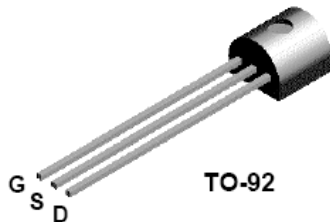
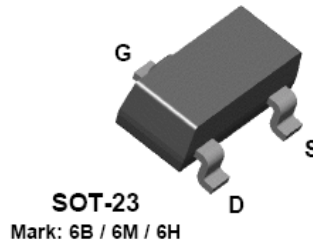


# 2N5484/5485/5486 MMBF5484/5485/5486



TO-92



SOT-23

Mark: 6B / 6M / 6H

NOTE: Source & Drain are interchangeable

## N-Channel RF Amplifier

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

### Absolute Maximum Ratings\* TA = 25°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
$T_J, T_{stg}$	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
		2N5484-5486	*MMBF5484-5486	
$P_D$	Total Device Dissipation	350	225	mW
	Derate above 25°C	2.8	1.8	mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125		°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	556	°C/W

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

## N-Channel RF Amplifier

(continued)

### Electrical Characteristics

TA = 25°C unless otherwise noted

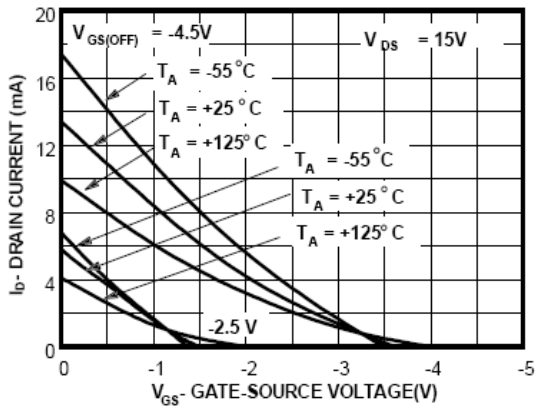
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
<b>OFF CHARACTERISTICS</b>						
V <sub>(BR)GSS</sub>	Gate-Source Breakdown Voltage	I <sub>G</sub> = -1.0 μA, V <sub>DS</sub> = 0	-25			V
I <sub>GSS</sub>	Gate Reverse Current	V <sub>GS</sub> = -20 V, V <sub>DS</sub> = 0 V <sub>GS</sub> = -20 V, V <sub>DS</sub> = 0, T <sub>A</sub> = 100°C			-1.0 -0.2	nA μA
V <sub>GS(off)</sub>	Gate-Source Cutoff Voltage	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 10 nA	5484 5485 5486	-0.3 -0.5 -2.0	-3.0 -4.0 -6.0	V V V
<b>ON CHARACTERISTICS</b>						
I <sub>DSS</sub>	Zero-Gate Voltage Drain Current*	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0	5484 5485 5486	1.0 4.0 8.0	5.0 10 20	mA mA mA
<b>SMALL SIGNAL CHARACTERISTICS</b>						
g <sub>fs</sub>	Forward Transfer Conductance	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0, f = 1.0 kHz	5484 5485 5486	3000 3500 4000	6000 7000 8000	μmhos μmhos μmhos
Re(y <sub>is</sub> )	Input Conductance	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0, f = 100 MHz V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0, f = 400 MHz	5484 5485 / 5486		100 1000	μmhos μmhos
g <sub>os</sub>	Output Conductance	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0, f = 1.0 kHz	5484 5485 5486		50 60 75	μmhos μmhos μmhos
Re(y <sub>os</sub> )	Output Conductance	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0, f = 100 MHz V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0, f = 400 MHz	5484 5485 / 5486		75 100	μmhos μmhos
Re(y <sub>fs</sub> )	Forward Transconductance	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0, f = 100 MHz V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0, f = 400 MHz	5484 5485 5486	2500 3000 3500		μmhos μmhos μmhos
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0, f = 1.0 MHz			5.0	pF
C <sub>rss</sub>	Reverse Transfer Capacitance	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0, f = 1.0 MHz			1.0	pF
C <sub>oss</sub>	Output Capacitance	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0, f = 1.0 MHz			2.0	pF
NF	Noise Figure	V <sub>DS</sub> = 15 V, R <sub>G</sub> = 1.0 kΩ, f = 100 MHz V <sub>DS</sub> = 15 V, R <sub>G</sub> = 1.0 kΩ, f = 400 MHz V <sub>DS</sub> = 15 V, R <sub>G</sub> = 1.0 kΩ, f = 100 MHz V <sub>DS</sub> = 15 V, R <sub>G</sub> = 1.0 kΩ, f = 400 MHz	5484 5484 5485 / 5486 5485 / 5486		3.0 4.0 2.0 4.0	dB dB dB dB

# N-Channel RF Amplifier

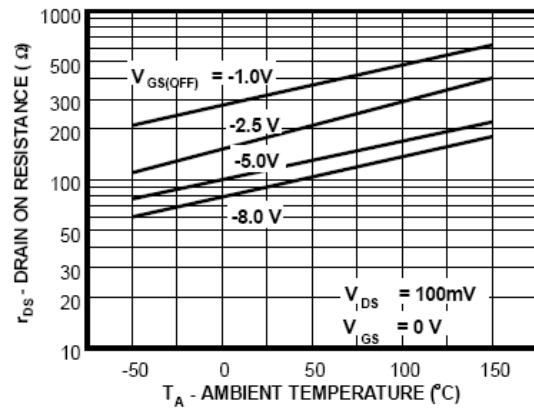
(continued)

## Typical Characteristics

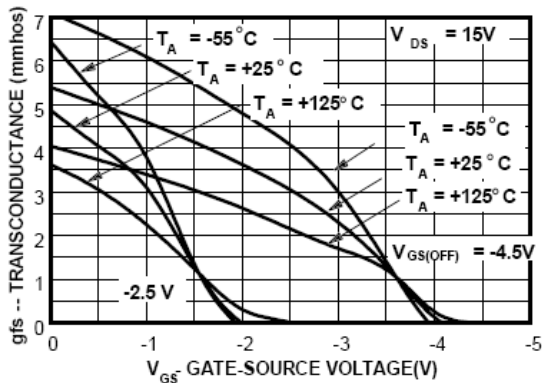
### Transfer Characteristics



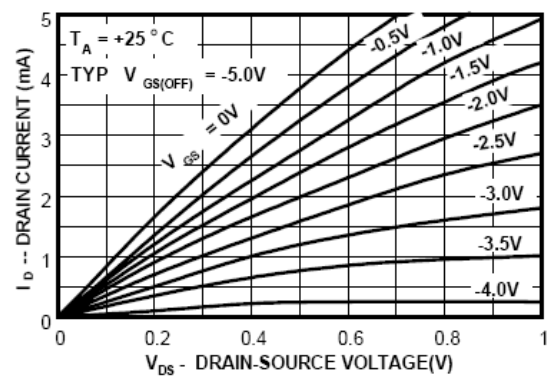
### Channel Resistance vs Temperature



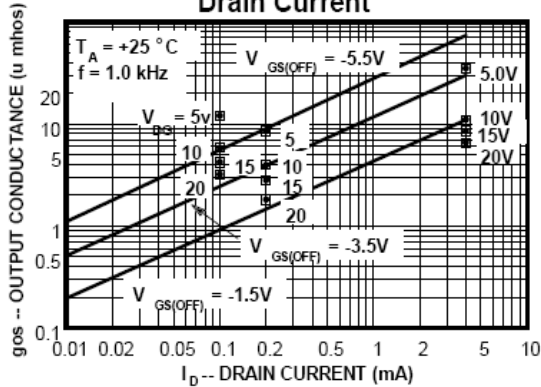
### Transconductance Characteristics



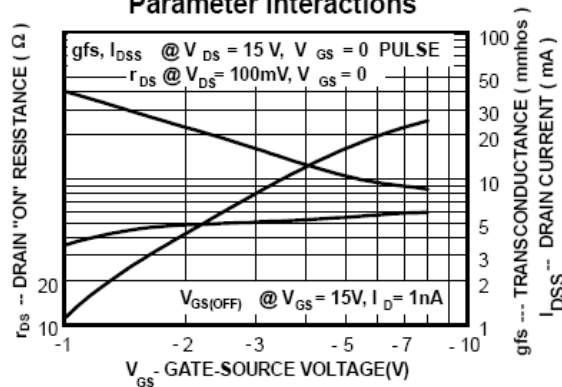
### Common Drain-Source Characteristics



### Output Conductance vs Drain Current

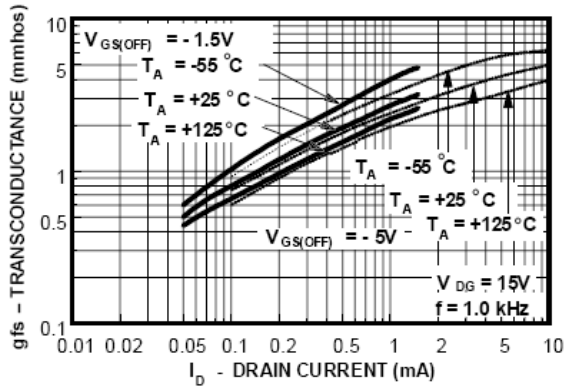


### Transconductance Parameter Interactions

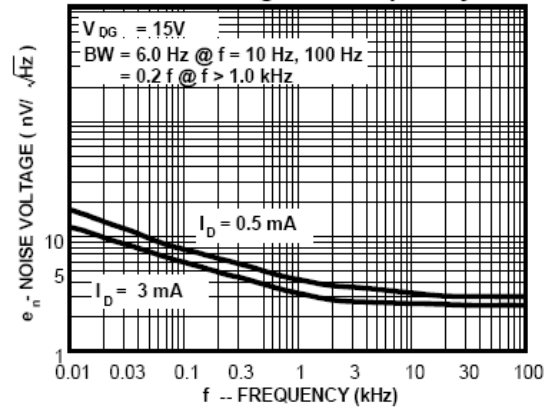


## Typical Characteristics (continued)

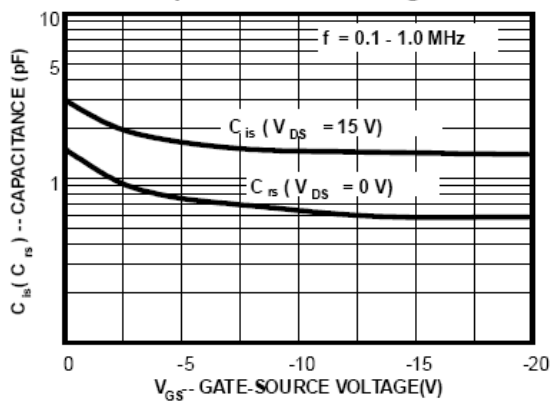
### Transconductance vs Drain Current



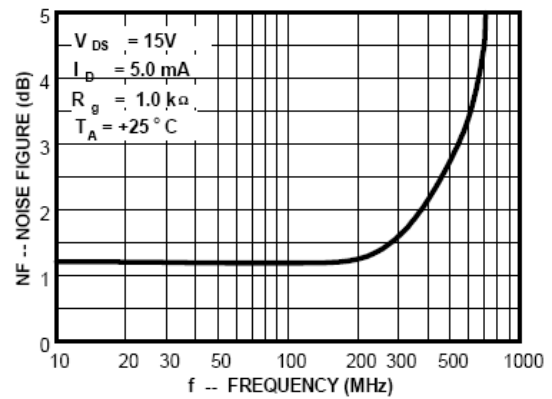
### Noise Voltage vs Frequency



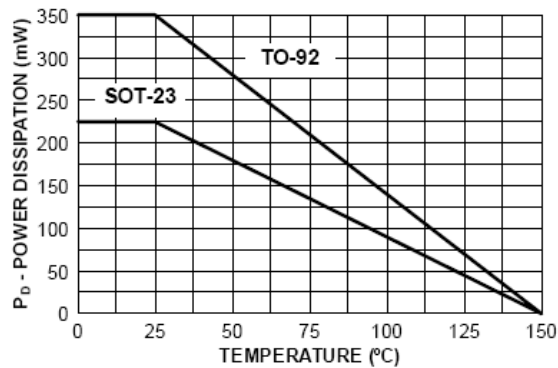
### Capacitance vs Voltage



### Noise Figure Frequency



### Power Dissipation vs. Ambient Temperature

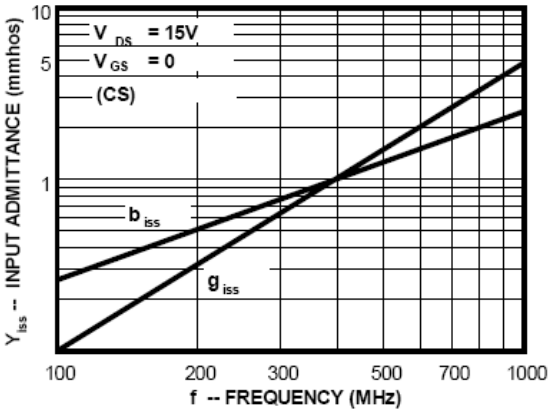


# N-Channel RF Amplifier

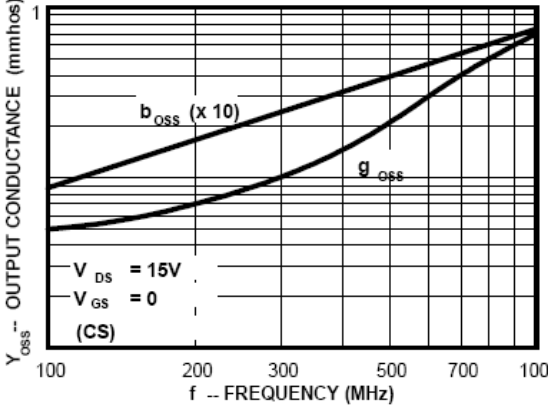
(continued)

## Common Source Characteristics

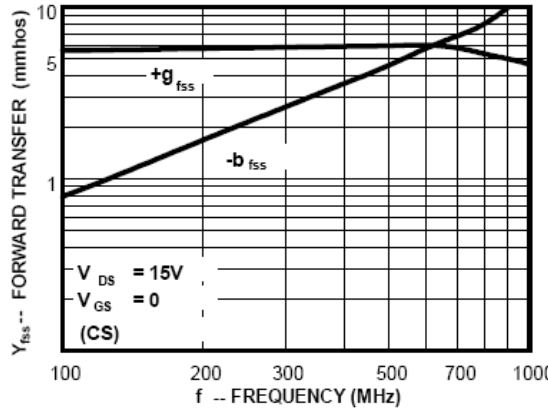
Input Admittance



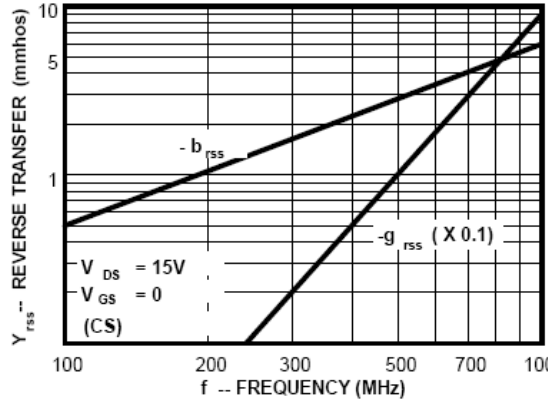
Output Admittance



Forward Transadmittance



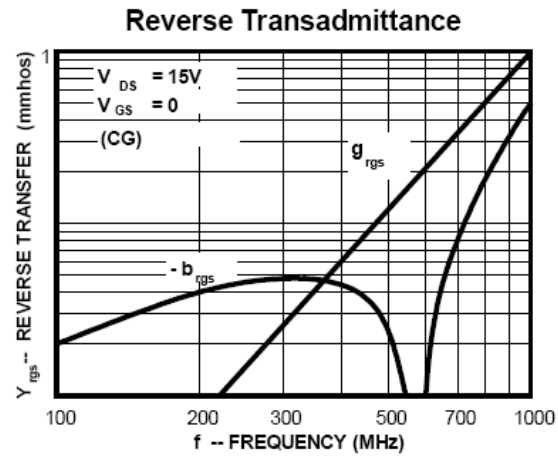
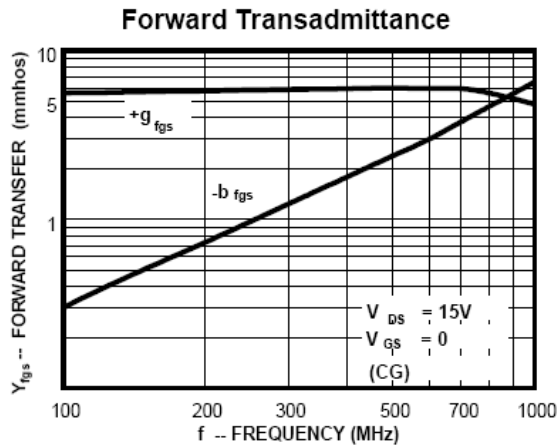
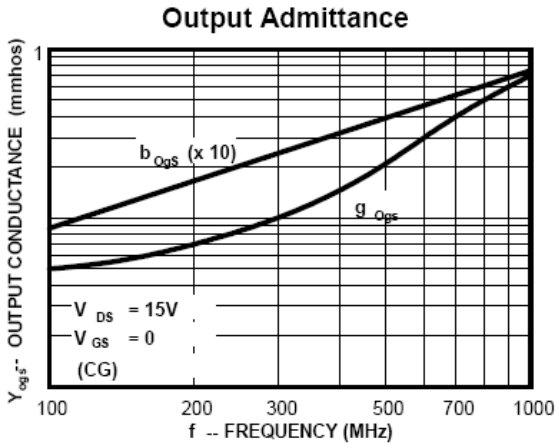
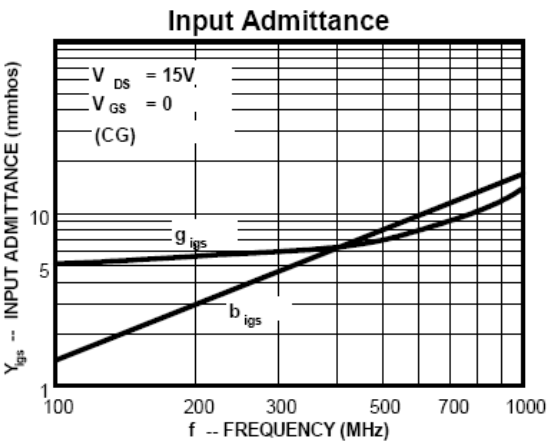
Reverse Transadmittance



# N-Channel RF Amplifier

(continued)




## Common Gate Characteristics





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| FRFET®   |  ® | SuperSOT™-3                | VCX™  |
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