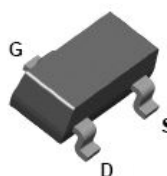


# MMBF102

## 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 $25^\circ\text{C}$	225	mW
		1.8	$\text{mW}/^\circ\text{C}$

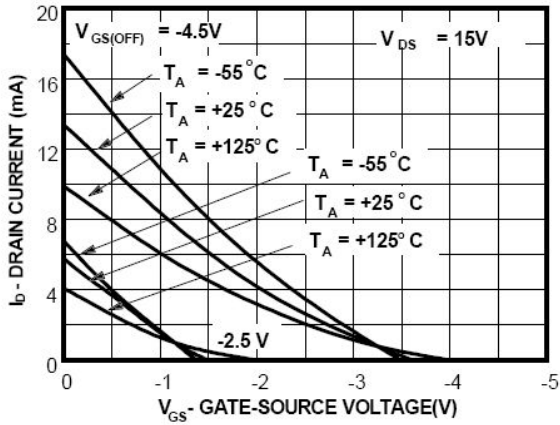
\*Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06".

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

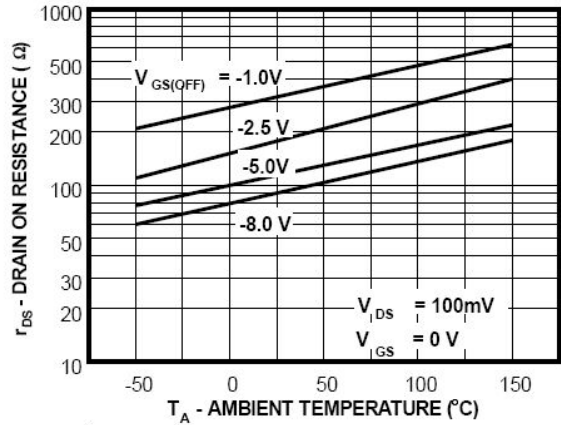
Symbol	Parameter	Test Conditions	Min.	Max.	Units
<b>Off Characteristics</b>					
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	$I_G = -1.0\mu\text{A}$ , $V_{DS} = 0$	-25		V
$I_{GSS}$	Gate Reverse Current	$V_{GS} = -15\text{V}$ , $V_{DS} = 0$ $T = 100^\circ\text{C}$		-2.0 -2.0	nA $\mu\text{A}$
$V_{GS(off)}$	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
<b>On Characteristics *</b>					
$I_{DSS}$	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	$\mu\text{S}$
<b>Small Signal Characteristics</b>					
$C_{ISS}$	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

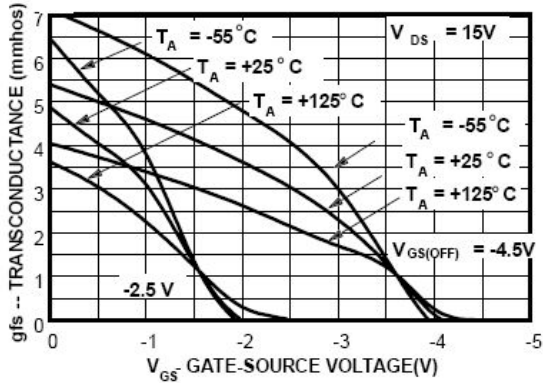
**Transfer Characteristics**



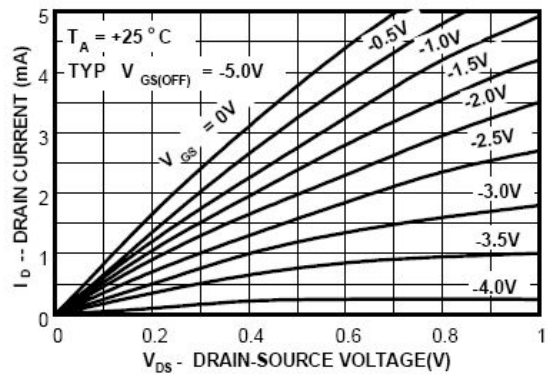
**Channel Resistance vs Temperature**



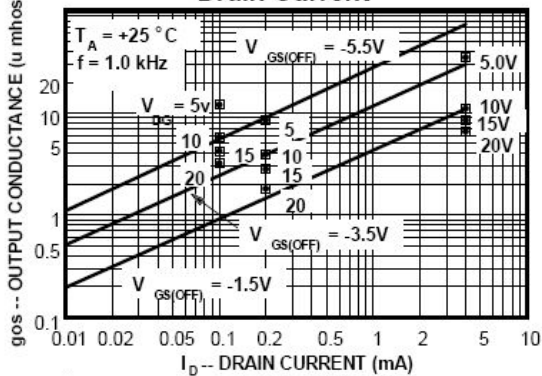
**Transconductance Characteristics**



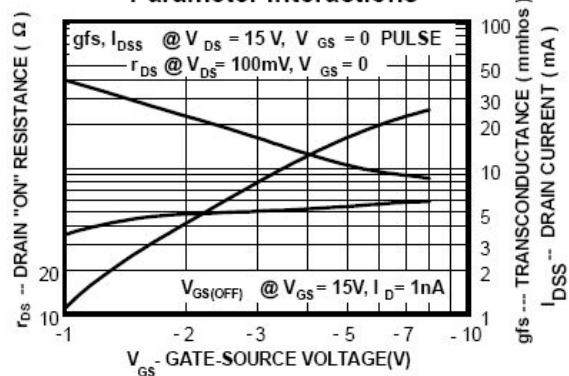
**Common Drain-Source Characteristics**

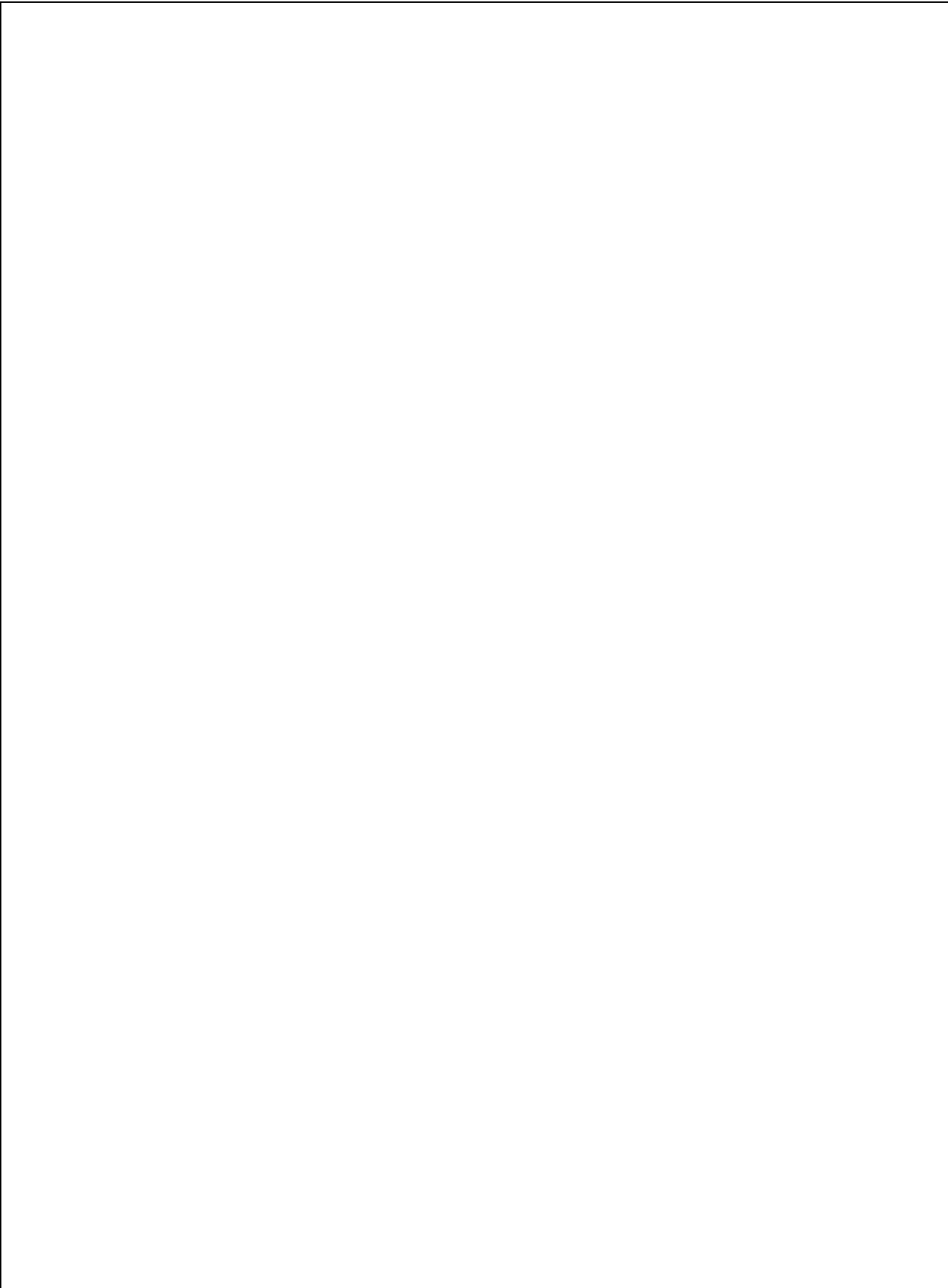


**Output Conductance vs Drain Current**



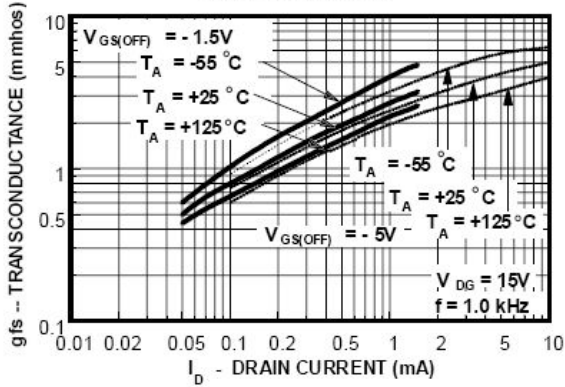
**Transconductance Parameter Interactions**



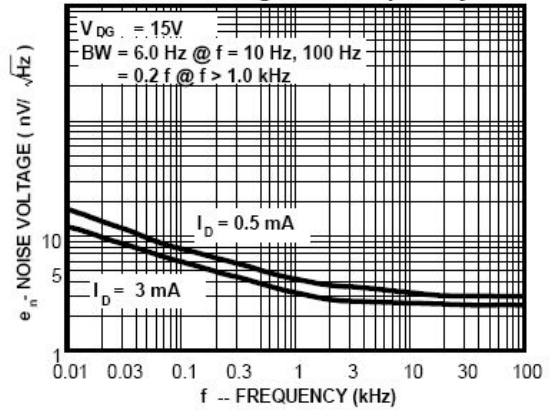


# Typical Performance Characteristics

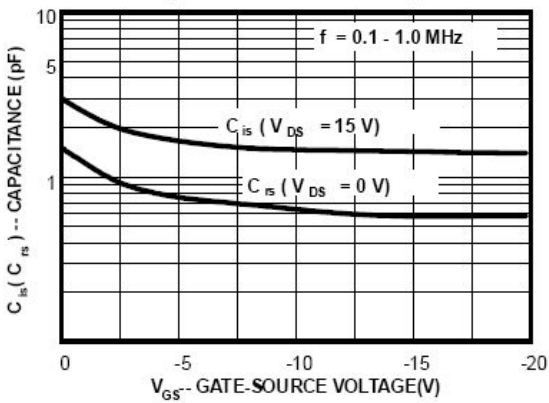
**Transconductance vs Drain Current**



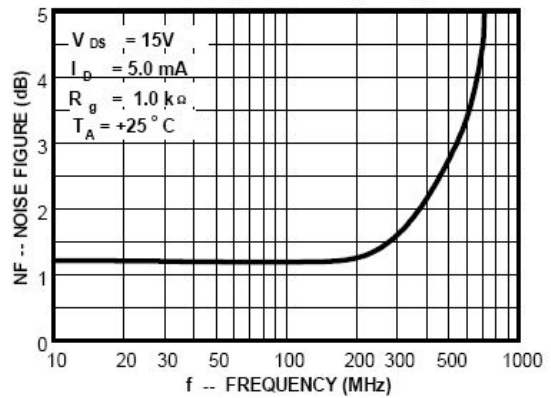
**Noise Voltage vs Frequency**



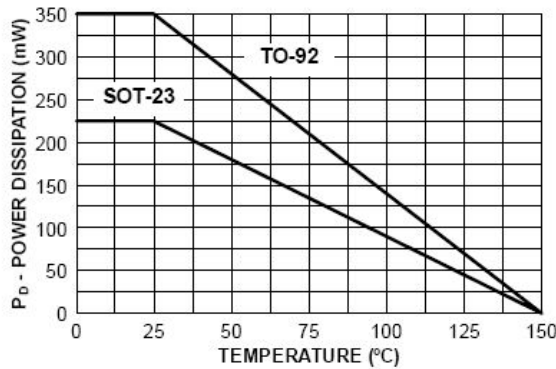
**Capacitance vs Voltage**



**Noise Figure Frequency**

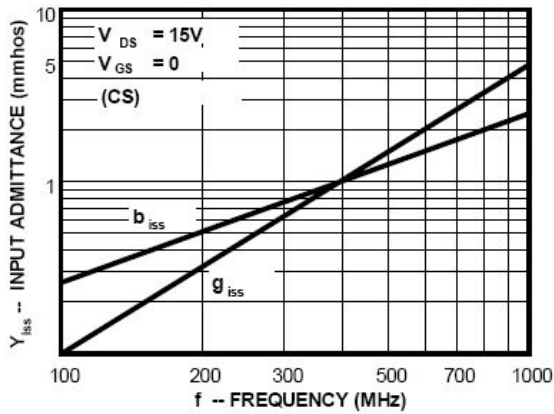


**Power Dissipation vs. Ambient Temperature**

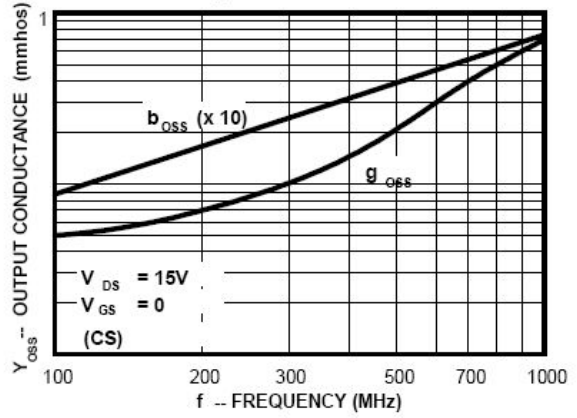


# Typical Performance Characteristics

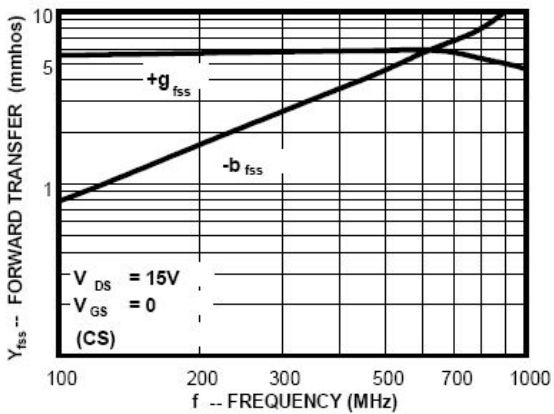
Input Admittance



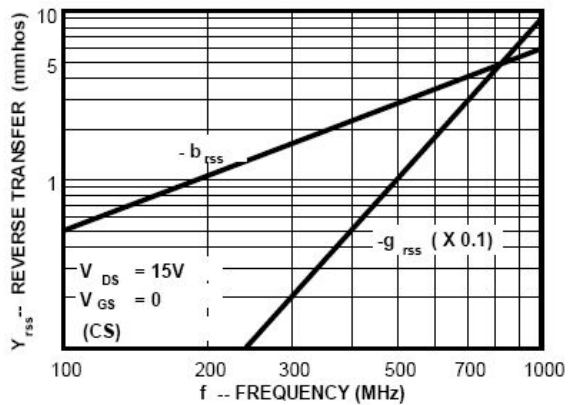
Output Admittance



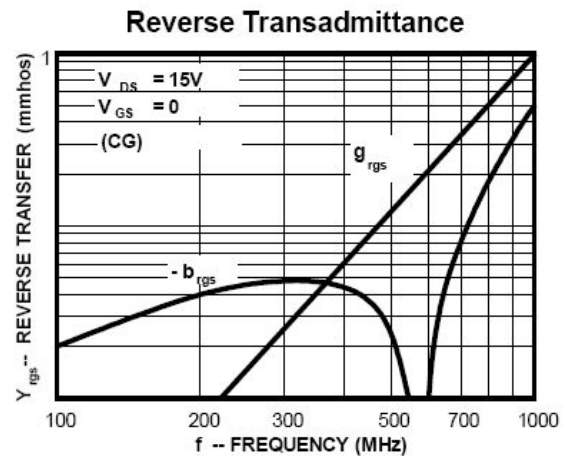
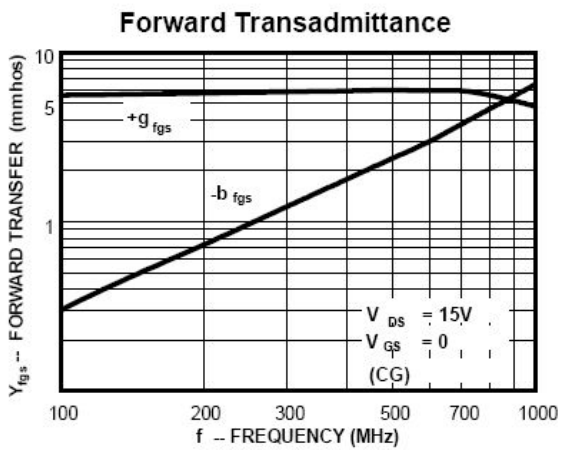
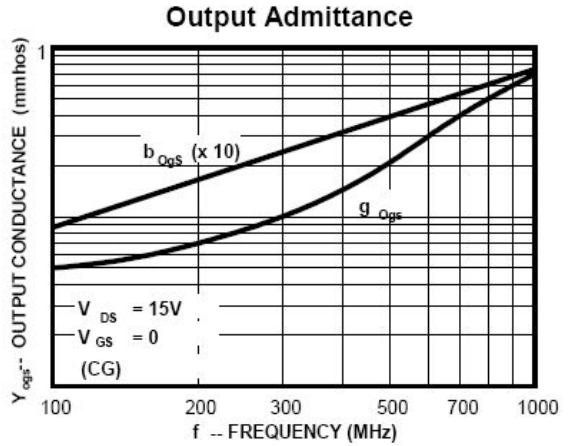
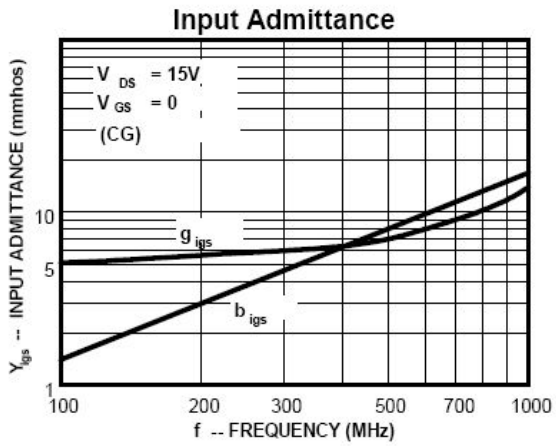
Forward Transadmittance



Reverse Transadmittance

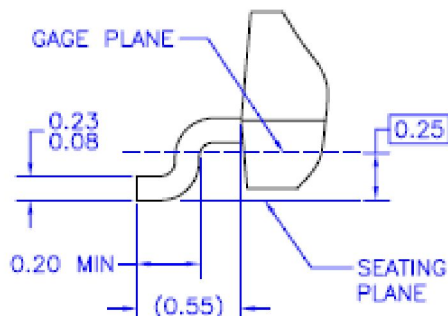
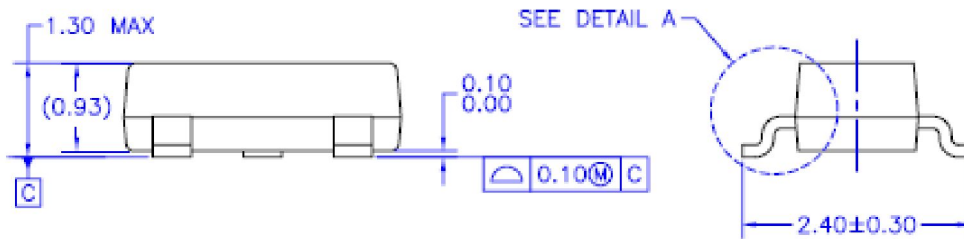
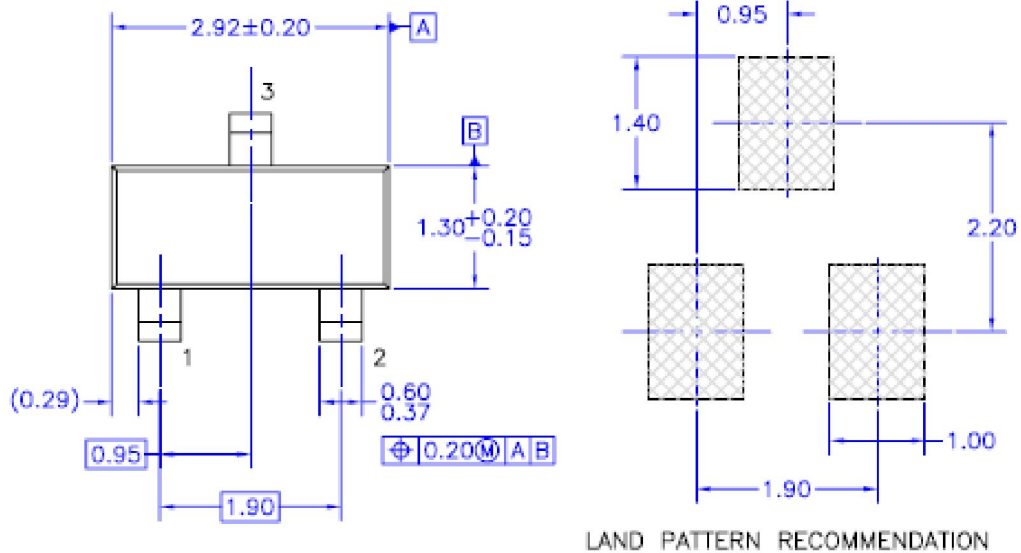


# Typical Performance Characteristics



Package Dimension

SOT-23



NOTES: UNLESS OTHERWISE SPECIFIED

- A) REFERENCE JEDEC REGISTRATION TO-236, VARIATION AB, ISSUE H, DATED JAN 1999.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR EXTRUSIONS.
- D) DIMENSIONING AND TOLERANCING PER ASME Y14.5M - 1994.



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| EfficientMax <sup>™</sup>   | ISOPLANAR <sup>™</sup>   | Saving our world, 1mW at a time <sup>™</sup>                                       | TinyWire <sup>™</sup>   |
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| FACT <sup>®</sup>   | Motion-SPM <sup>™</sup>  | SuperSOT <sup>™</sup> -6   | VisualMax <sup>™</sup>  |
| FAST <sup>®</sup>   | OPTOLOGIC <sup>®</sup>   | SuperSOT <sup>™</sup> -8   |   |
| FAST <sup>®</sup>   | OPTOPLANAR <sup>®</sup>  | SupreMOS <sup>™</sup>  |   |
| FastvCore <sup>™</sup>  |  | SyncFET <sup>™</sup>   |   |
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