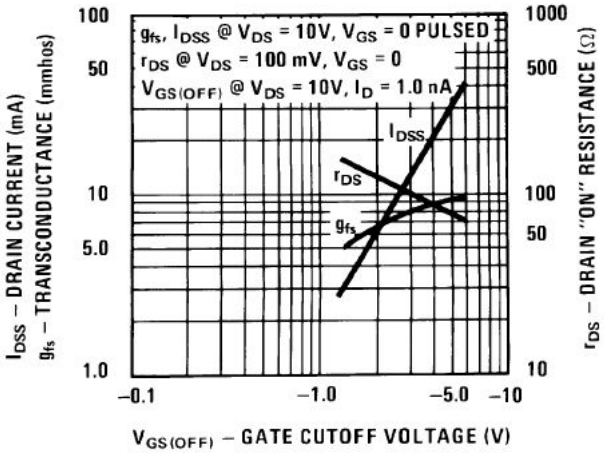
Electrical Characteristics * T_C = 25°C unless otherwise noted

Symbol	Parameter	Conditions		Min.	Max	Units
Off Characteristics						
$V_{(BR)GSS}$	Gate-Source Breakdwon Voltage	I_G = -1μA, V_{DS} = 0		-40		V
I_{GSS}	Gate Reverse Current	V_{GS} = -20V, V_{DS} = 0			-100	pA
V_{GS}(off)	Gate-Source Cutoff Voltage	V_{DS} = 20V, I_D = 10nA	201 202 203	-0.3 -0.8 -2	-1.5 -4 -10	V
On Characteristics						
I_{DSS}	Zero-Gate Voltage Drain Current *	V_{DS} = 20V, I_{GS} = 0	201 202 203	0.2 0.9 4	1.0 4.5 20	mA
Small Signal Characteristics						
y_{FS}	Forward Transfer Admittance	V_{DS} = 20V, f = 1.0kHz	201 202 203	500 1000 1500		μmhos

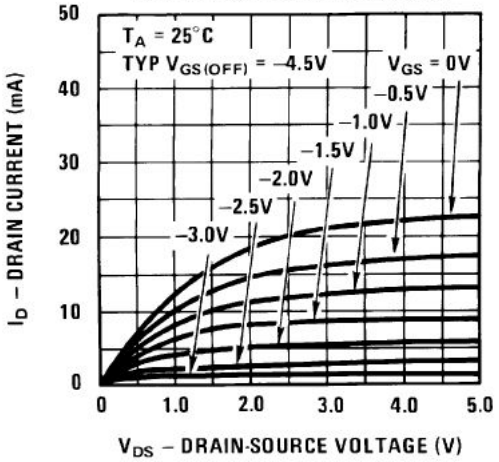
* Pulse Test: Pulse Width ≤ 300ms, Duty Cycle ≤ 2.0%

Typical Characteristics

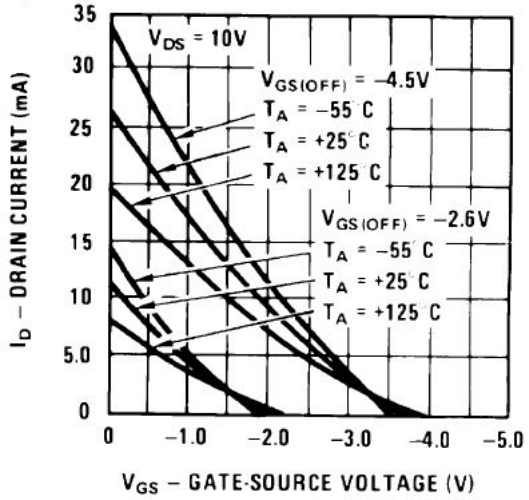
Parameter Interactions



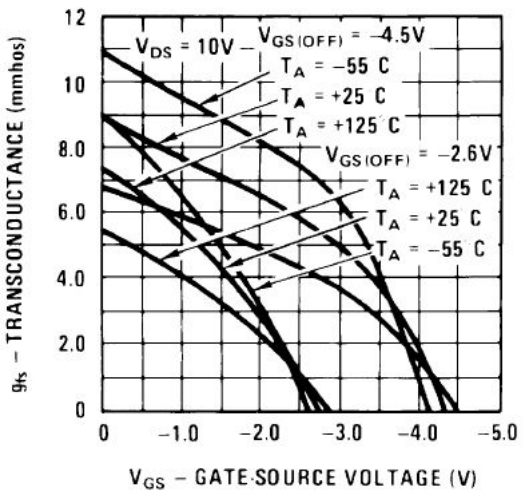
Common Drain-Source



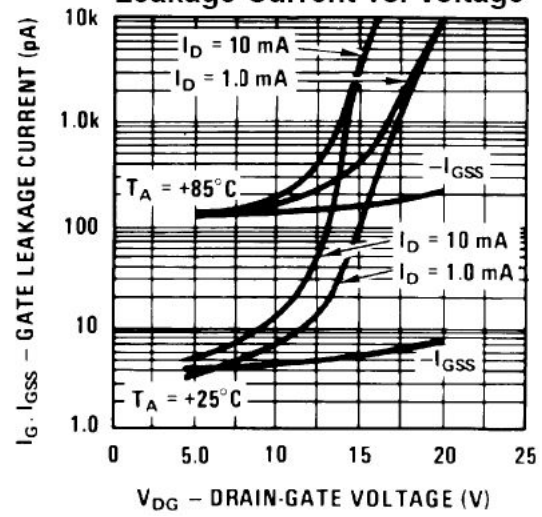
Transfer Characteristics



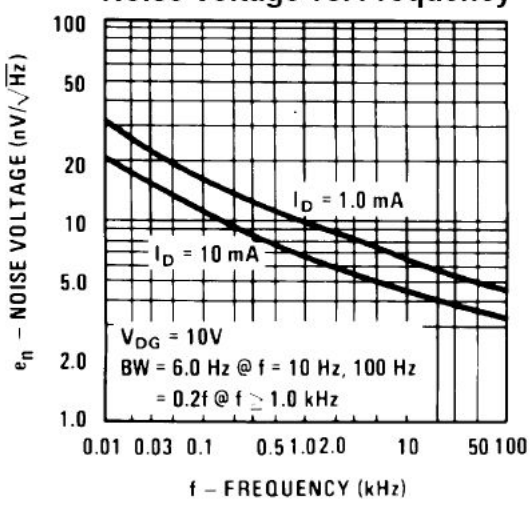
Transfer Characteristics



Leakage Current vs. Voltage

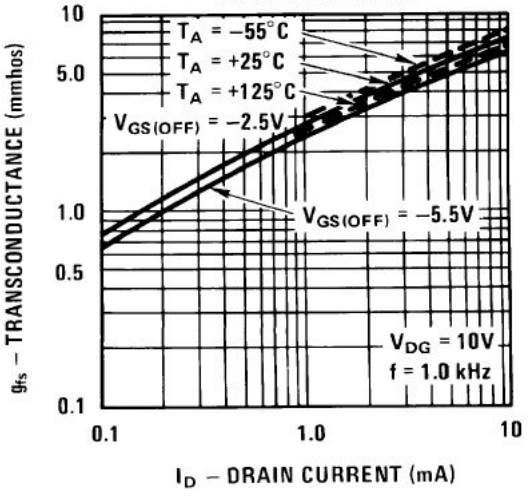


Noise Voltage vs. Frequency

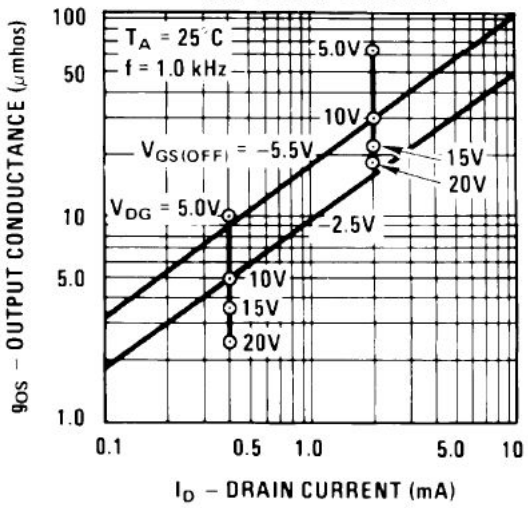


Typical Characteristics (Continued)

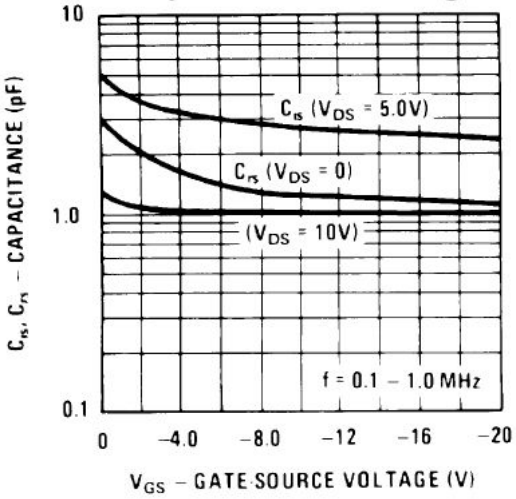
Transconductance vs. Drain Current



Output Conductance vs. Drain Current

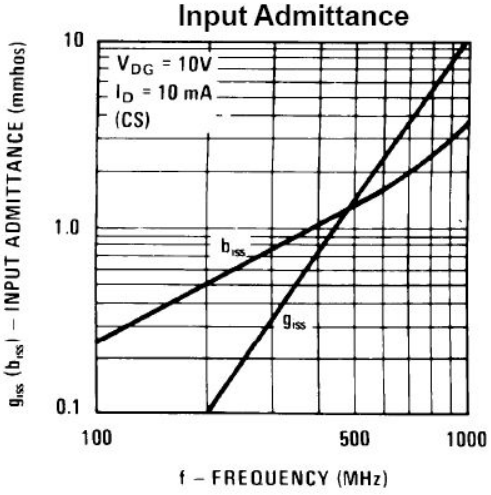


Capacitance vs. Voltage

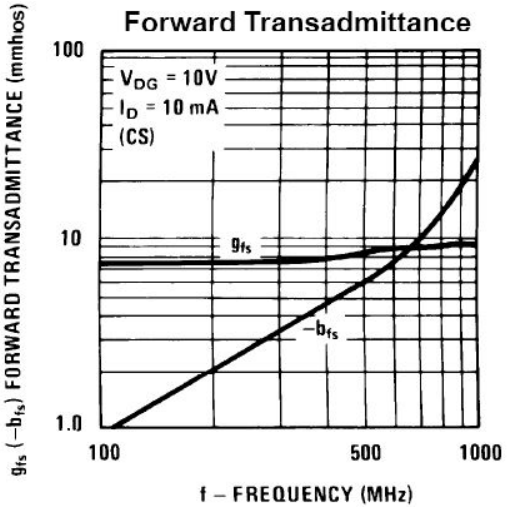


Typical Characteristics (Continued)

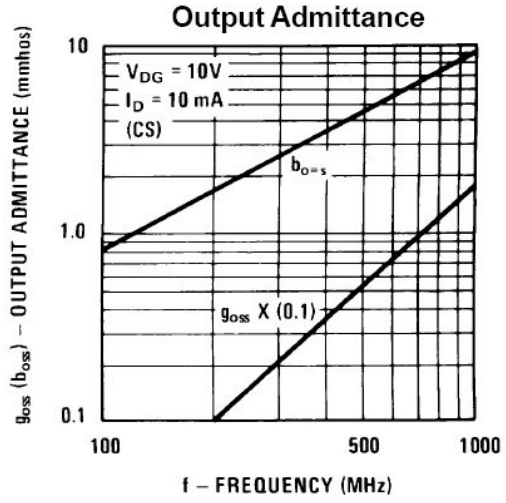
Input Admittance



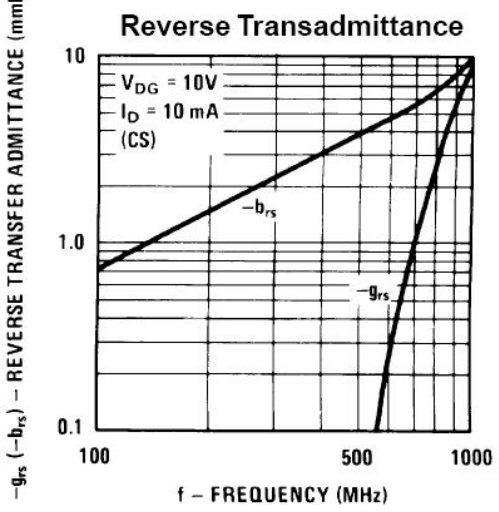
Forward Transadmittance



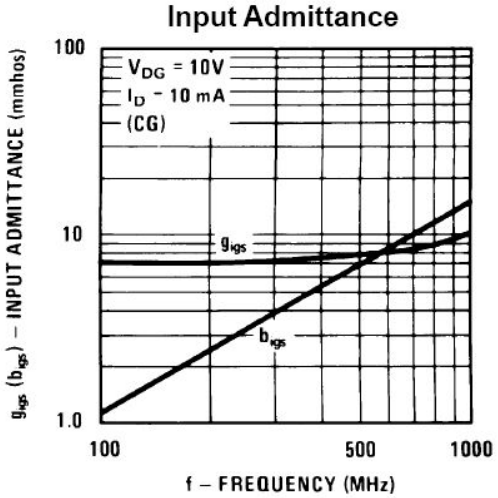
Output Admittance



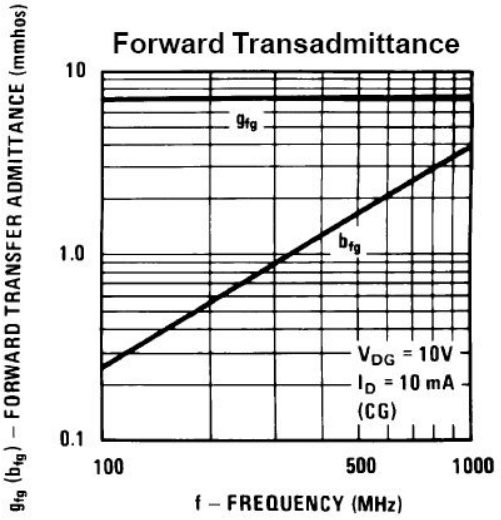
Reverse Transadmittance



Input Admittance

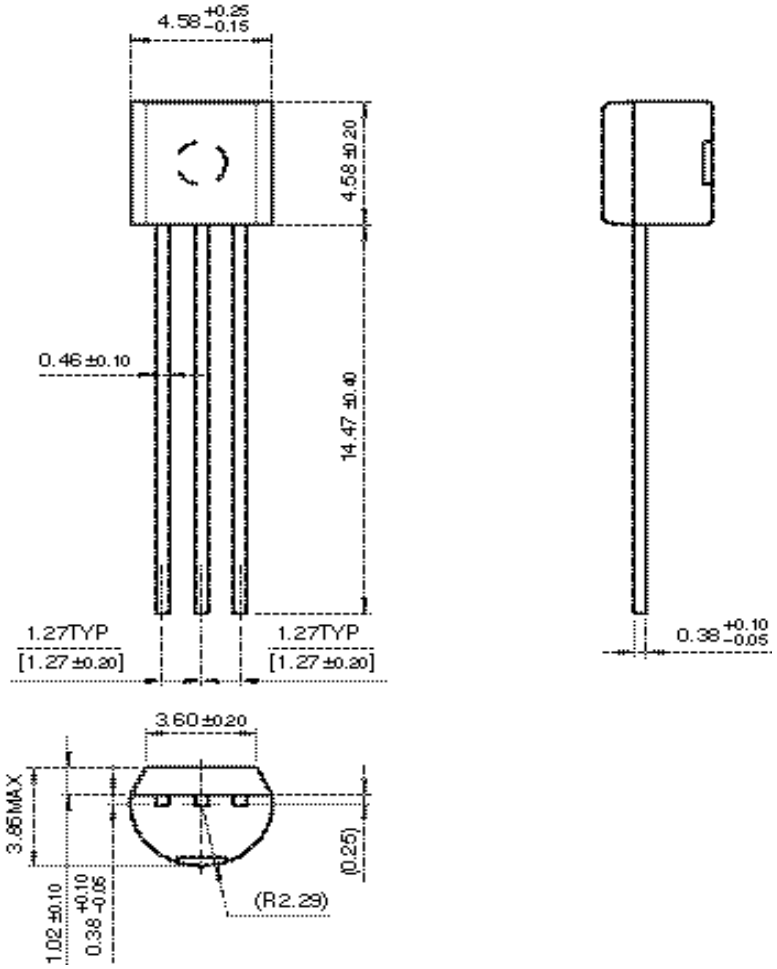


Forward Transadmittance



Mechanical Dimensions

TO-92



Mechanical Dimensions

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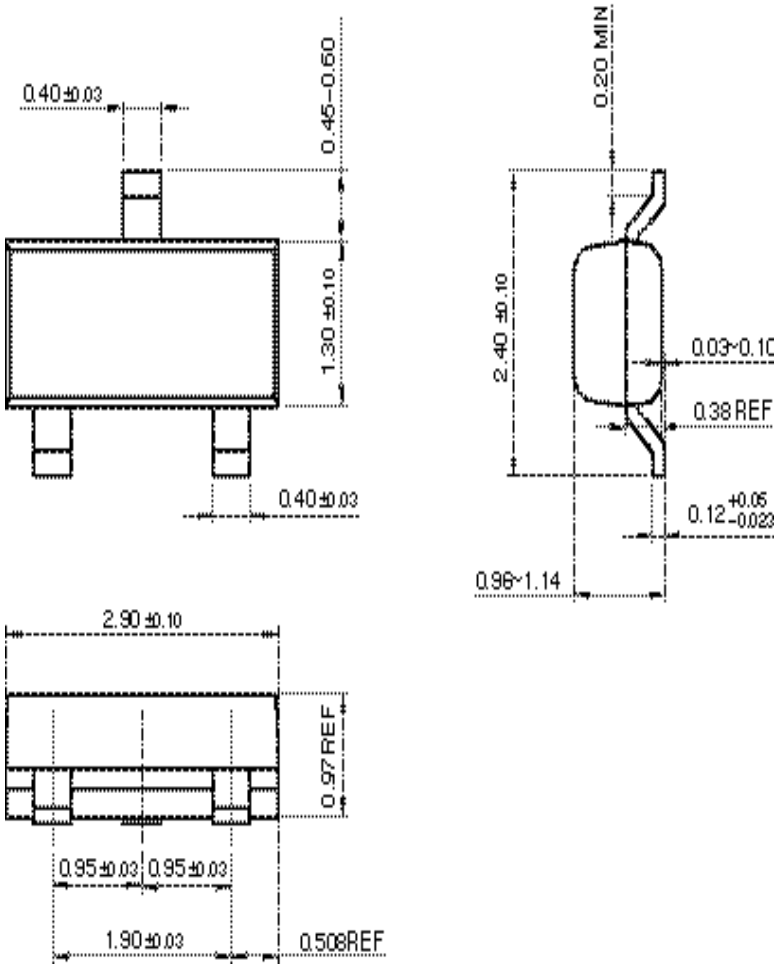

Dimensions in Millimeters

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