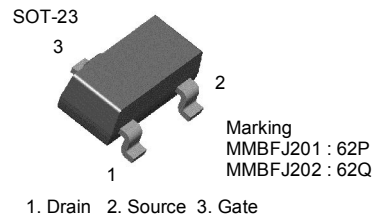
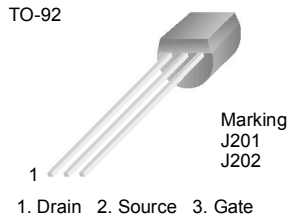


# J201 - J202 / MMBFJ201 - MMBFJ203 N-Channel General Purpose Amplifier

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



## Absolute Maximum Ratings\* $T_a=25^\circ\text{C}$ 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	$^\circ\text{C}$

\* 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  $150^\circ\text{C}$ .
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

## Thermal Characteristics\* $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value		Units
		J201 - J202	MMBFJ201 - MMBFJ203	
$P_D$	Total Device Dissipation	625	350	W
	Derate above $25^\circ\text{C}$	5.0	2.8	mW/ $^\circ\text{C}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125		$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	556	$^\circ\text{C}/\text{W}$

\* Device mounted on FR-4 PCB  $1.6'' \times 1.6'' \times 0.06''$

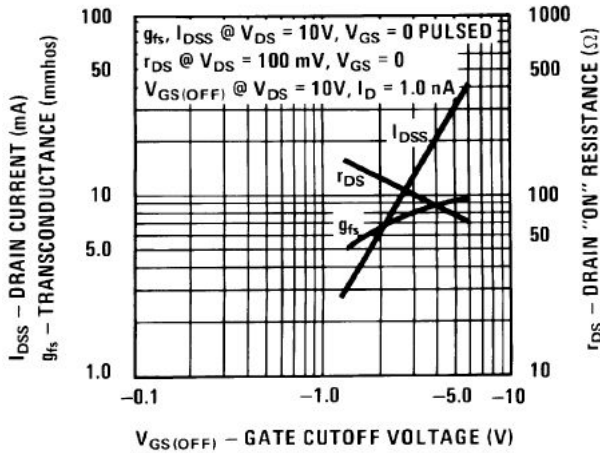
**Electrical Characteristics \***  $T_C = 25^\circ\text{C}$  unless otherwise noted

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

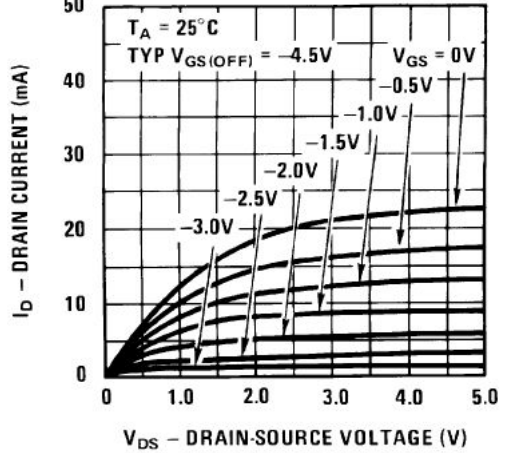
\* Pulse Test: Pulse Width  $\leq 300\text{ms}$ , Duty Cycle  $\leq 2.0\%$

# Typical Characteristics

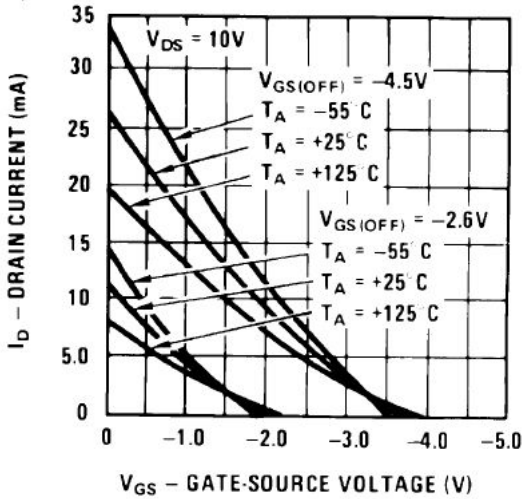
Parameter Interactions



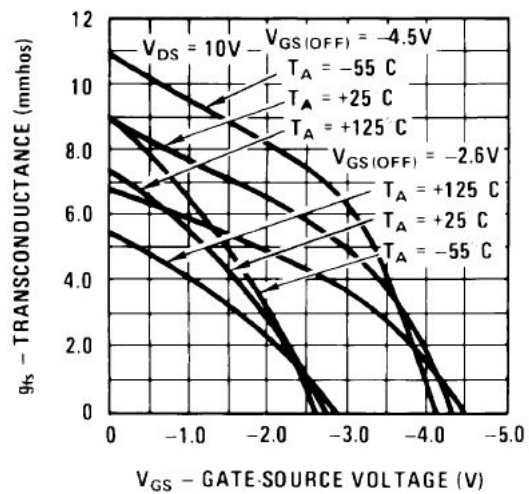
Common Drain-Source



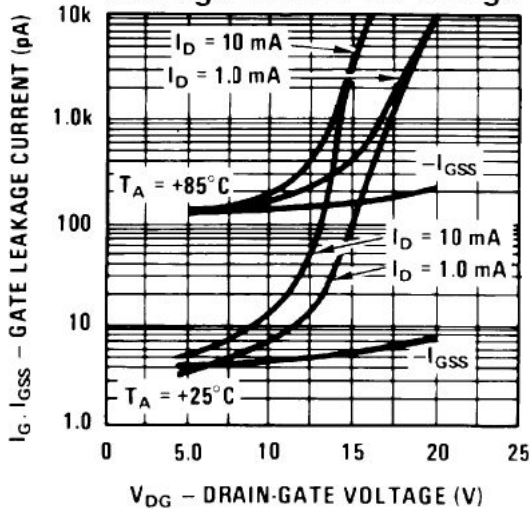
Transfer Characteristics



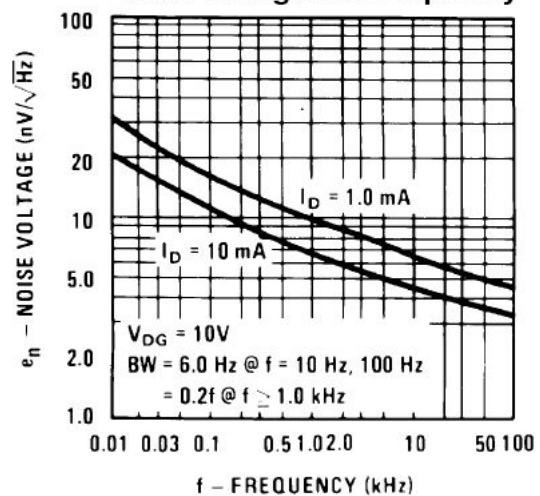
Transfer Characteristics



Leakage Current vs. Voltage

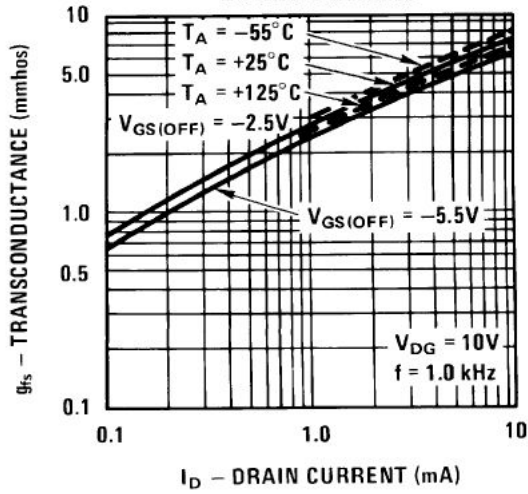


Noise Voltage vs. Frequency

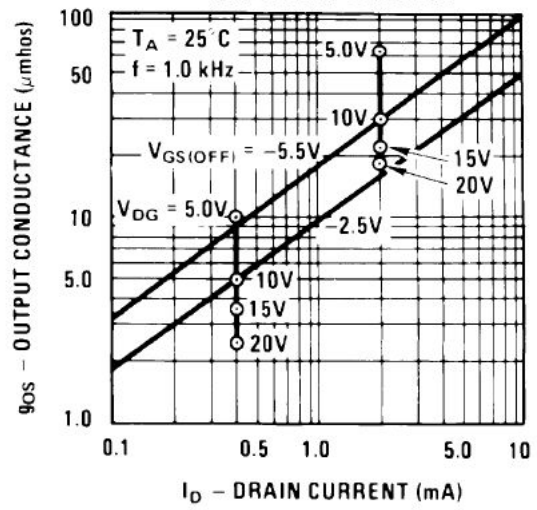


**Typical Characteristics** (Continued)

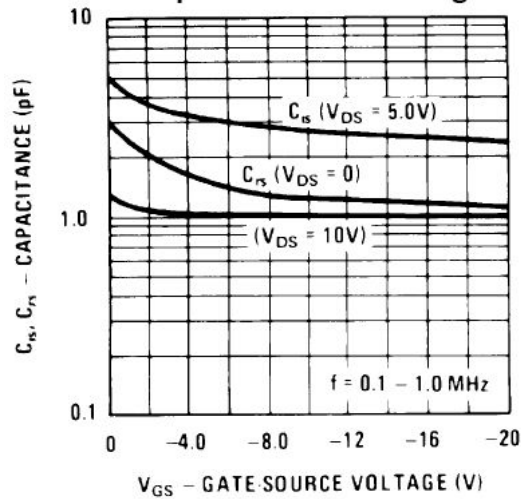
**Transconductance vs. Drain Current**



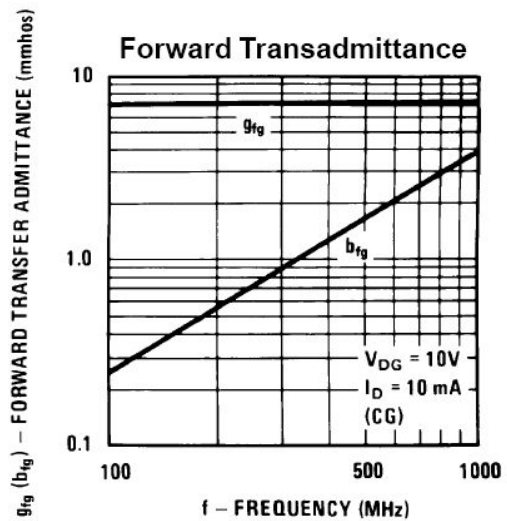
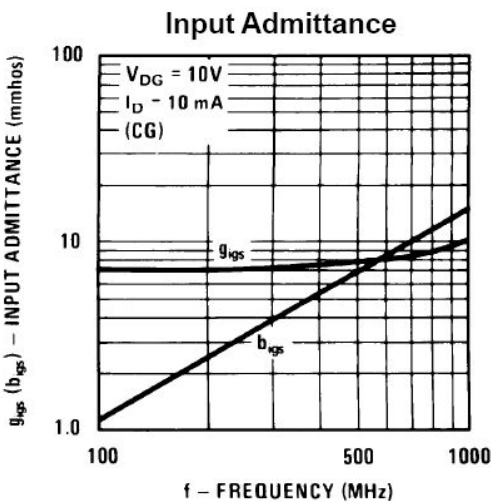
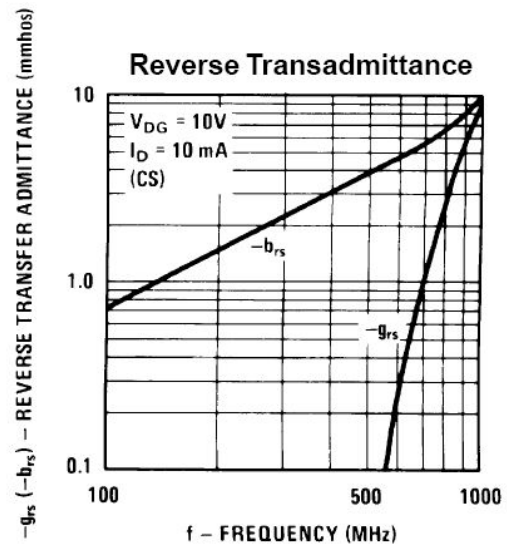
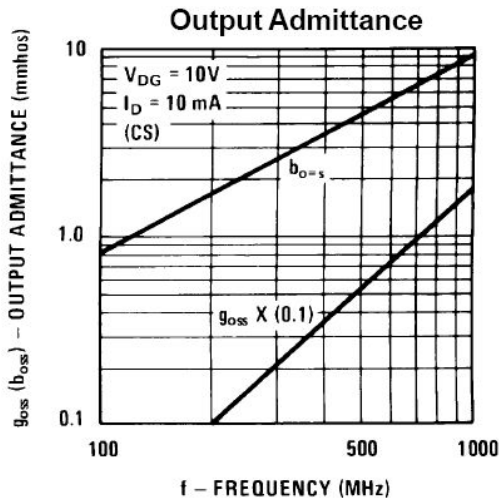
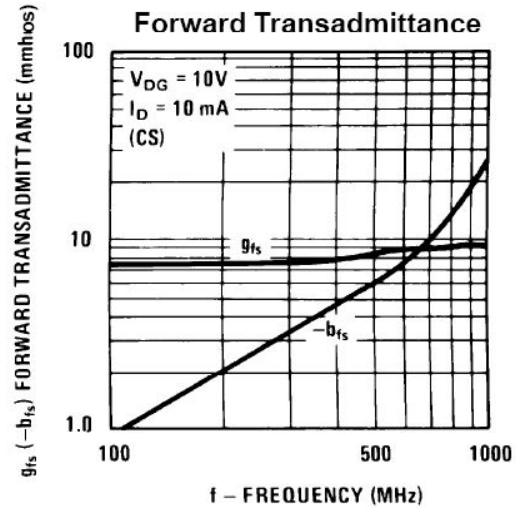
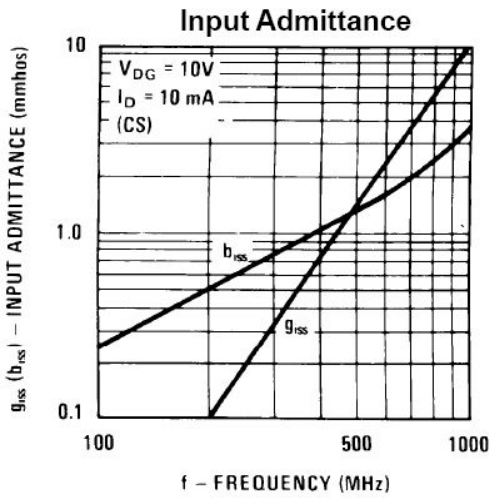
**Output Conductance vs. Drain Current**



**Capacitance vs. Voltage**

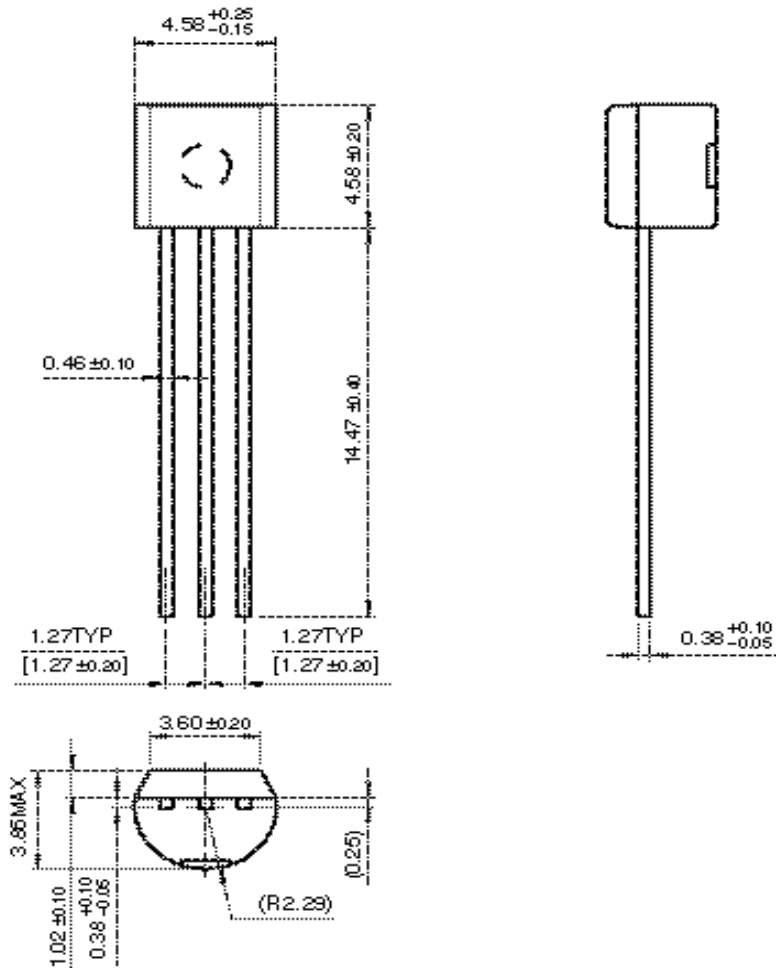


Typical Characteristics (Continued)



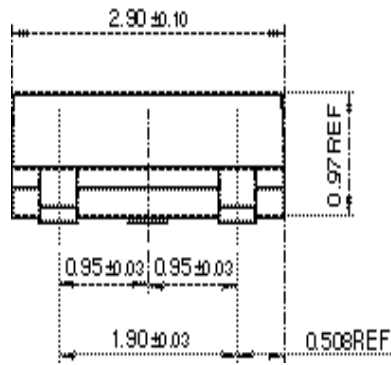
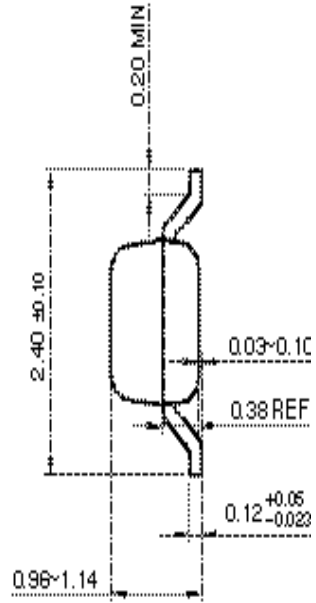
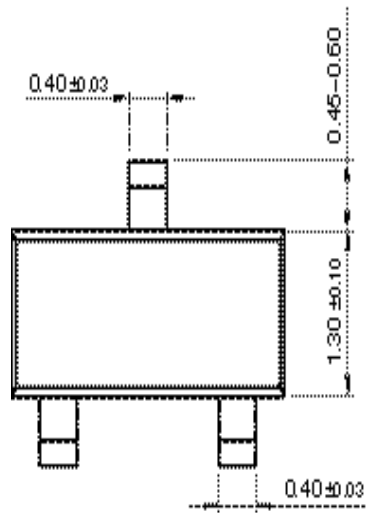
# Mechanical Dimensions

## TO-92



### Mechanical Dimensions

## SOT-23




Dimensions in Millimeters



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