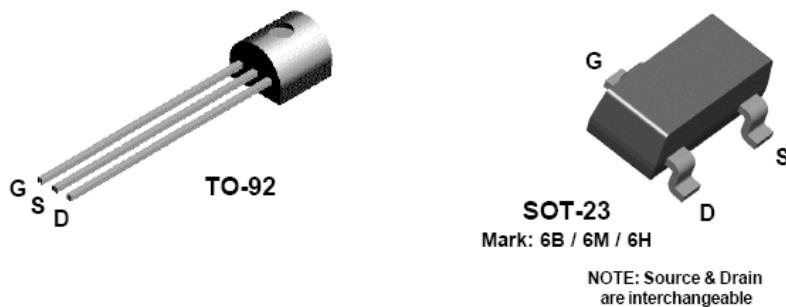


2N5484/5485/5486 MMBF5484/5485/5486



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 Derate above 25°C	350 2.8	225 1.8	mW mW/°C
R_{qJC}	Thermal Resistance, Junction to Case	125		°C/W
R_{qJA}	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
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OFF CHARACTERISTICS

$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	$I_G = -1.0 \mu A, V_{DS} = 0$	- 25			V
I_{GSS}	Gate Reverse Current	$V_{GS} = -20 V, V_{DS} = 0$ $V_{GS} = -20 V, V_{DS} = 0, T_A = 100^\circ C$			- 1.0 - 0.2	nA μA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = 15 V, I_D = 10 nA$ 5484 5485 5486	- 0.3 - 0.5 - 2.0		- 3.0 - 4.0 - 6.0	V V V

ON CHARACTERISTICS

I_{DSS}	Zero-Gate Voltage Drain Current*	$V_{DS} = 15 V, V_{GS} = 0$	5484 5485 5486	1.0 4.0 8.0	5.0 10 20	mA mA mA
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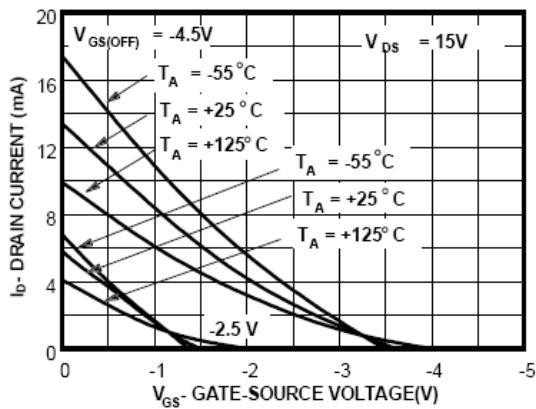
SMALL SIGNAL CHARACTERISTICS

g_{fs}	Forward Transfer Conductance	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 \text{ kHz}$ 5484 5485 5486	3000 3500 4000		6000 7000 8000	μmhos μmhos μmhos
$R_e(y_{is})$	Input Conductance	$V_{DS} = 15 V, V_{GS} = 0, f = 100 \text{ MHz}$ 5484 $V_{DS} = 15 V, V_{GS} = 0, f = 400 \text{ MHz}$ 5485 / 5486			100 1000	μmhos μmhos
g_{os}	Output Conductance	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 \text{ kHz}$ 5484 5485 5486			50 60 75	μmhos μmhos μmhos
$R_e(y_{os})$	Output Conductance	$V_{DS} = 15 V, V_{GS} = 0, f = 100 \text{ MHz}$ 5484 $V_{DS} = 15 V, V_{GS} = 0, f = 400 \text{ MHz}$ 5485 / 5486			75 100	μmhos μmhos
$R_e(y_{fs})$	Forward Transconductance	$V_{DS} = 15 V, V_{GS} = 0, f = 100 \text{ MHz}$ 5484 $V_{DS} = 15 V, V_{GS} = 0, f = 400 \text{ MHz}$ 5485 5486	2500 3000 3500			μmhos μmhos μmhos
C_{iss}	Input Capacitance	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 \text{ MHz}$			5.0	pF
C_{rss}	Reverse Transfer Capacitance	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 \text{ MHz}$			1.0	pF
C_{oss}	Output Capacitance	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 \text{ MHz}$			2.0	pF
NF	Noise Figure	$V_{DS} = 15 V, R_G = 1.0 \text{ k}\Omega, f = 100 \text{ MHz}$ 5484 $V_{DS} = 15 V, R_G = 1.0 \text{ k}\Omega, f = 400 \text{ MHz}$ 5484 $V_{DS} = 15 V, R_G = 1.0 \text{ k}\Omega, f = 100 \text{ MHz}$ 5485 / 5486 $V_{DS} = 15 V, R_G = 1.0 \text{ k}\Omega, f = 400 \text{ MHz}$ 5485 / 5486		4.0	3.0 2.0 4.0	dB dB dB

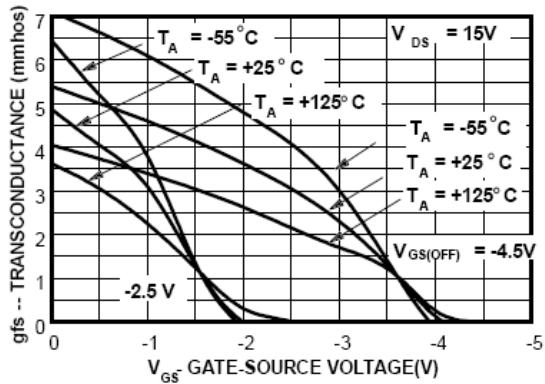
N-Channel RF Amplifier (continued)

Typical Characteristics

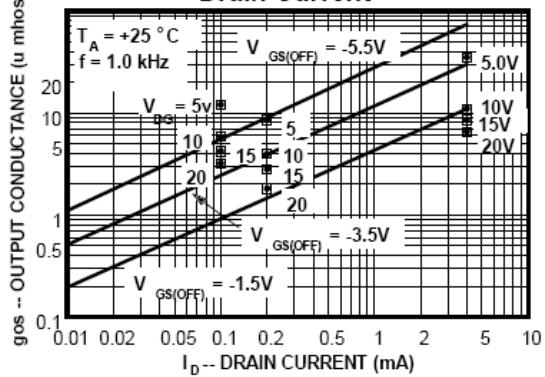
Transfer Characteristics



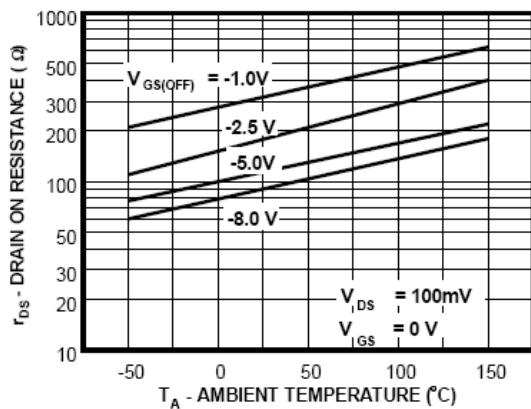
Transconductance Characteristics



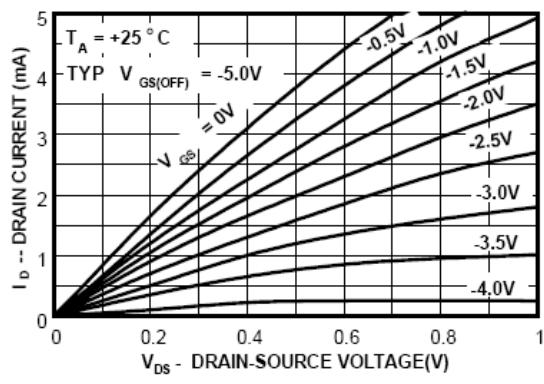
Output Conductance vs Drain Current



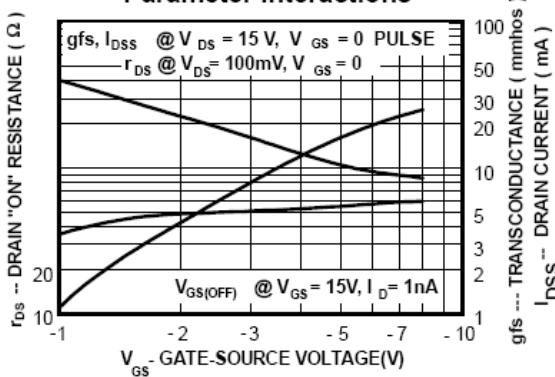
Channel Resistance vs Temperature



Common Drain-Source Characteristics

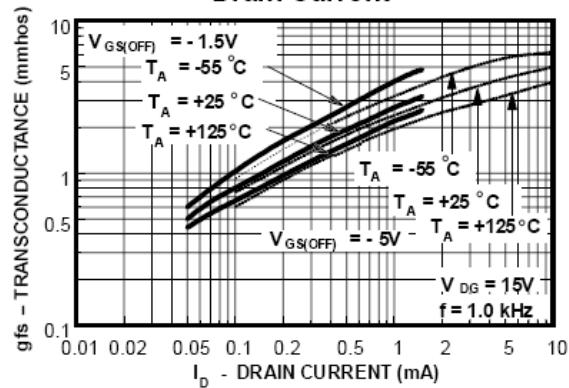


Transconductance Parameter Interactions

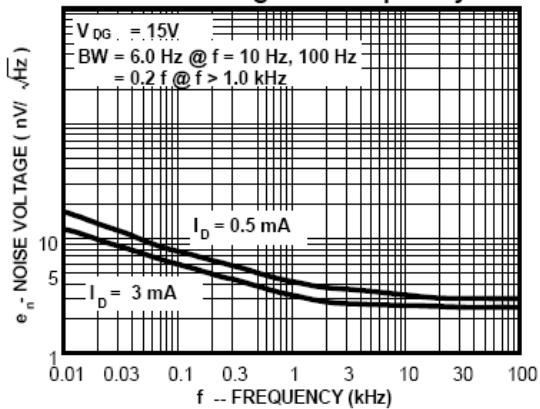


Typical Characteristics (continued)

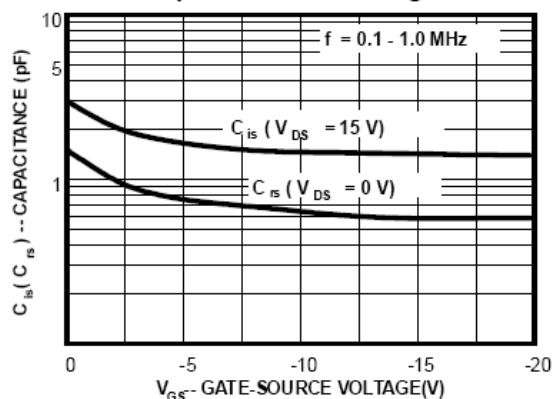
Transconductance vs
Drain Current



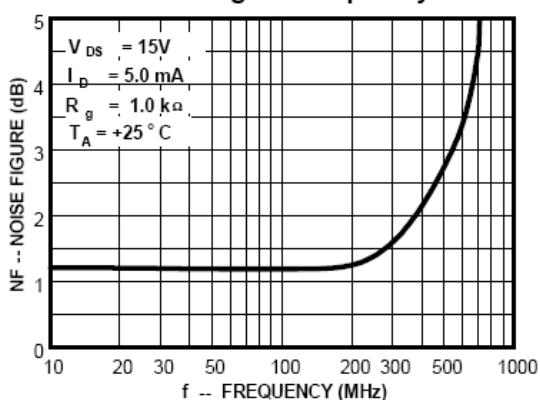
Noise Voltage vs Frequency



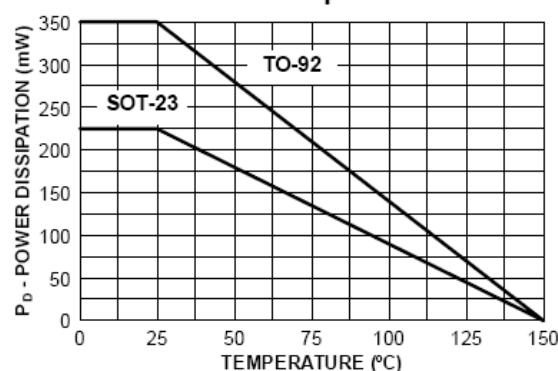
Capacitance vs Voltage



Noise Figure Frequency



Power Dissipation vs.
Ambient Temperature

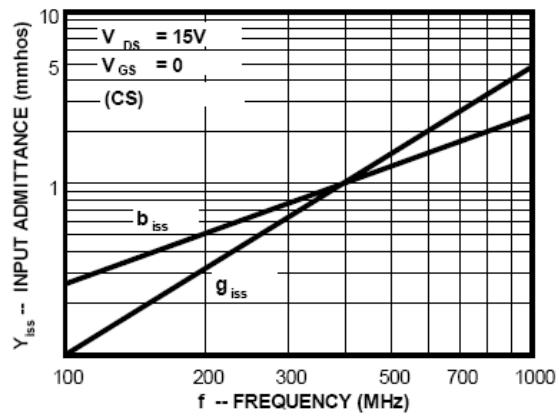


N-Channel RF Amplifier

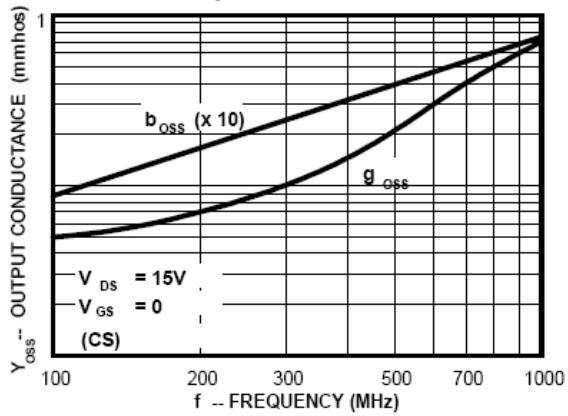
(continued)

Common Source Characteristics

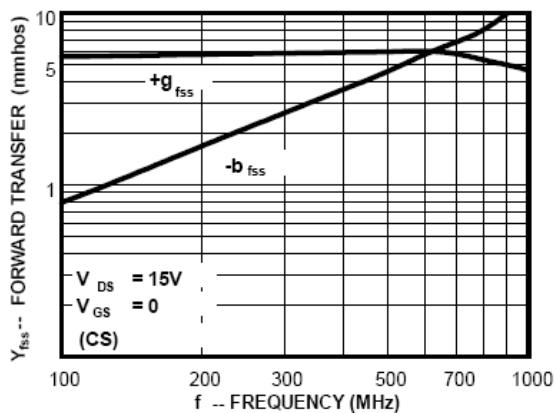
Input Admittance



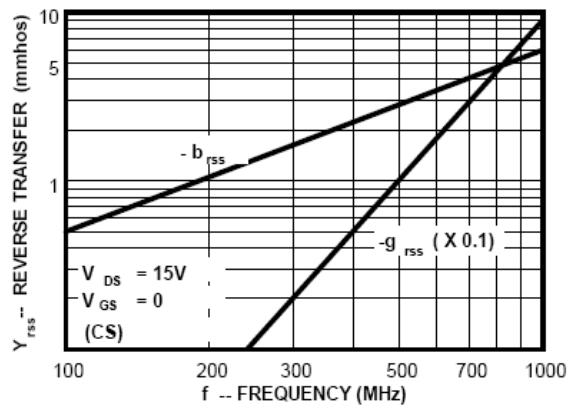
Output Admittance



Forward Transadmittance



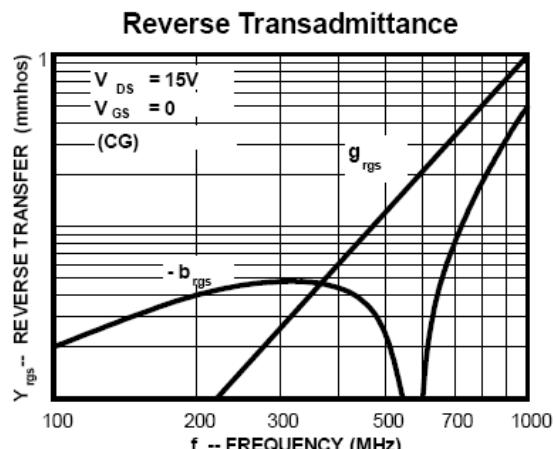
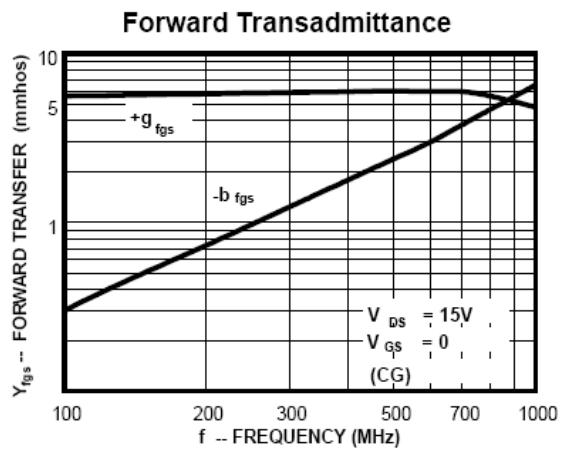
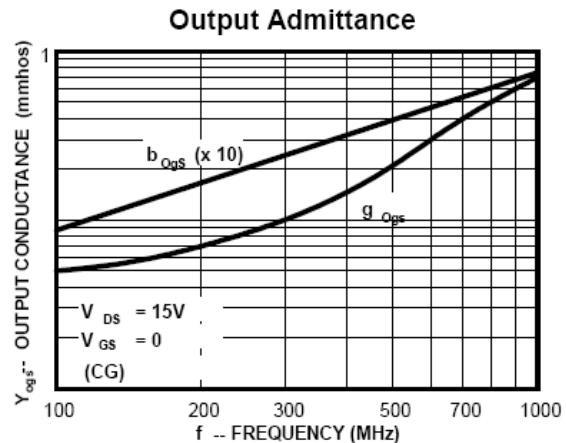
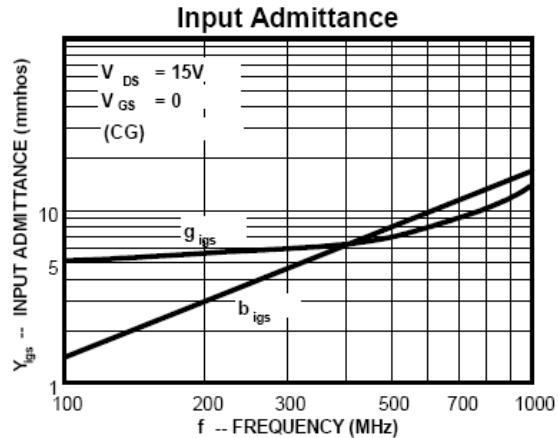
Reverse Transadmittance



N-Channel RF Amplifier

(continued)

Common Gate Characteristics





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