



THE DATASHEET OF MMBF102

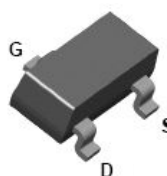


MMBF102

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	$\text{mW}/^\circ\text{C}$

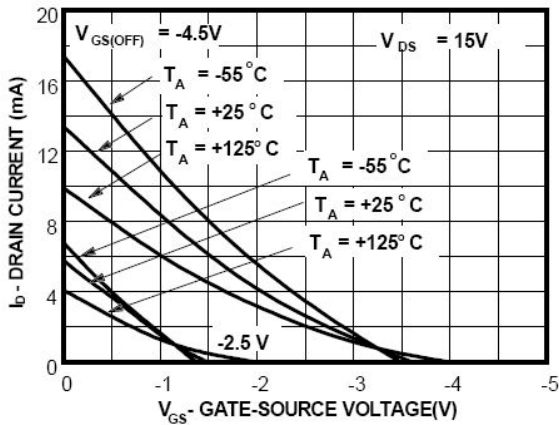
*Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06".

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

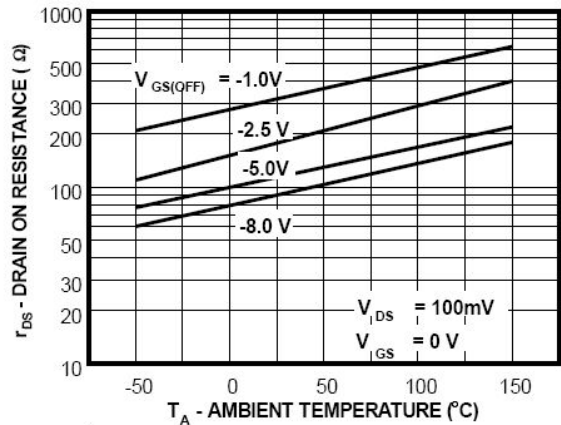
Symbol	Parameter	Test Conditions	Min.	Max.	Units
Off Characteristics					
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	$I_G = -1.0\mu\text{A}$, $V_{DS} = 0$	-25		V
I_{GSS}	Gate Reverse Current	$V_{GS} = -15\text{V}$, $V_{DS} = 0$ $T = 100^\circ\text{C}$		-2.0 -2.0	nA μA
$V_{GS(off)}$	Gate-Source Cutoff 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

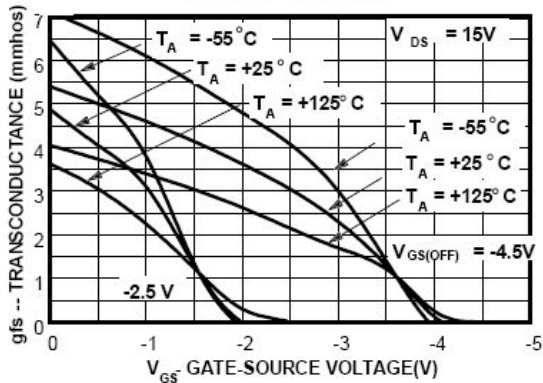
Transfer Characteristics



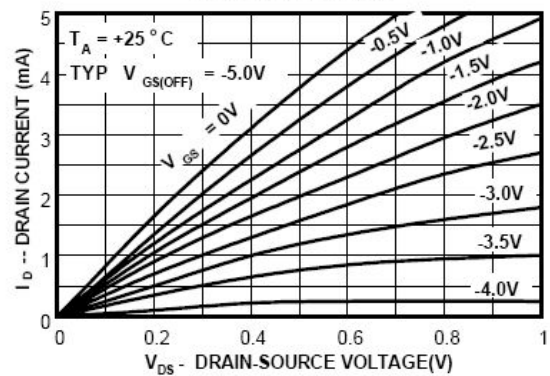
Channel Resistance vs Temperature



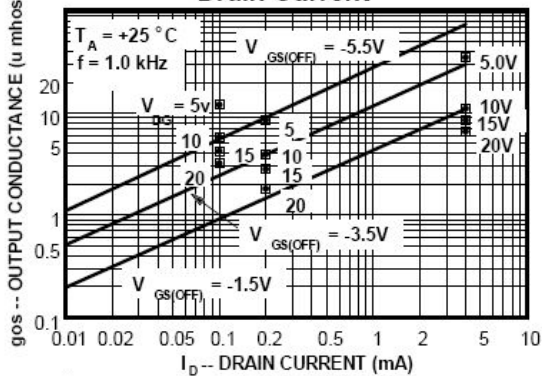
Transconductance Characteristics



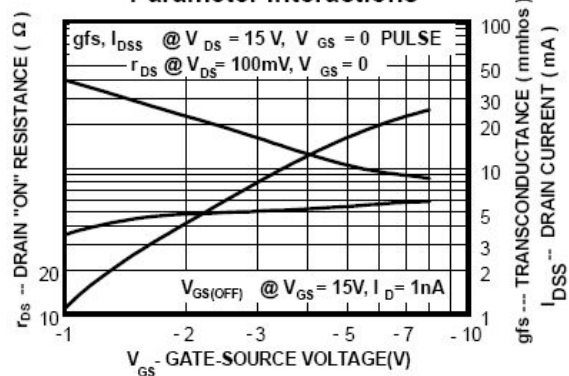
Common Drain-Source Characteristics

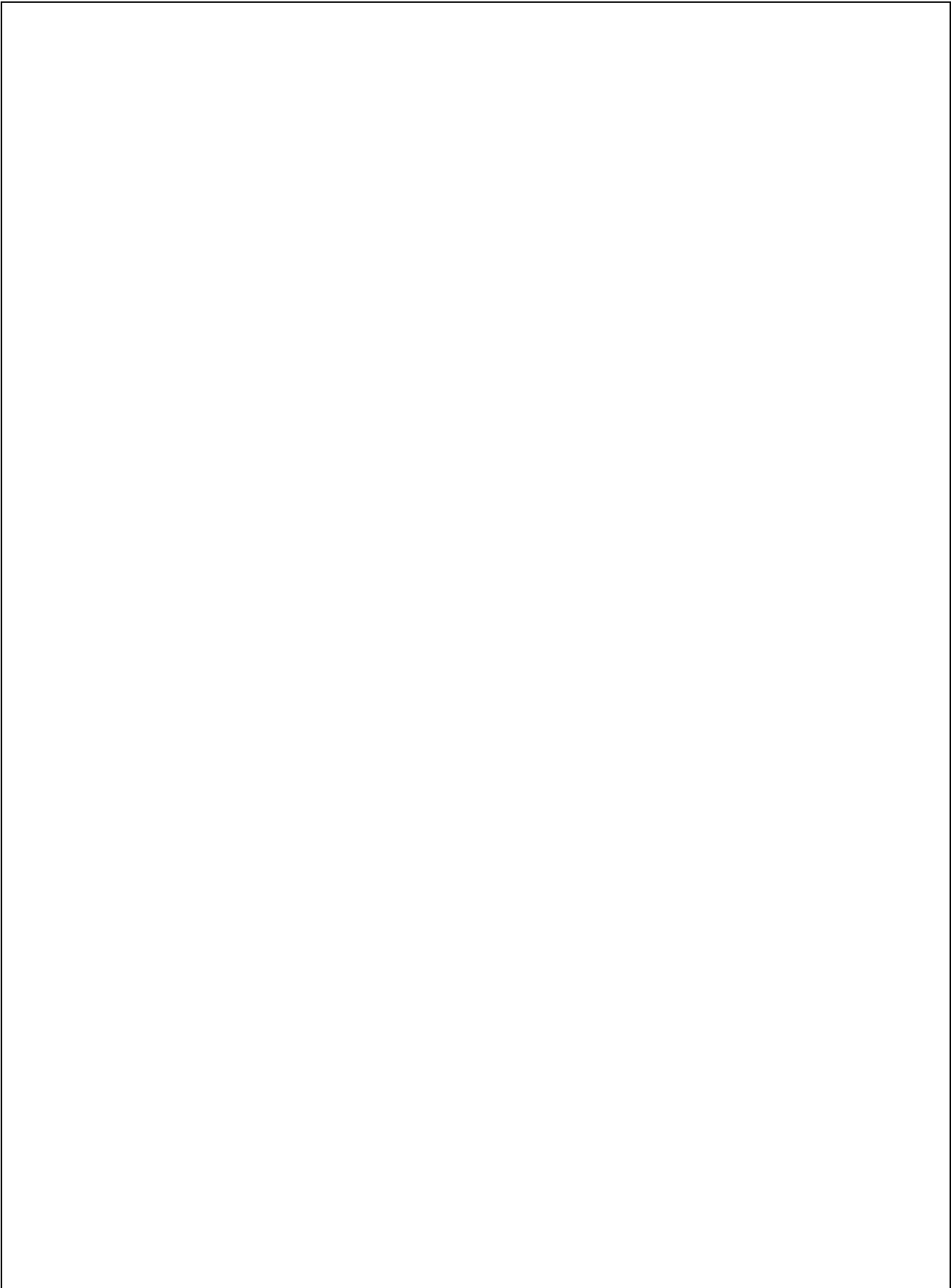


Output Conductance vs Drain Current



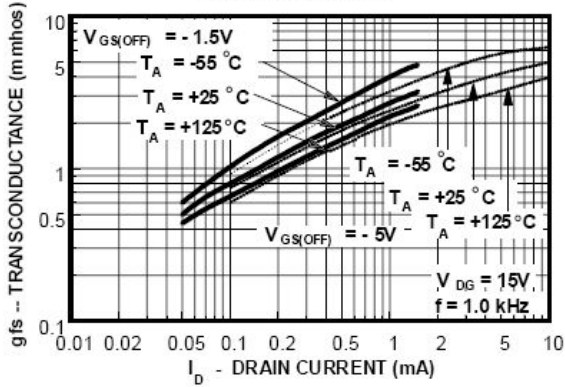
Transconductance Parameter Interactions



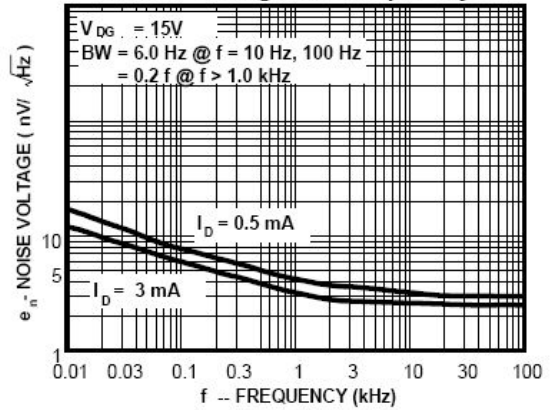


Typical Performance Characteristics

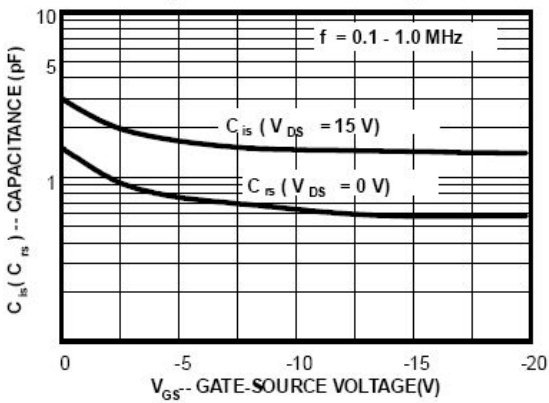
Transconductance vs Drain Current



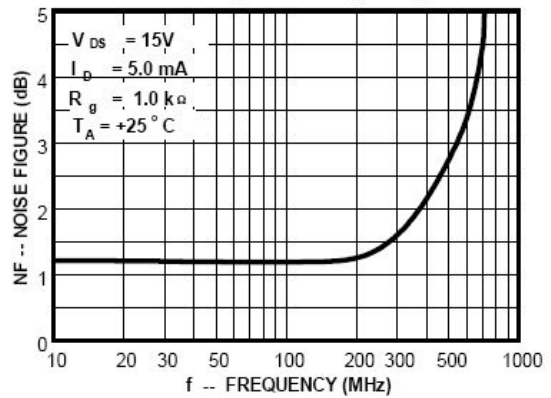
Noise Voltage vs Frequency



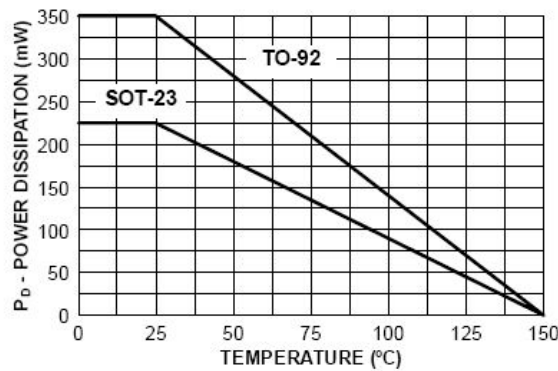
Capacitance vs Voltage



Noise Figure Frequency

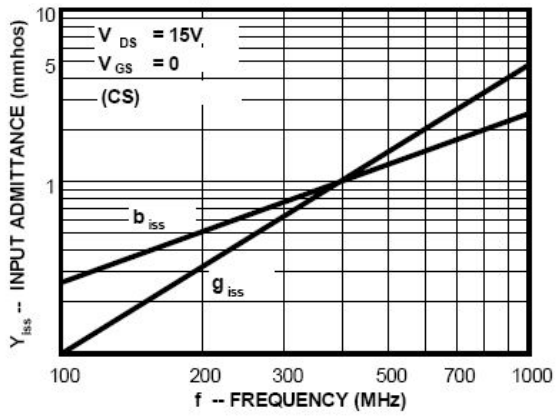


Power Dissipation vs. Ambient Temperature

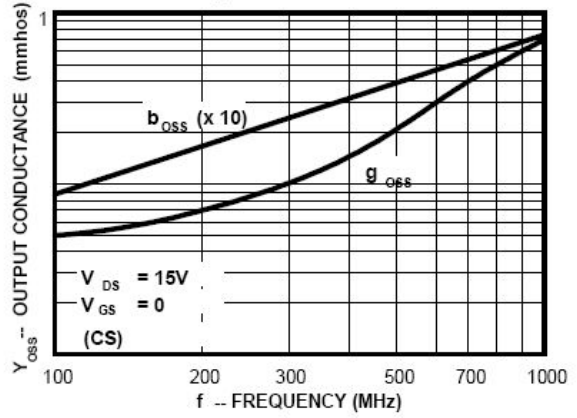


Typical Performance Characteristics

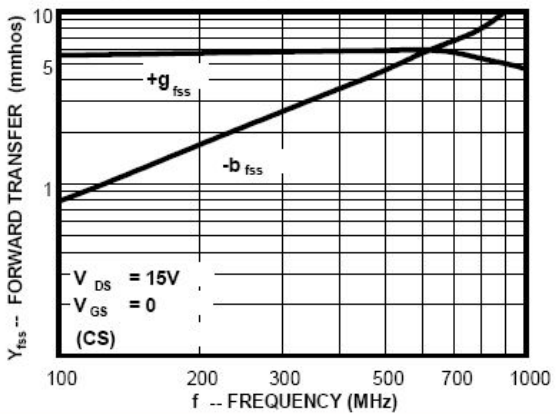
Input Admittance



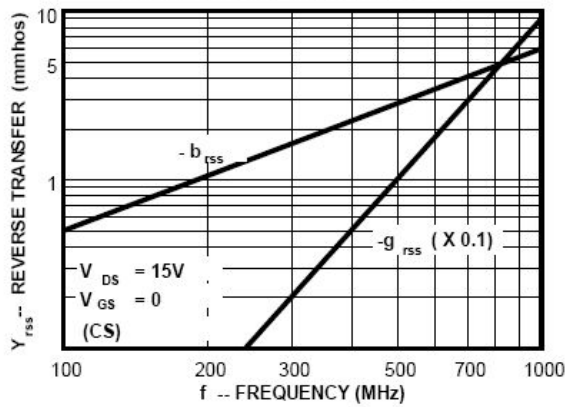
Output Admittance



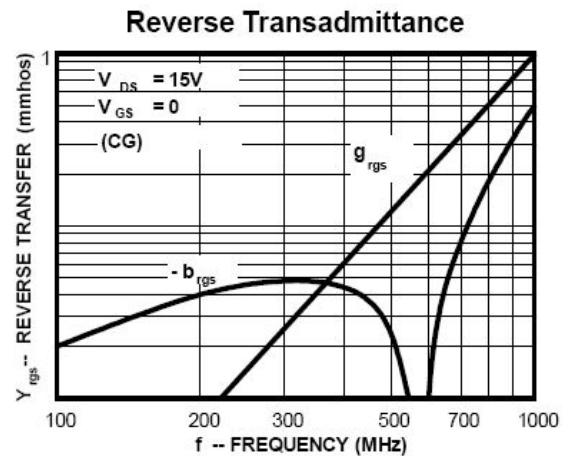
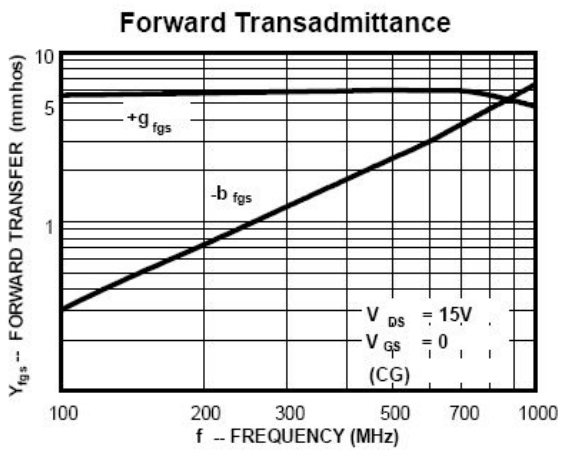
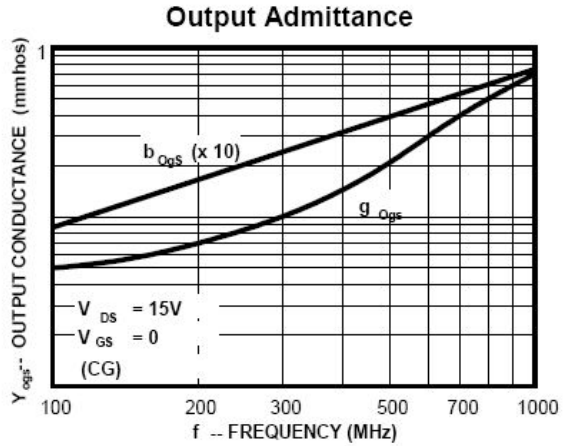
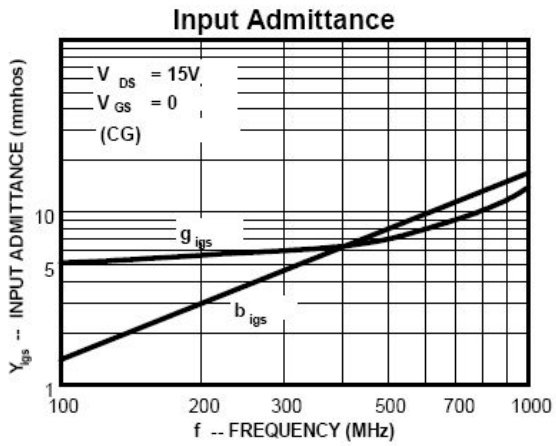
Forward Transadmittance



Reverse Transadmittance

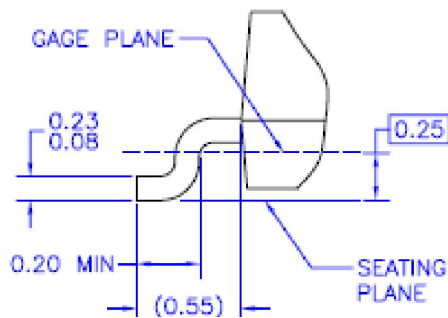
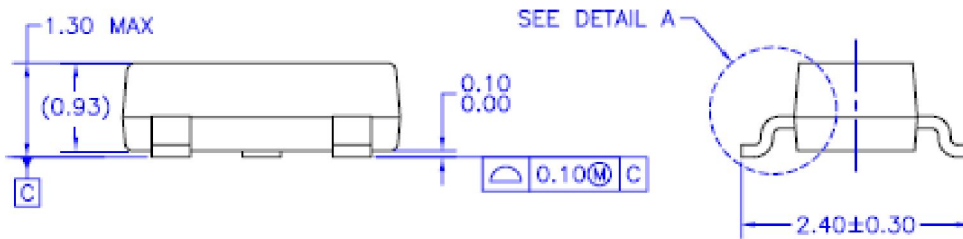
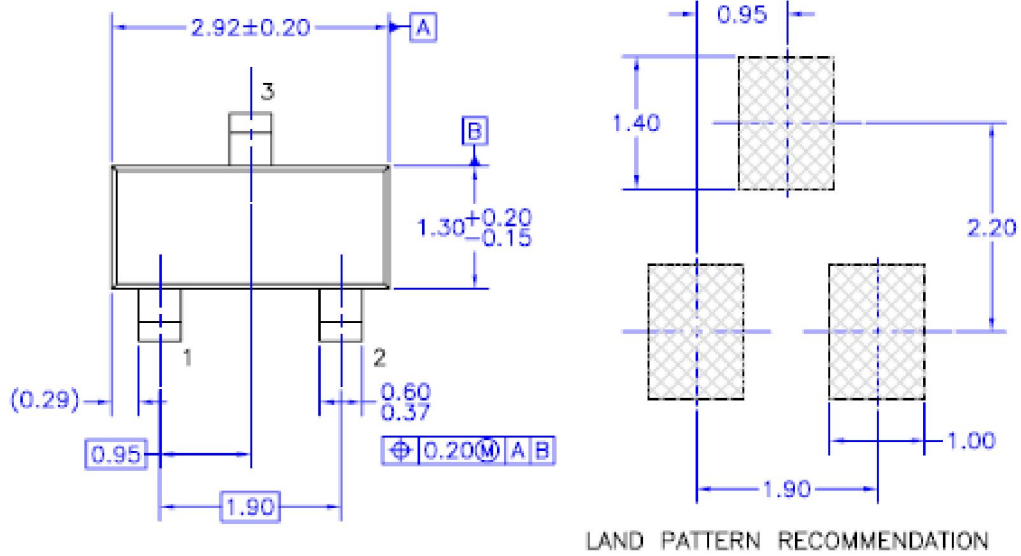


Typical Performance Characteristics



Package Dimension

SOT-23



NOTES: UNLESS OTHERWISE SPECIFIED

- A) REFERENCE JEDEC REGISTRATION TO-236, VARIATION AB, ISSUE H, DATED JAN 1999.
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- D) DIMENSIONING AND TOLERANCING PER ASME Y14.5M - 1994.

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