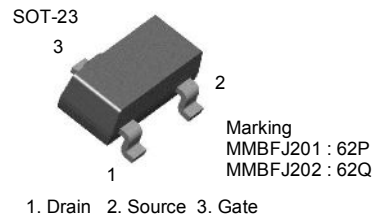
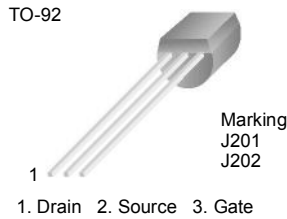


J201 - J202 / MMBFJ201 - MMBFJ203 N-Channel General Purpose Amplifier

- 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°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°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 $1.6'' \times 1.6'' \times 0.06''$

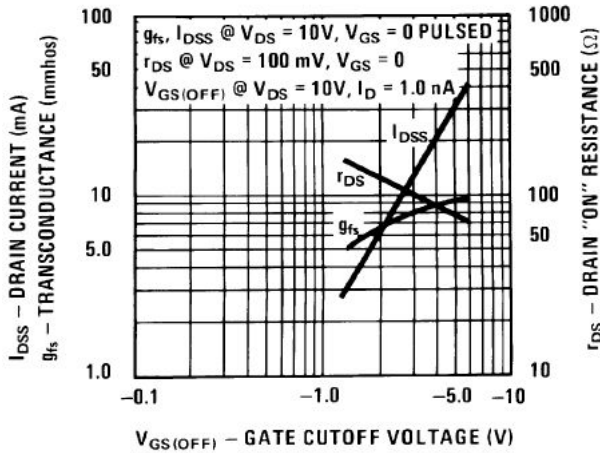
Electrical Characteristics * $T_C = 25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Conditions | Min. | Max | Units | |
|-------------------------------------|-----------------------------------|--|------|------|-------|------------------|
| Off Characteristics | | | | | | |
| $V_{(BR)GSS}$ | 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 | |
| On Characteristics | | | | | | |
| 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 | |
| Small Signal Characteristics | | | | | | |
| y_{FS} | Forward Transfer Admittance | $V_{DS} = 20\text{V}, f = 1.0\text{kHz}$ | 201 | 500 | | μmhos |
| | | | 202 | 1000 | | |
| | | | 203 | 1500 | | |

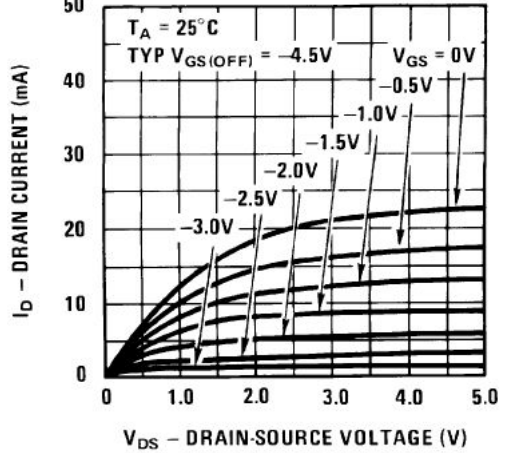
* Pulse Test: Pulse Width $\leq 300\text{ms}$, Duty Cycle $\leq 2.0\%$

Typical Characteristics

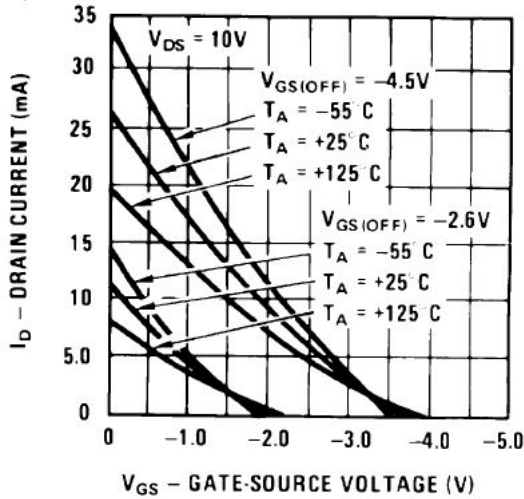
Parameter Interactions



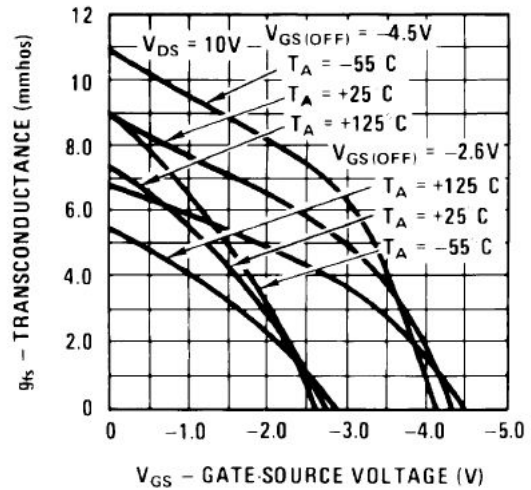
Common Drain-Source



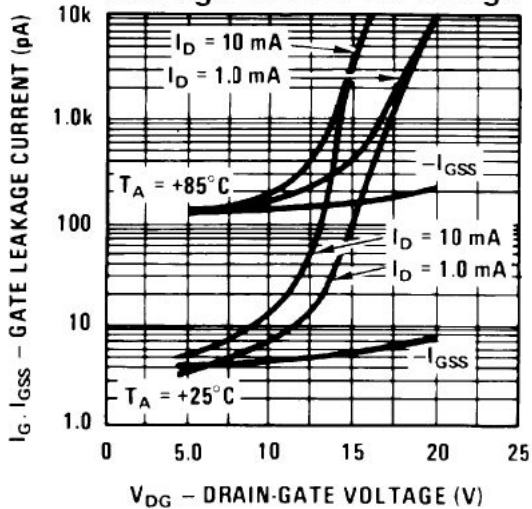
Transfer Characteristics



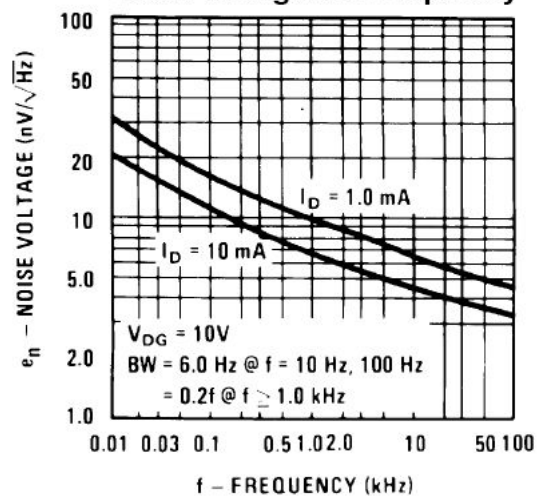
Transfer Characteristics



Leakage Current vs. Voltage

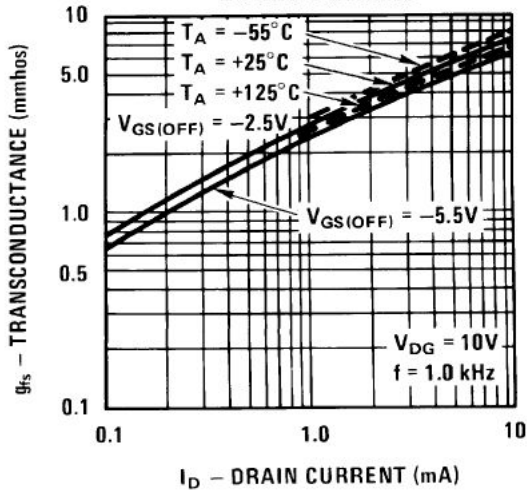


Noise Voltage vs. Frequency

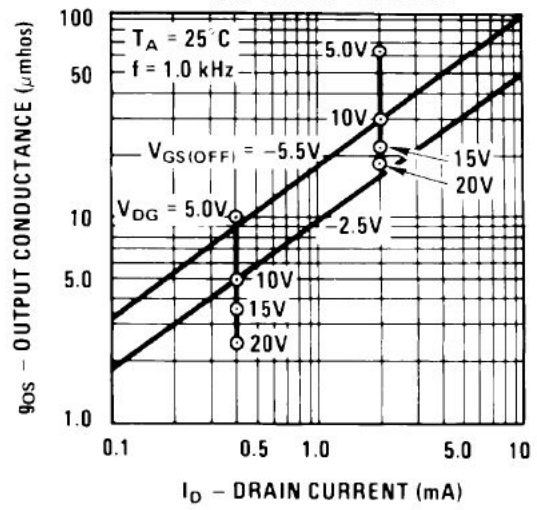


Typical Characteristics (Continued)

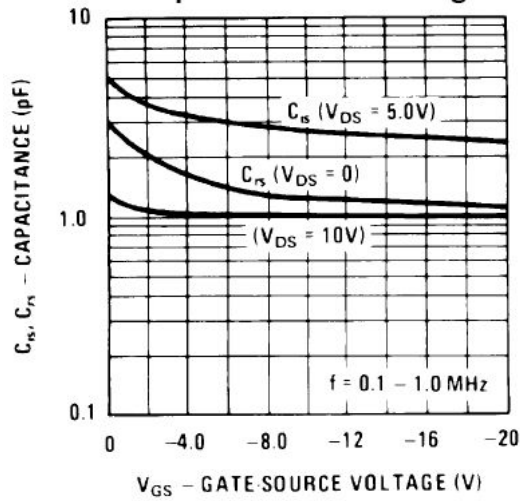
Transconductance vs. Drain Current



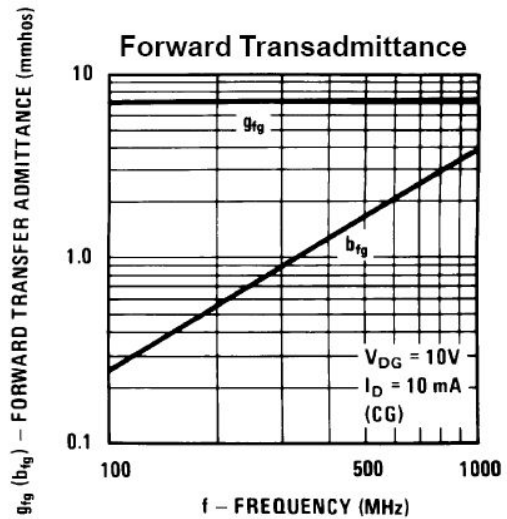
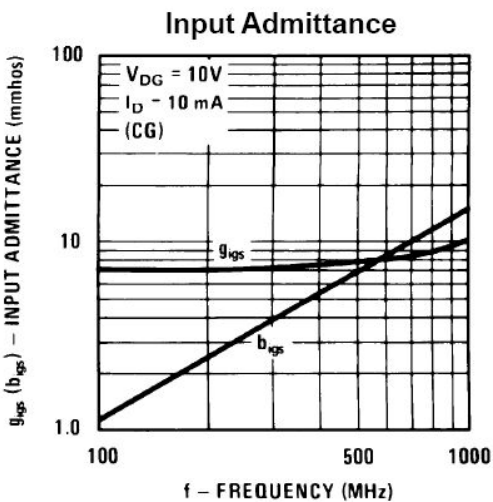
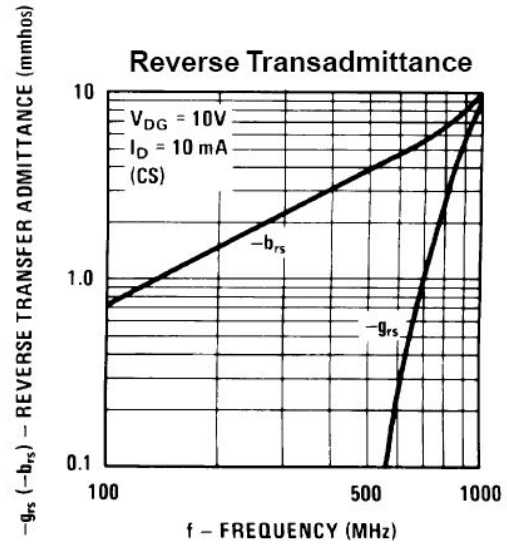
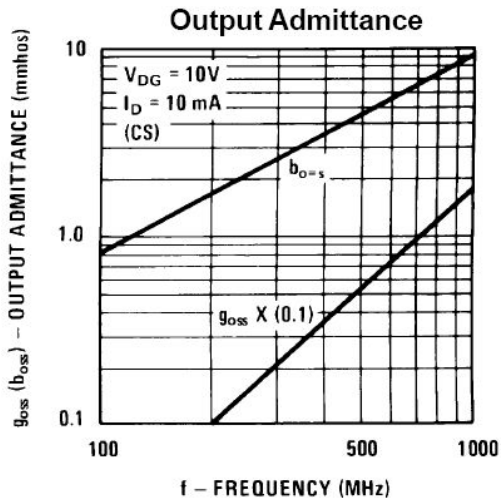
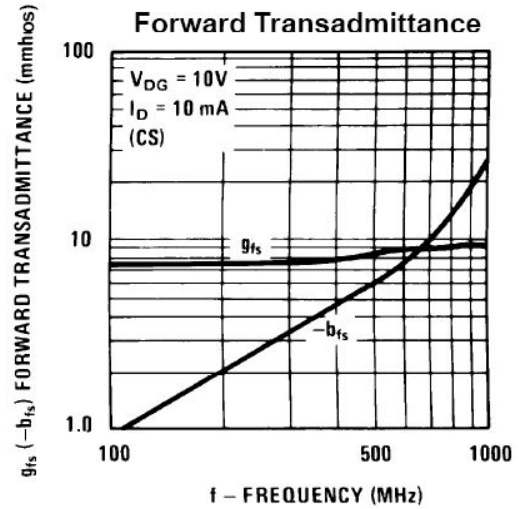
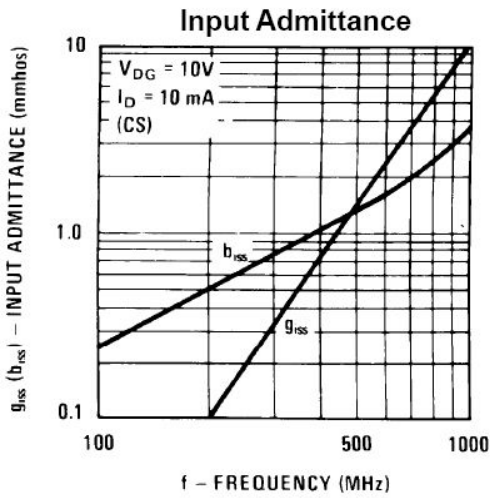
Output Conductance vs. Drain Current



Capacitance vs. Voltage

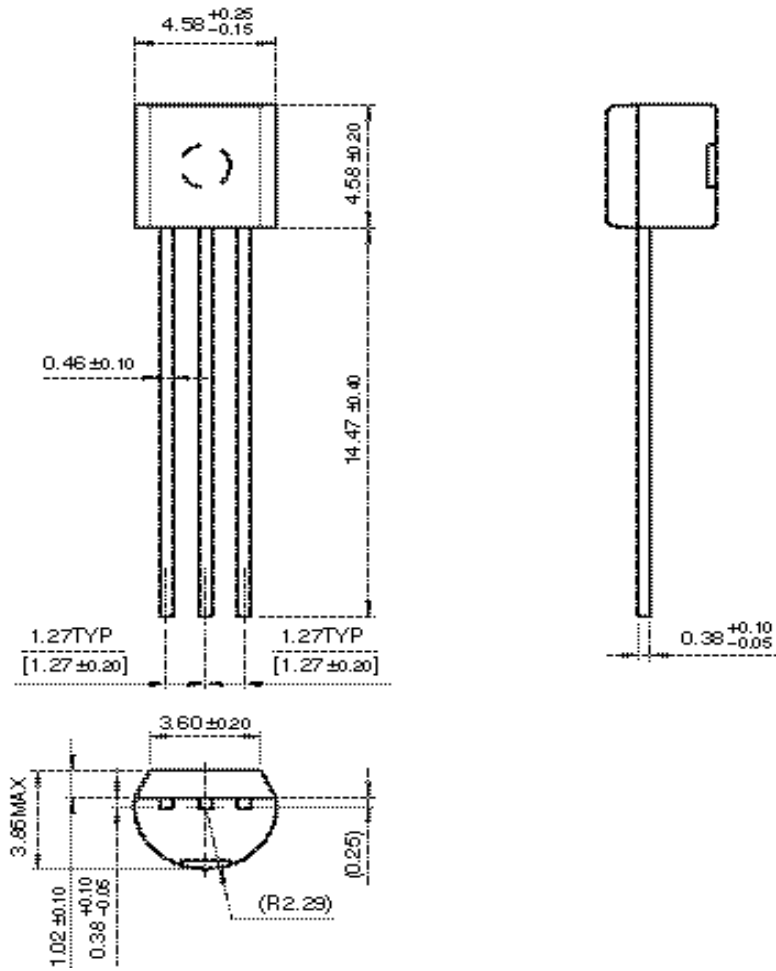


Typical Characteristics (Continued)



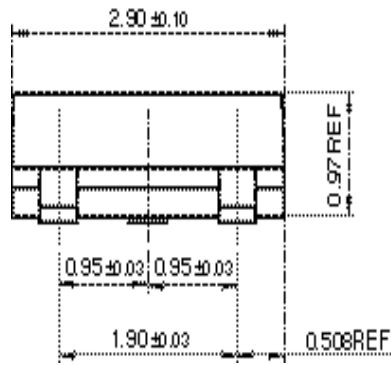
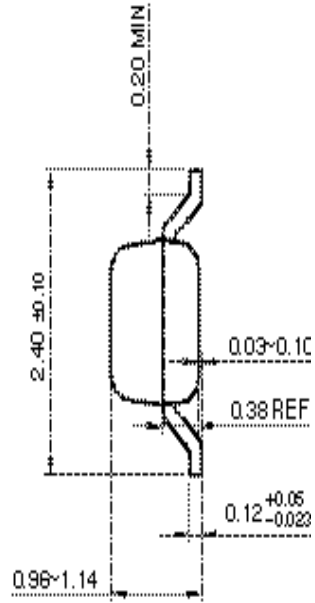
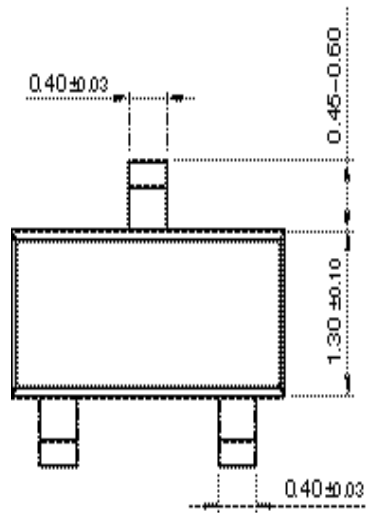
Mechanical Dimensions

TO-92



Mechanical Dimensions

SOT-23






Dimensions in Millimeters



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