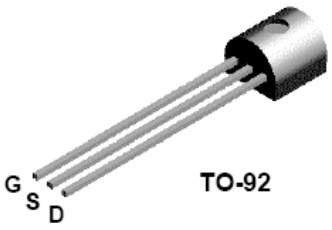
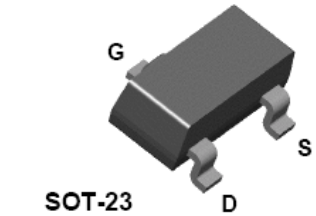
FAIRCHILD
SEMICONDUCTOR®

February 2009

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_{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
$R_{\theta JC}$	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."

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Electrical Characteristics

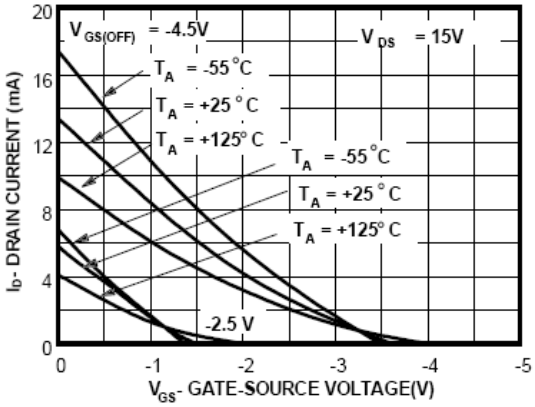
TA = 25°C unless otherwise noted

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

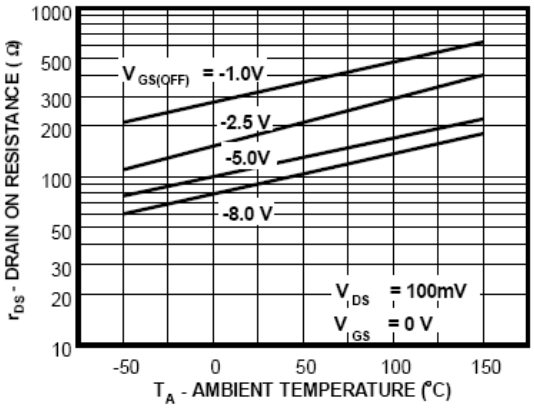
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Typical Characteristics

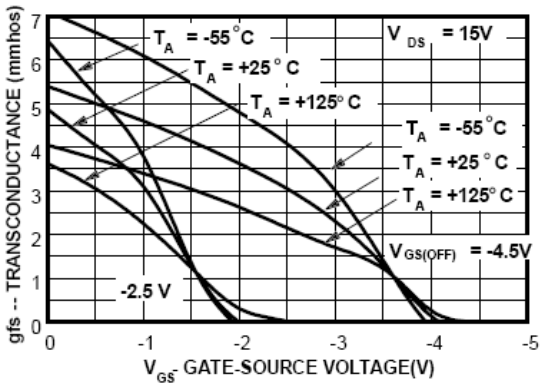
Transfer Characteristics



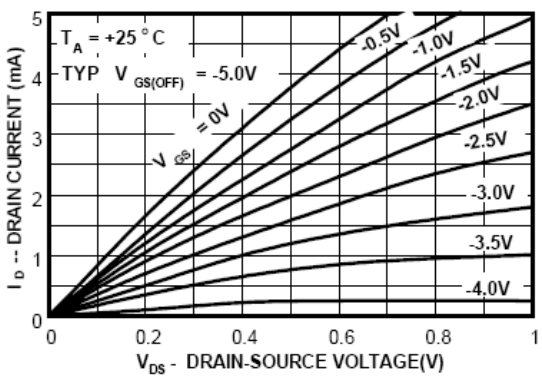
Channel Resistance vs Temperature



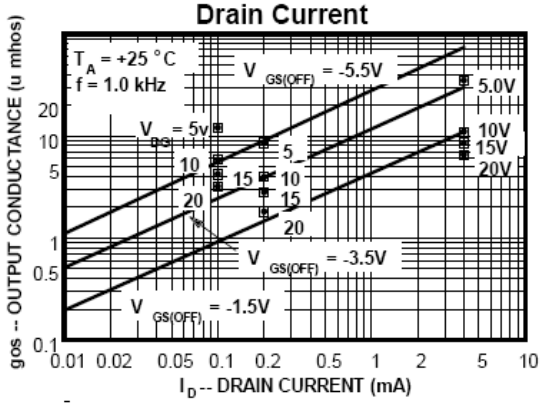
Transconductance Characteristics



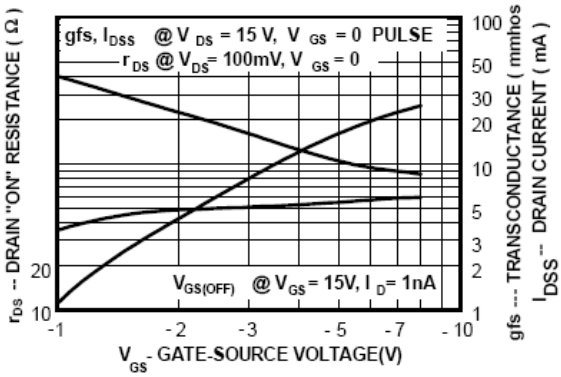
Common Drain-Source Characteristics



Output Conductance vs Drain Current



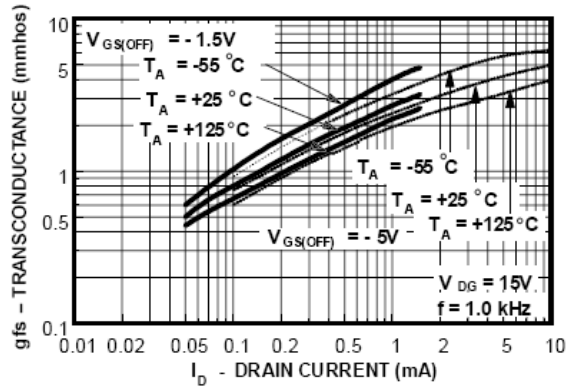
Transconductance Parameter Interactions



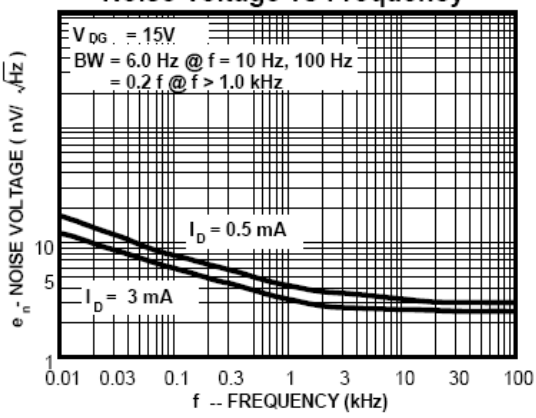
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Typical Characteristics (continued)

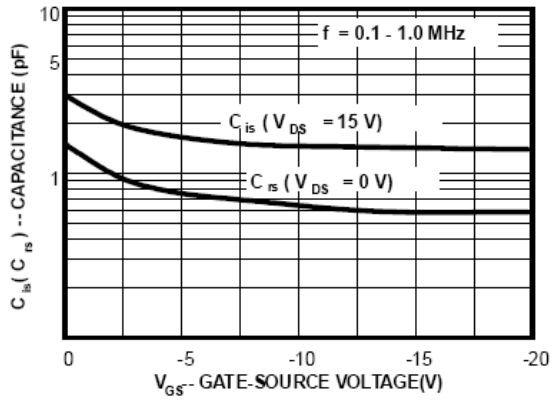
Transconductance vs Drain Current



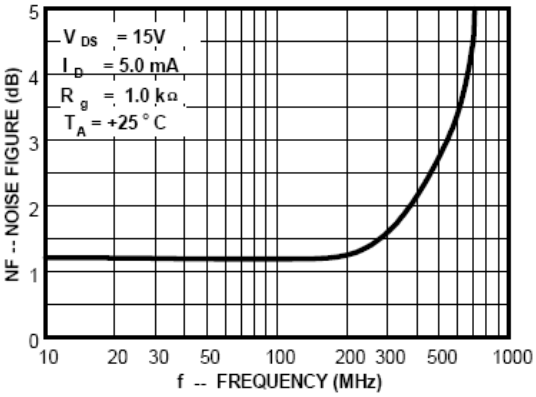
Noise Voltage vs Frequency



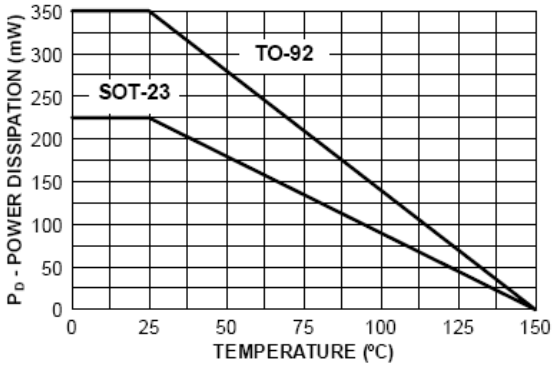
Capacitance vs Voltage



Noise Figure Frequency



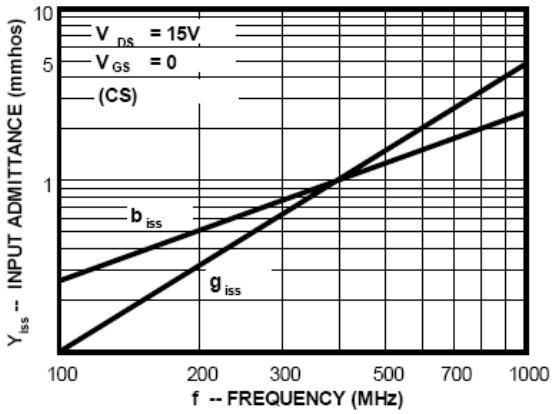
Power Dissipation vs. Ambient Temperature



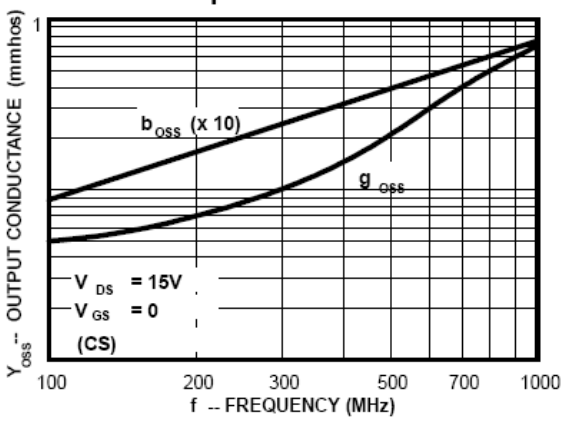
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Common Source Characteristics

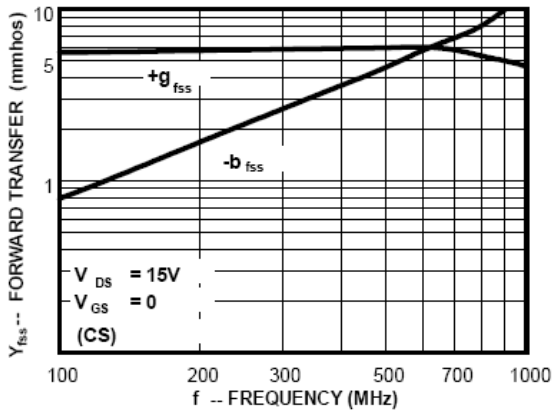
Input Admittance



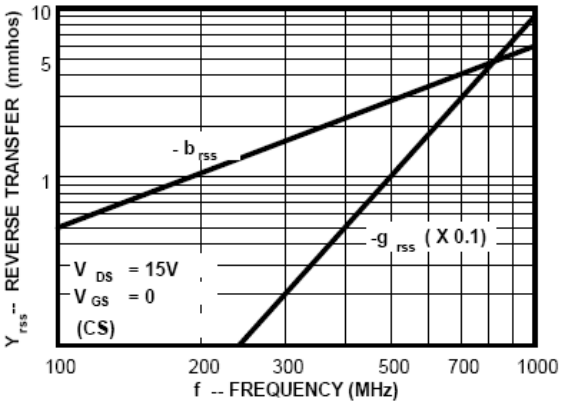
Output Admittance



Forward Transadmittance



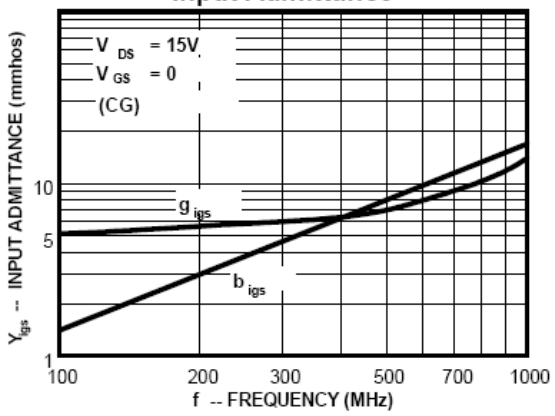
Reverse Transadmittance



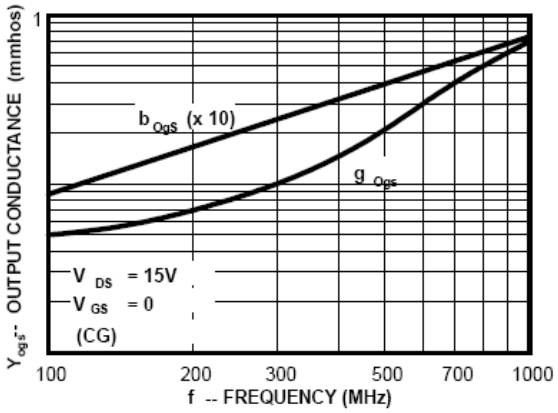
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Common Gate Characteristics

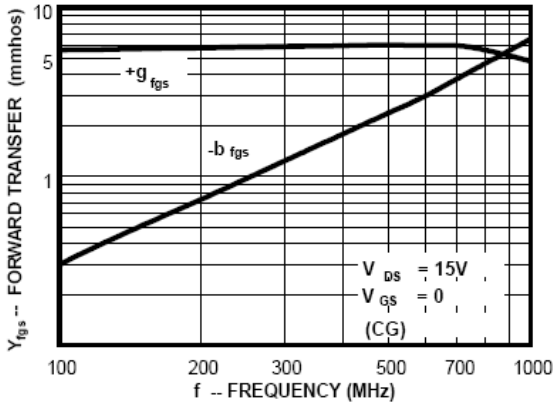
Input Admittance



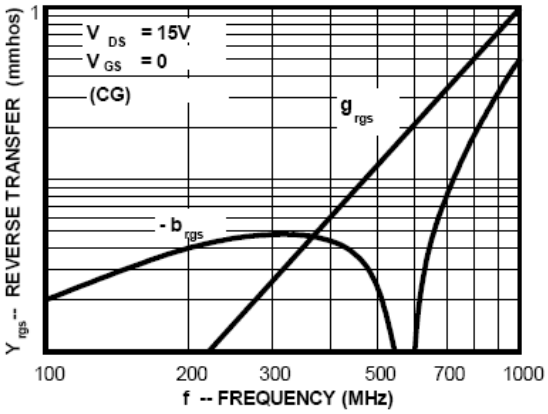
Output Admittance



Forward Transadmittance



Reverse Transadmittance



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Rev. I31

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