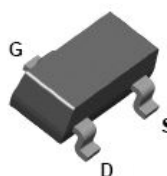


MMBF102

N-Channel RF Amplifier

Features

- This device is designed primarily for electronic switching applications such as low On Resistance analog switching.
- Sourced from process 50



SOT - 23
Mark : 61Y

Absolute Maximum Ratings* $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Value | Units |
|----------------|---------------------------|-------------|------------------|
| V_{DG} | Drain-Gate Voltage | 25 | V |
| V_{GS} | Gate-Source Voltage | -25 | V |
| I_{GF} | Forward Gate Current | 10 | mA |
| T_J, T_{STG} | Storage Temperature Range | -55 to +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 degrees 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 | Unit |
|-----------------|---|-------|----------------------------|
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 556 | $^\circ\text{C}/\text{W}$ |
| P_D | Total Device Dissipation($T_C=25^\circ\text{C}$) Derate above 25°C | 225 | mW |
| | | 1.8 | $\text{mW}/^\circ\text{C}$ |

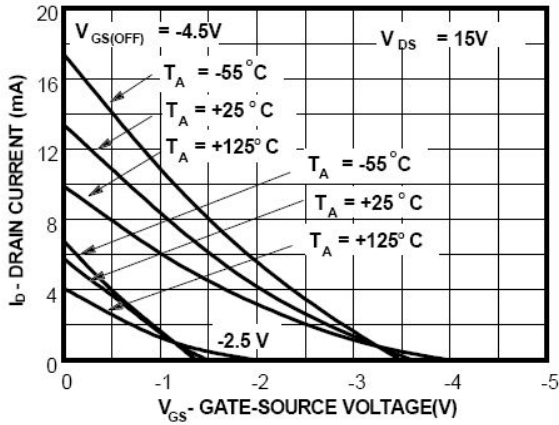
*Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06".

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

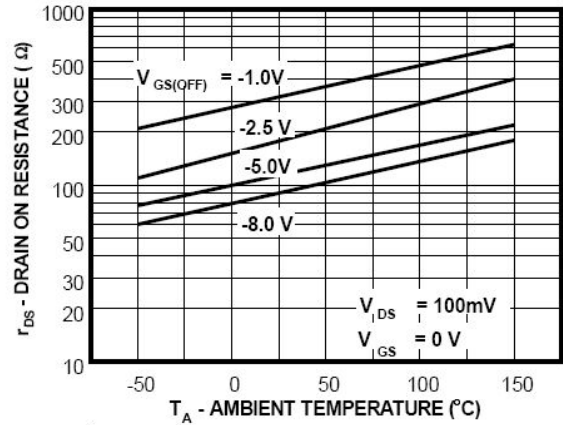
| Symbol | Parameter | Test Conditions | Min. | Max. | Units |
|-------------------------------------|--|--|------|--------------|---------------------|
| Off Characteristics | | | | | |
| $V_{(BR)GSS}$ | Gate-Source Breakdown Voltage | $I_G = -1.0\mu\text{A}$, $V_{DS} = 0$ | -25 | | V |
| I_{GSS} | Gate Reverse Current | $V_{GS} = -15\text{V}$, $V_{DS} = 0$ $T = 100^\circ\text{C}$ | | -2.0 -2.0 | nA μA |
| $V_{GS(off)}$ | Gate-Source Cutoff Voltage | $V_{DS} = 15\text{V}$, $I_D = 2\text{nA}$ | | -8.0 | V |
| V_{GS} | Gate-Source Voltage | $V_{DS} = 15\text{V}$, $I_D = 200\mu\text{A}$ | -0.5 | -7.5 | V |
| On Characteristics * | | | | | |
| I_{DSS} | Zero-Gate Voltage Drain Current | $V_{DS} = 15\text{V}$, $V_{GS} = 0$ | 2.0 | 20 | mA |
| gfs | Forward Transconductance | $V_{GS} = 0\text{V}$, $V_{DS} = 15\text{V}$, $f = 1\text{kHz}$ | 2000 | 7500 | μS |
| Small Signal Characteristics | | | | | |
| C_{ISS} | Common-Source Input Capacitance | $V_{GS} = 0\text{V}$, $V_{DS} = 15\text{V}$, $f = 1\text{MHz}$ | | 7.0 | pF |
| C_{RSS} | Common-Source Reverse Transfer Capacitance | $V_{GS} = 0\text{V}$, $V_{DS} = 15\text{V}$, $f = 1\text{MHz}$ | | 3.0 | pF |

Typical Performance Characteristics

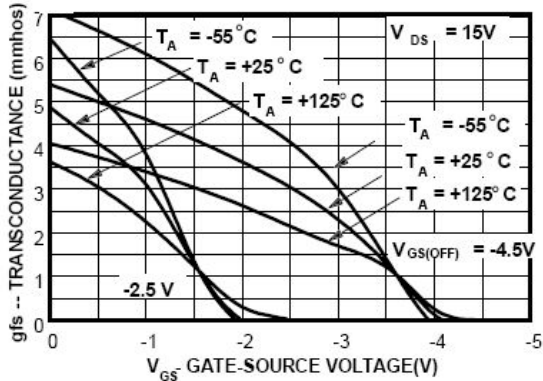
Transfer Characteristics



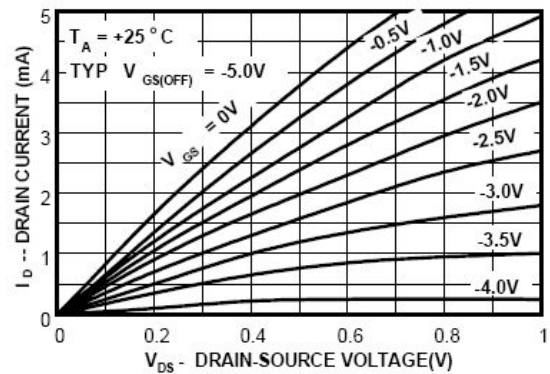
Channel Resistance vs Temperature



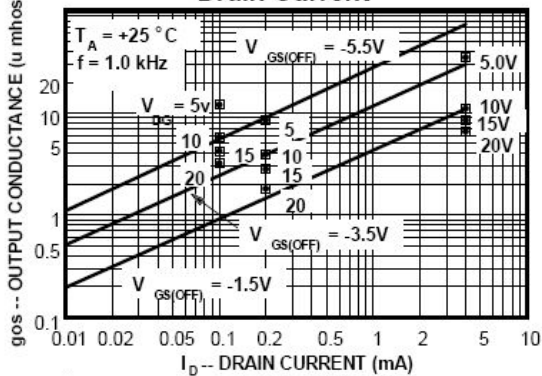
Transconductance Characteristics



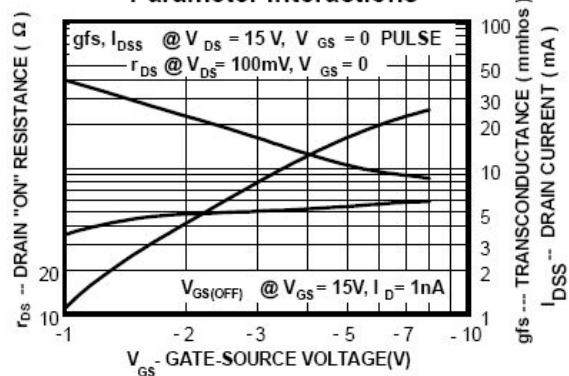
Common Drain-Source Characteristics

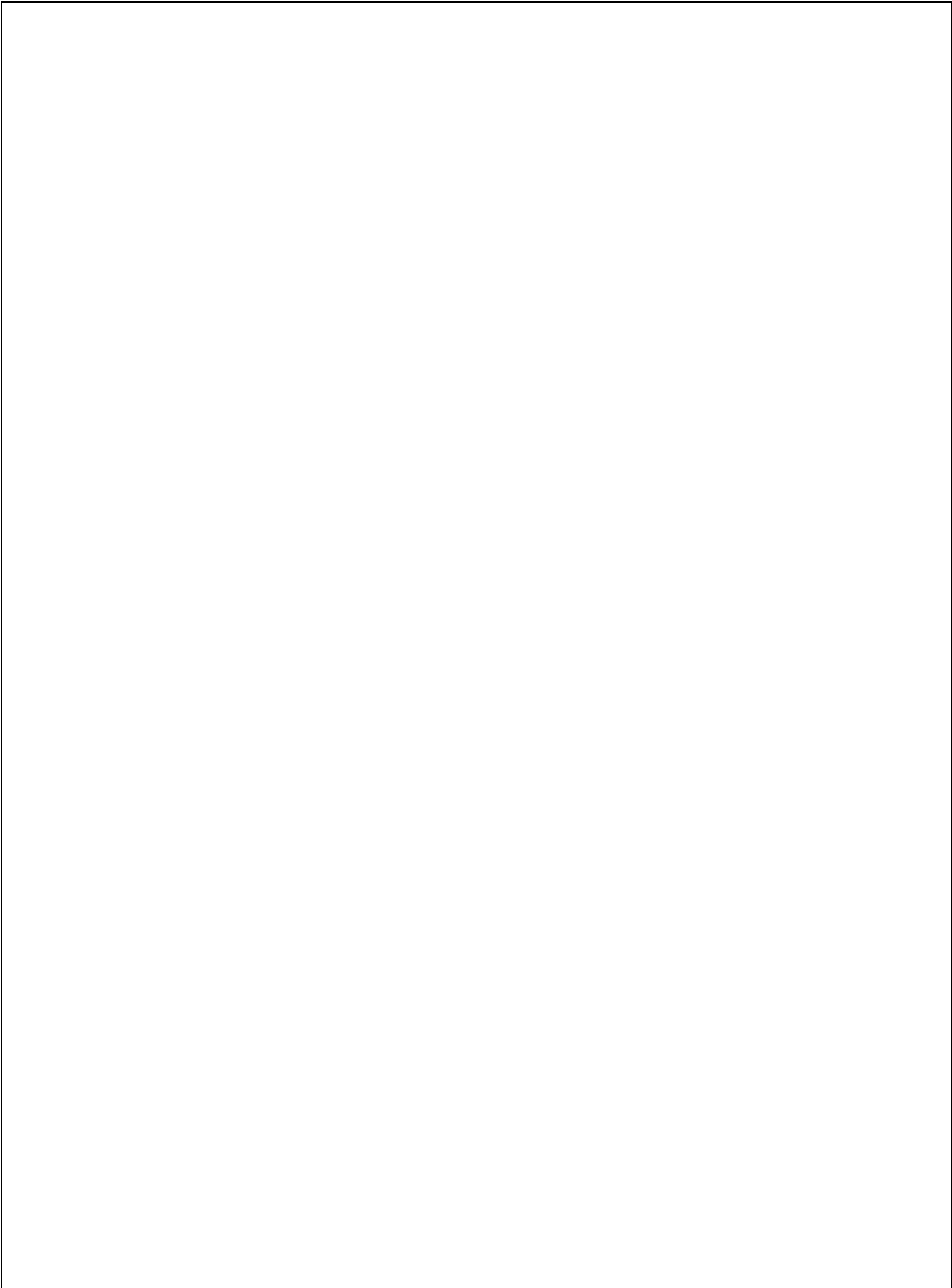


Output Conductance vs Drain Current



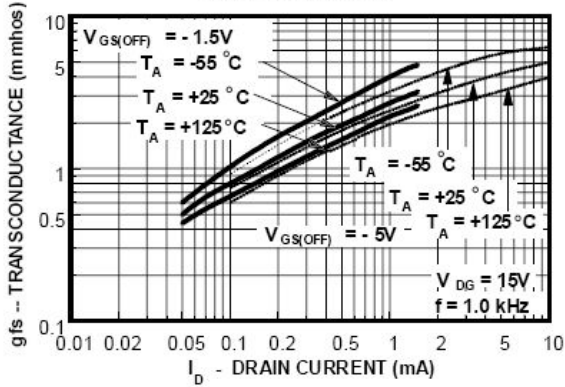
Transconductance Parameter Interactions



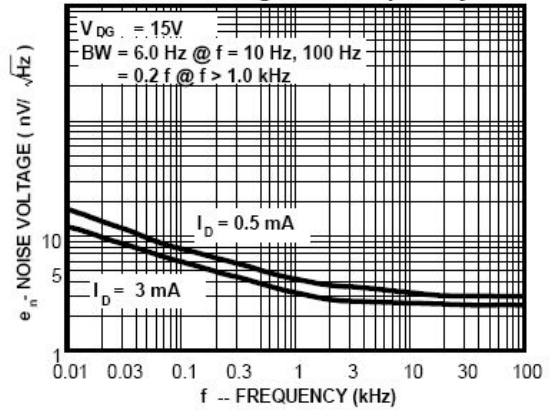


Typical Performance Characteristics

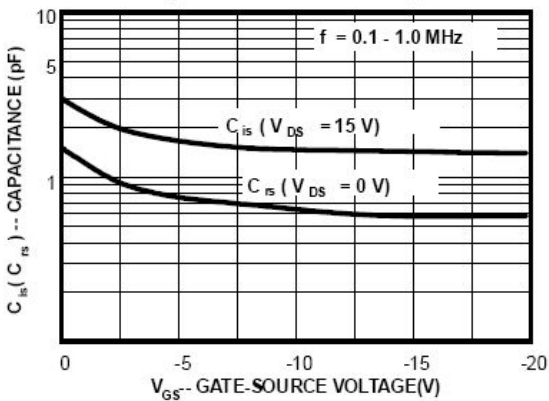
Transconductance vs Drain Current



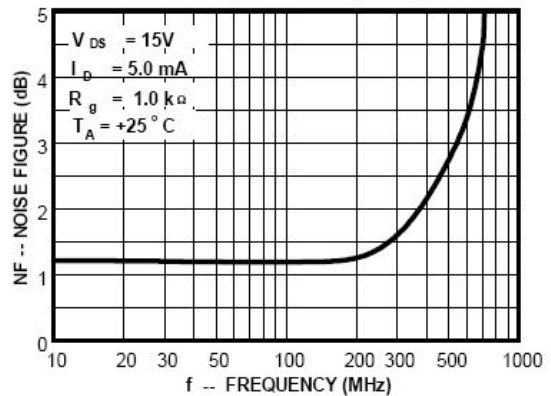
Noise Voltage vs Frequency



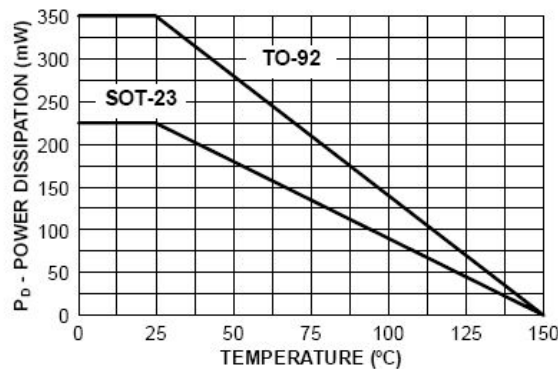
Capacitance vs Voltage



Noise Figure Frequency

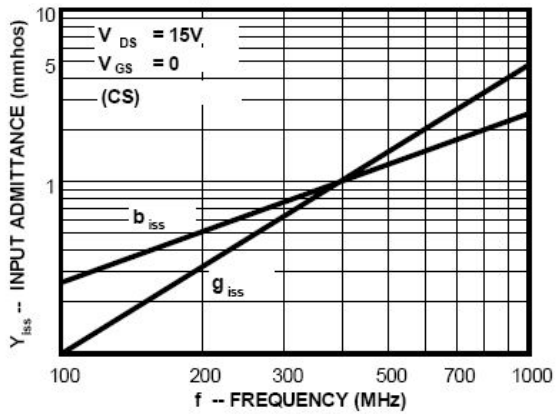


Power Dissipation vs. Ambient Temperature

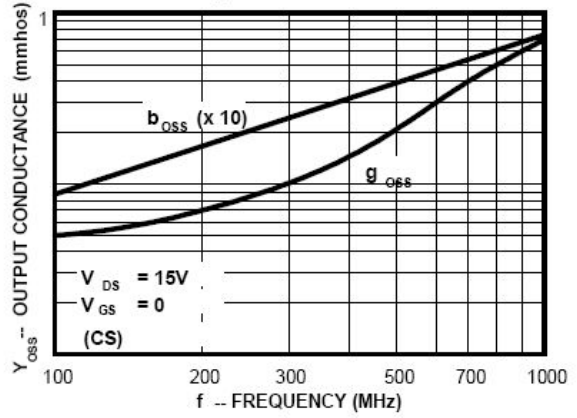


Typical Performance Characteristics

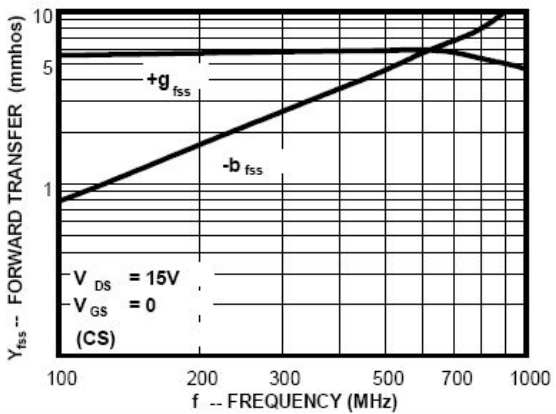
Input Admittance



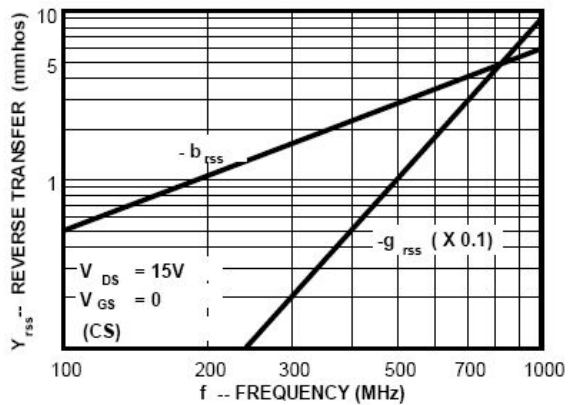
Output Admittance



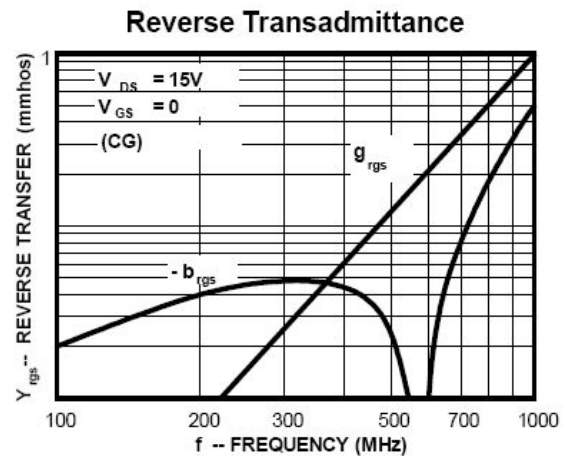
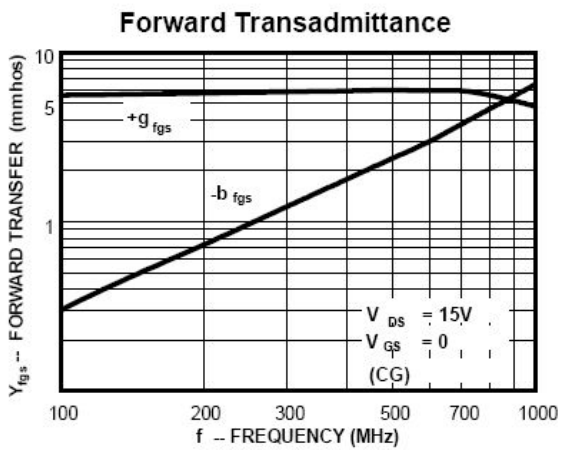
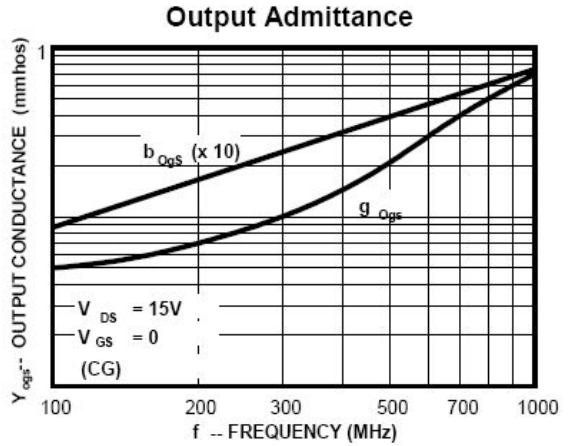
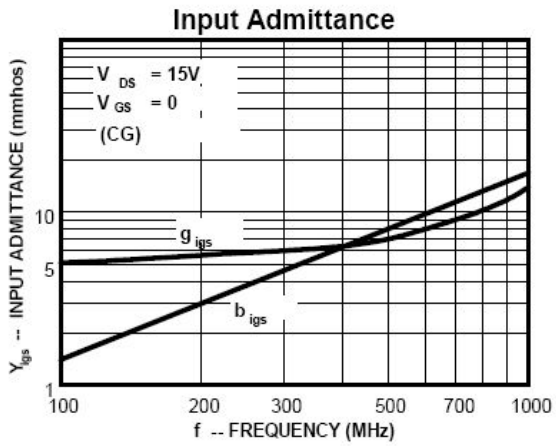
Forward Transadmittance



Reverse Transadmittance

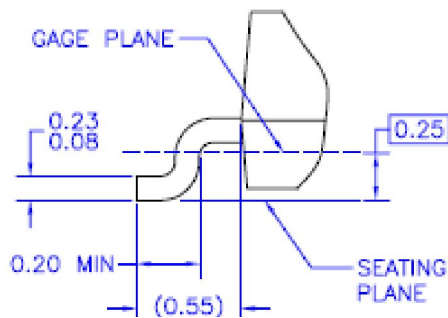
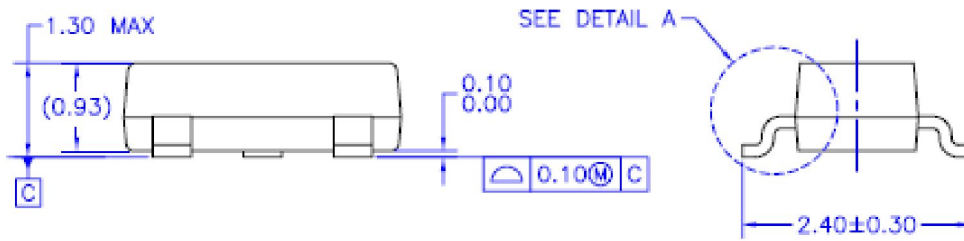
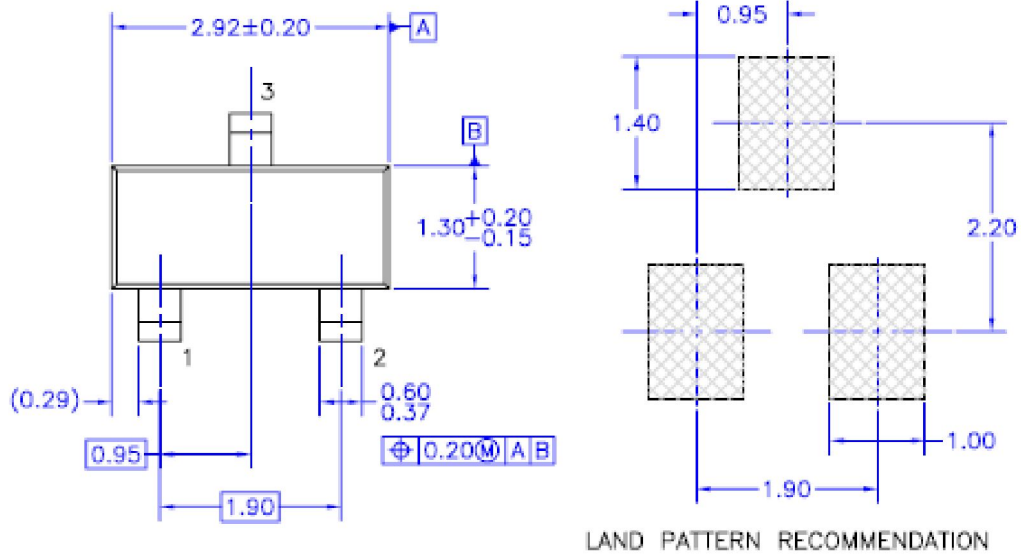


Typical Performance Characteristics



Package Dimension

SOT-23



NOTES: UNLESS OTHERWISE SPECIFIED

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