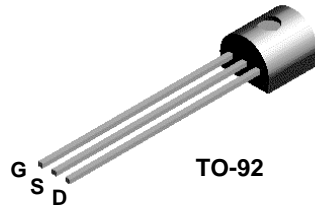
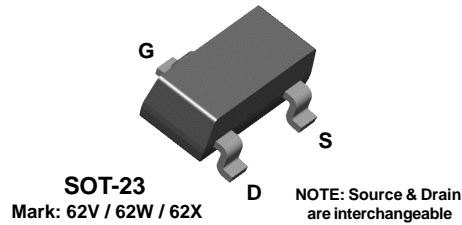


**J210  
J211  
J212**



**MMBFJ210  
MMBFJ211  
MMBFJ212**



## N-Channel RF Amplifier

This device is designed for HF/VHF mixer/amplifier and applications where Process 50 is not adequate. Sufficient gain and low noise for sensitive receivers. Sourced from Process 90.

### Absolute Maximum Ratings\*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V <sub>DG</sub>	Drain-Gate Voltage	25	V
V <sub>GS</sub>	Gate-Source Voltage	- 25	V
I <sub>GF</sub>	Forward Gate Current	10	mA
T <sub>J</sub> , T <sub>stg</sub>	Operating and Storage Junction Temperature Range	-55 to +150	°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

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max		Units
		J210-212	*MMBFJ210-212	
P <sub>D</sub>	Total Device Dissipation	350	225	mW
	Derate above 25°C	2.8	1.8	mW/°C
R <sub>θJC</sub>	Thermal Resistance, Junction to Case	125		°C/W
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient	357	556	°C/W

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

J210 / J211 / J212 / MMBFJ210 / MMBFJ211 / MMBFJ212

## N-Channel RF Amplifier (continued)

### Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
<b>OFF CHARACTERISTICS</b>					
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	$I_G = 1.0 \mu A, V_{DS} = 0$	-25		V
$I_{GSS}$	Gate Reverse Current	$V_{GS} = 15 V, V_{DS} = 0$		-100	pA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = 15 V, I_D = 1.0 nA$	<b>210</b> <b>211</b> <b>212</b>	-1.0 -2.5 -4.0	V V V

### ON CHARACTERISTICS

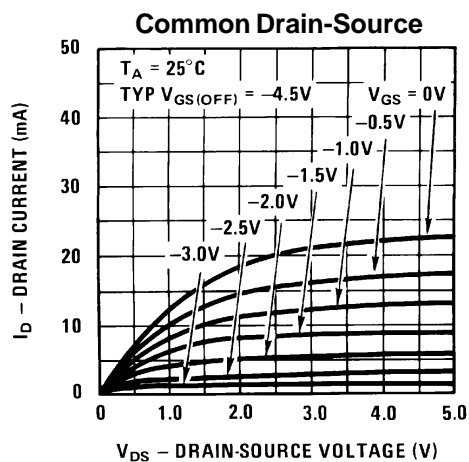
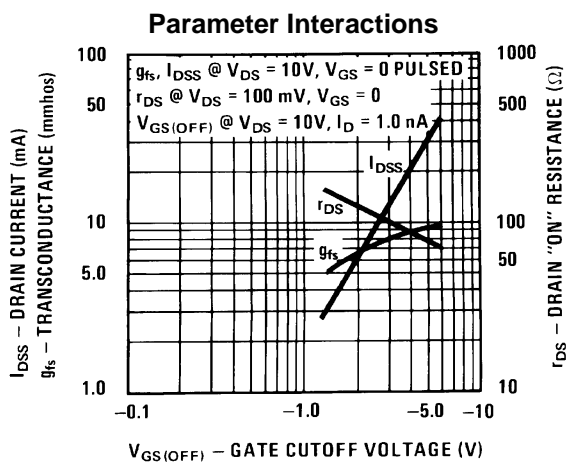
$I_{DSS}$	Zero-Gate Voltage Drain Current*	$V_{DS} = 15 V, V_{GS} = 0$	<b>210</b> <b>211</b> <b>212</b>	2.0 7.0 15	15 20 40	mA mA mA
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### SMALL SIGNAL CHARACTERISTICS

$g_{fs}$	Common Source Forward Transconductance	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz$	<b>210</b> <b>211</b> <b>212</b>	4000 6000 7000	12,000 12,000 12,000	$\mu mhos$ $\mu mhos$ $\mu mhos$
$g_{oss}$	Common Source Output Conductance	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz$			200	$\mu mhos$

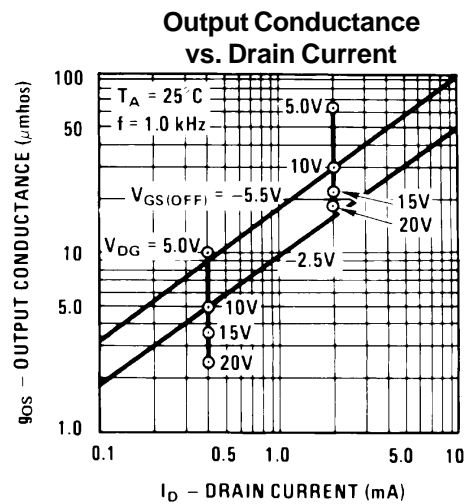
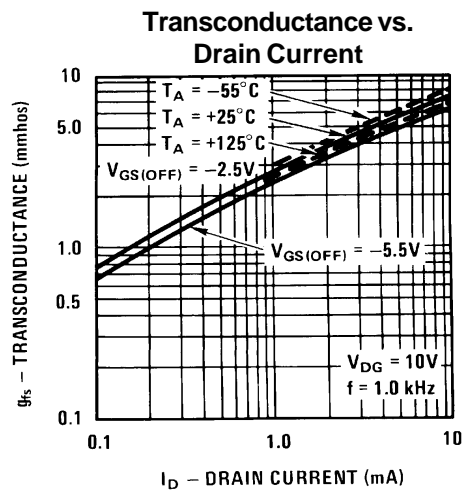
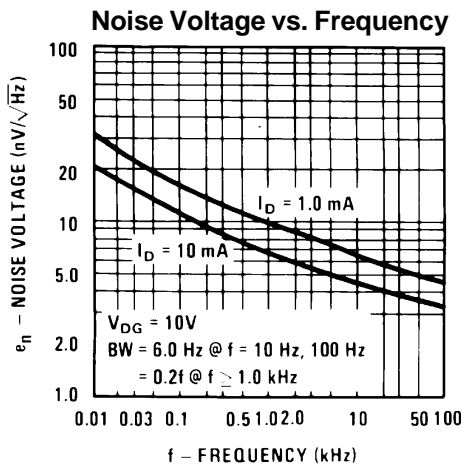
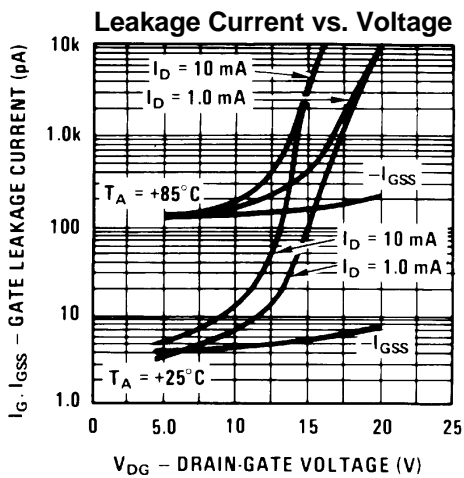
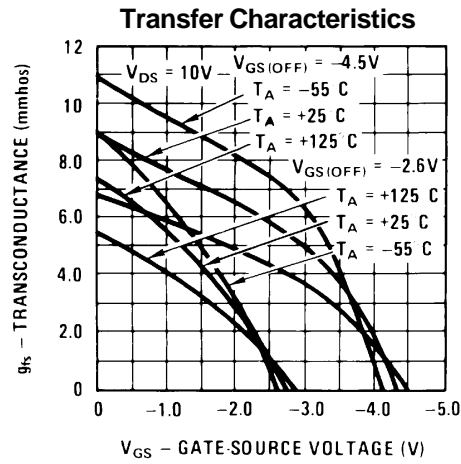
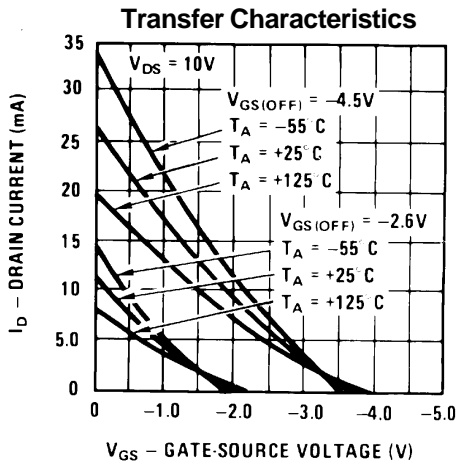
\*Pulse Test: Pulse Width  $\leq 300 \mu s$

### Typical Characteristics



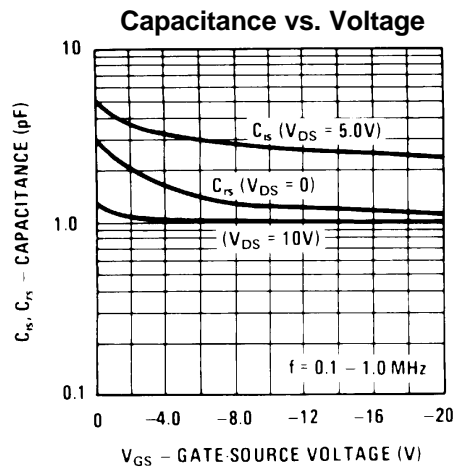
J210 / J211 / J212 / MMBFJ210 / MMBFJ211 / MMBFJ212

Typical Characteristics (continued)

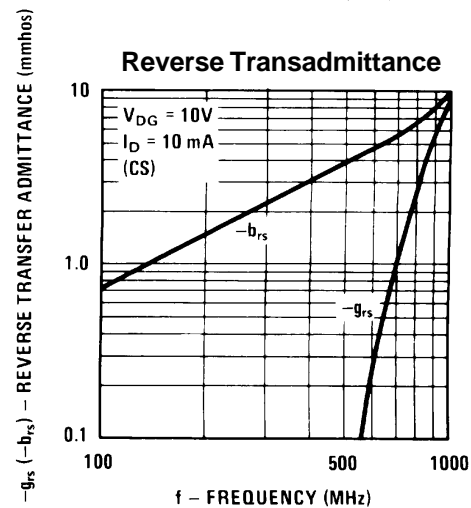
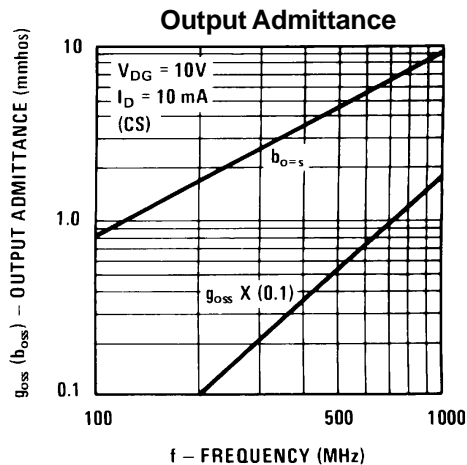
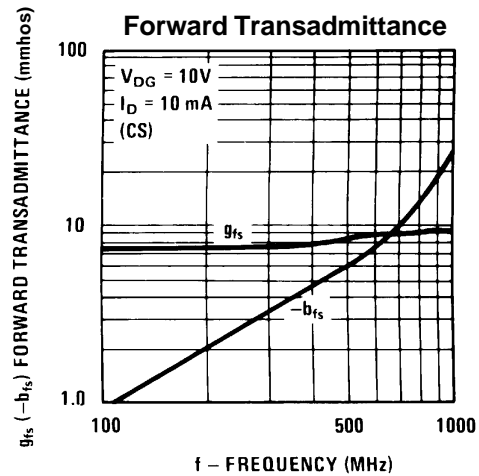
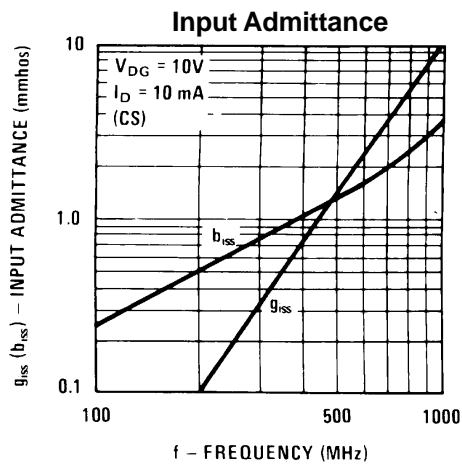


J210 / J211 / J212 / MMBFJ210 / MMBFJ211 / MMBFJ212

Typical Characteristics (continued)

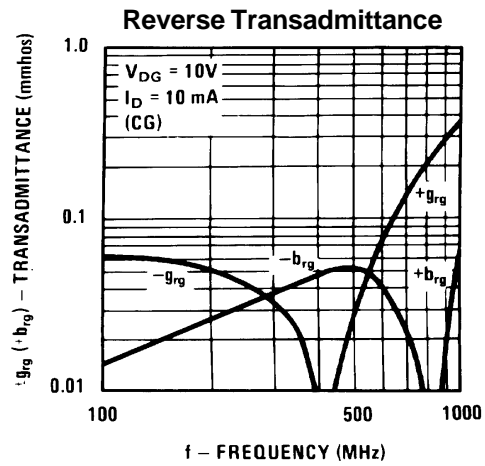
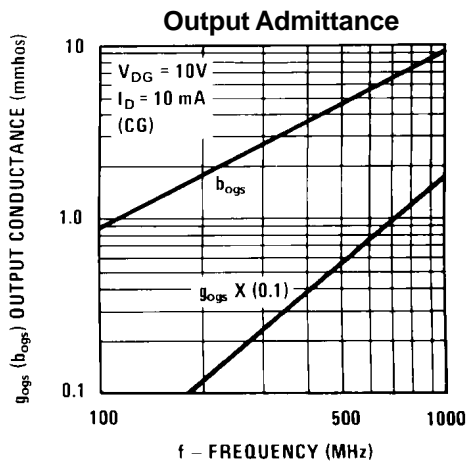
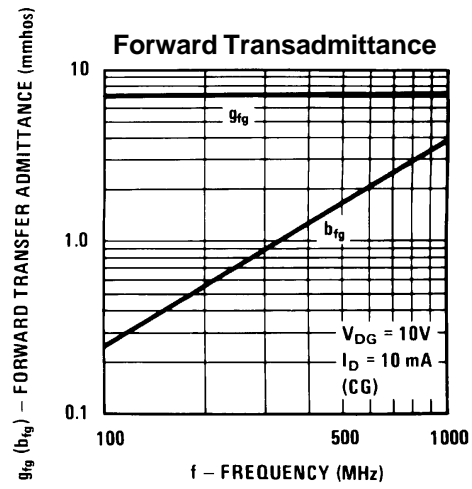
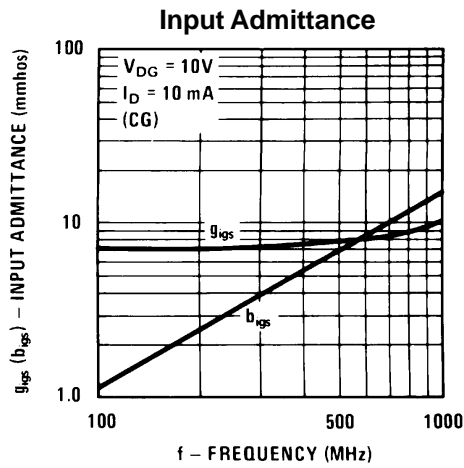


Common Source Characteristics



J210 / J211 / J212 / MMBFJ210 / MMBFJ211 / MMBFJ212

Common Gate Characteristics



J210 / J211 / J212 / MMBFJ210 / MMBFJ211 / MMBFJ212

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