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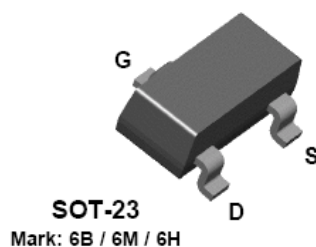
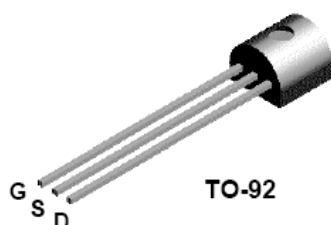
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# 2N5484/5485/5486 MMBF5484/5485/5486



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 <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
		2N5484-5486	*MMBF5484-5486	
P <sub>D</sub>	Total Device Dissipation Derate above 25°C	350 2.8	225 1.8	mW 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."



## 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 $\mu$ A, 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 $\mu$ A
V <sub>GS(off)</sub>	Gate-Source Cutoff Voltage	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 10 nA	-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	$\mu$ mhos $\mu$ mhos $\mu$ mhos
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	$\mu$ mhos $\mu$ mhos
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	$\mu$ mhos $\mu$ mhos $\mu$ mhos
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	$\mu$ mhos $\mu$ mhos
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		$\mu$ mhos $\mu$ mhos $\mu$ mhos
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 k $\Omega$ , f = 100 MHz V <sub>DS</sub> = 15 V, R <sub>G</sub> = 1.0 k $\Omega$ , f = 400 MHz V <sub>DS</sub> = 15 V, R <sub>G</sub> = 1.0 k $\Omega$ , f = 100 MHz V <sub>DS</sub> = 15 V, R <sub>G</sub> = 1.0 k $\Omega$ , f = 400 MHz	5484 5484 5485 / 5486 5485 / 5486		3.0 4.0 2.0 4.0	dB dB dB dB

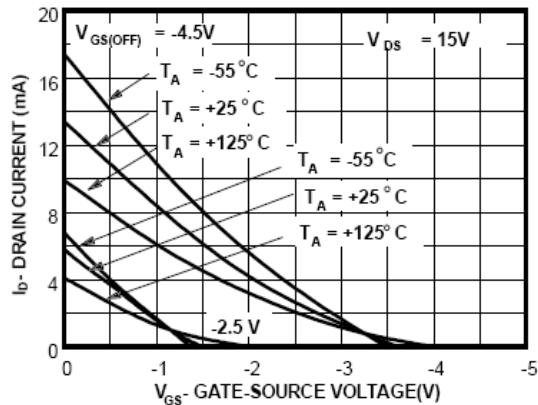


# N-Channel RF Amplifier

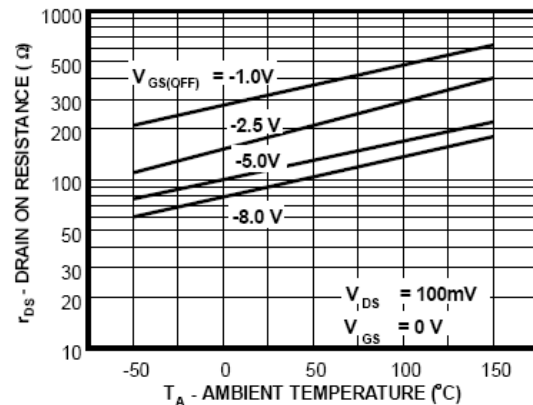
(continued)

## Typical Characteristics

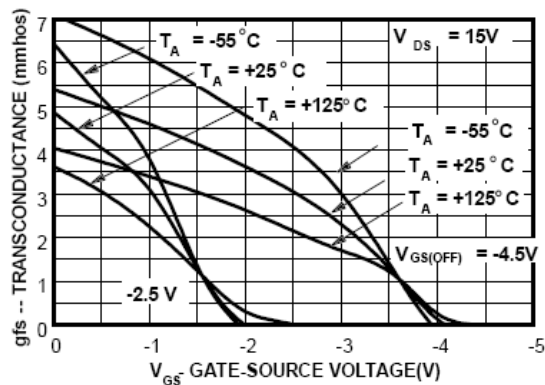
Transfer Characteristics



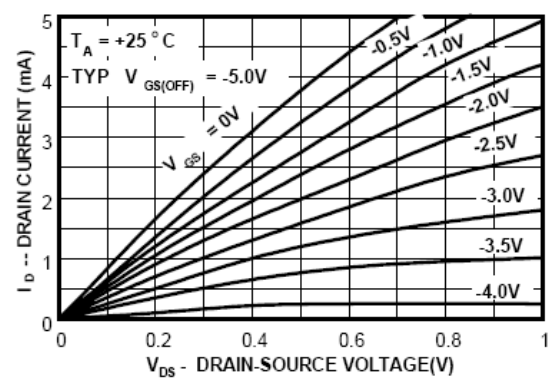
Channel Resistance vs Temperature



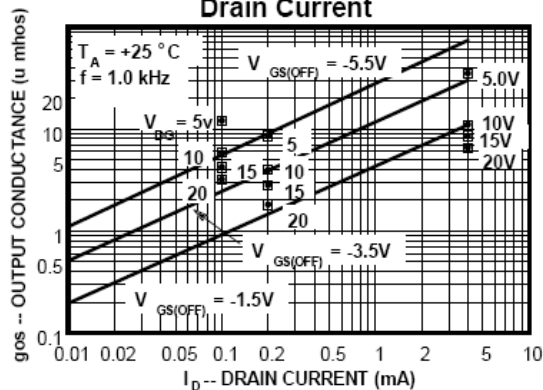
Transconductance Characteristics



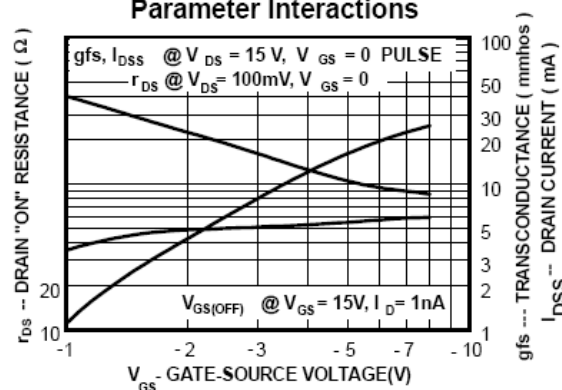
Common Drain-Source Characteristics



Output Conductance vs Drain Current



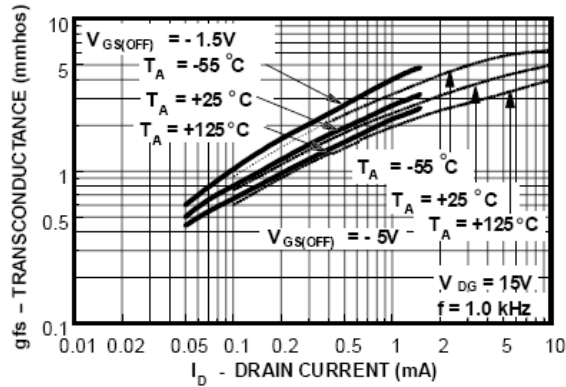
Transconductance Parameter Interactions



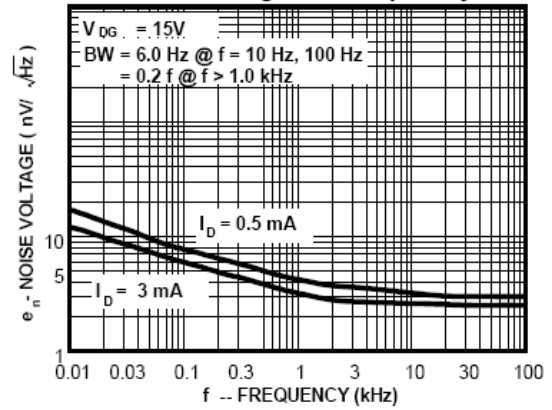


## Typical Characteristics (continued)

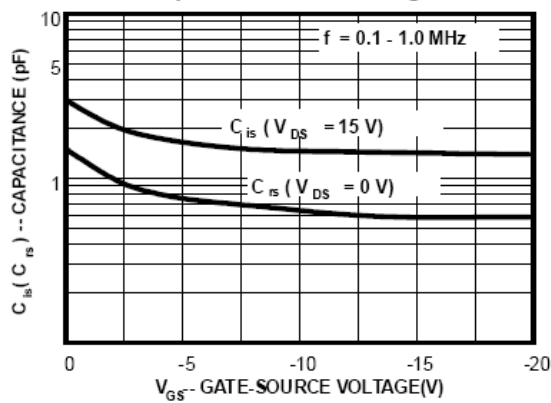
### Transconductance vs Drain Current



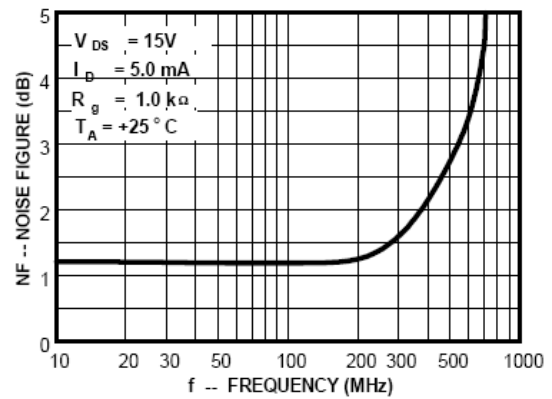
### Noise Voltage vs Frequency



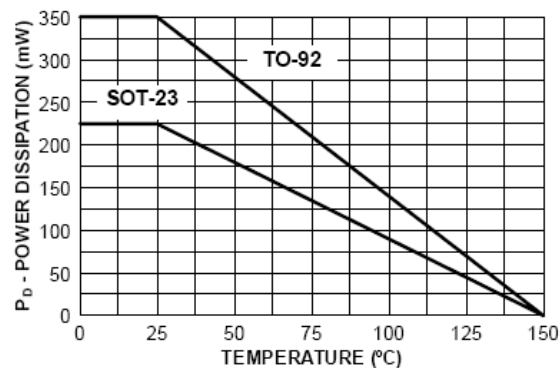
### Capacitance vs Voltage



### Noise Figure Frequency



### Power Dissipation vs. Ambient Temperature

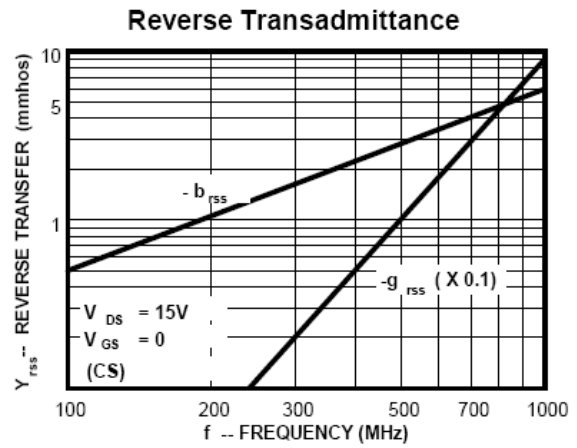
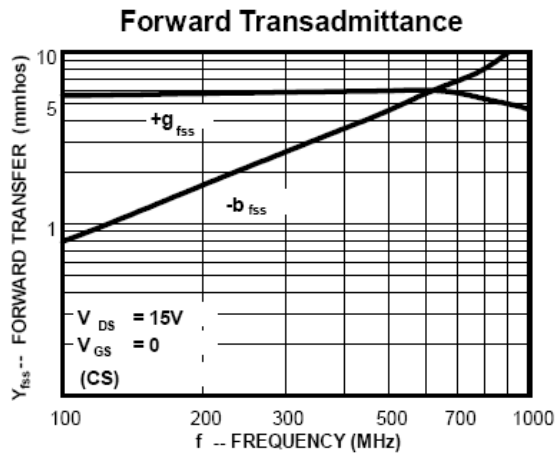
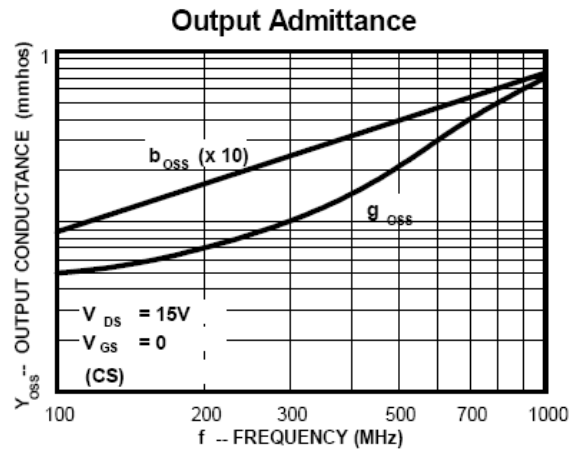
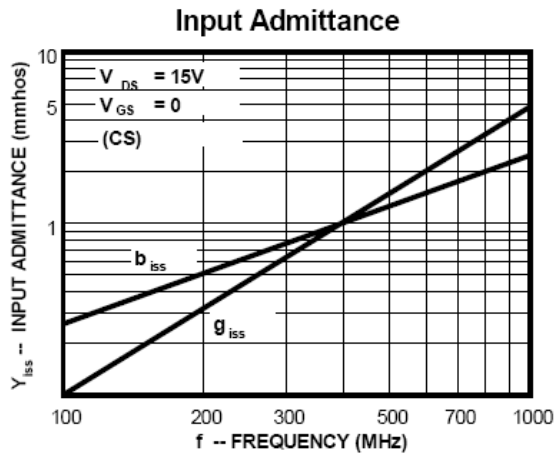




# N-Channel RF Amplifier

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## Common Source Characteristics

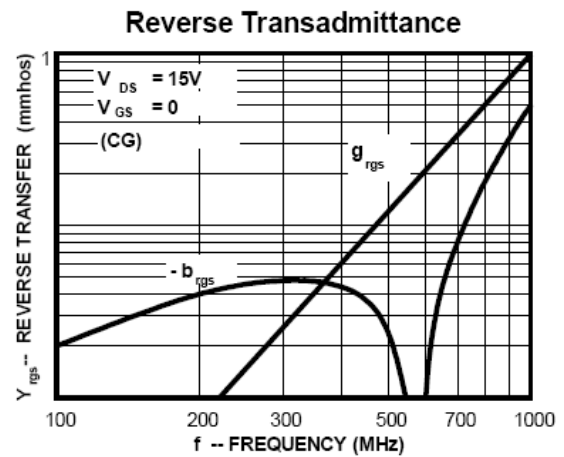
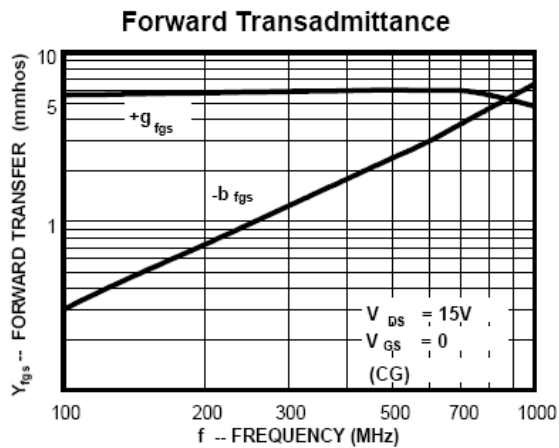
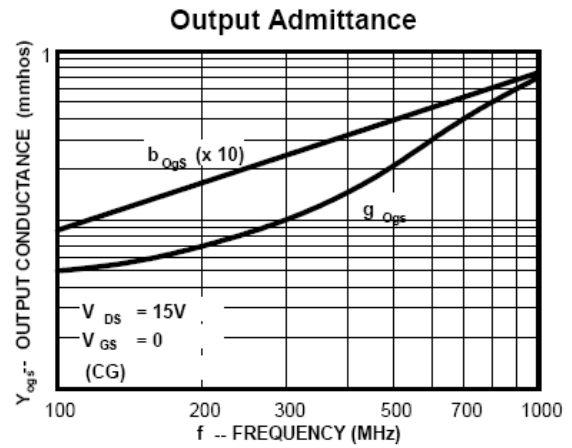
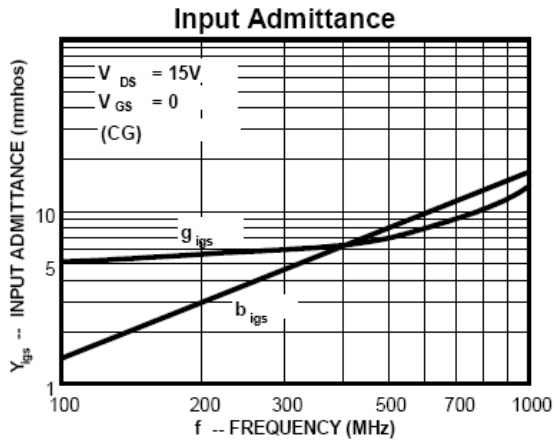




# N-Channel RF Amplifier

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## Common Gate Characteristics







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