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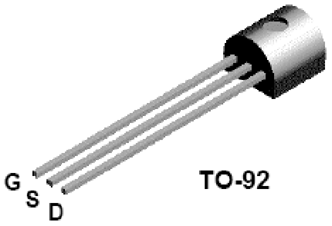
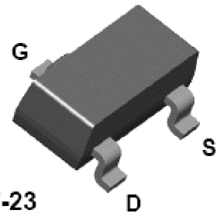
SEMICONDUCTOR®

February 2009

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 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."

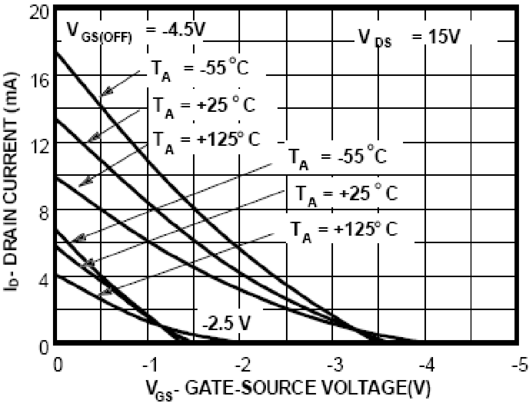
Electrical Characteristics

TA = 25°C unless otherwise noted

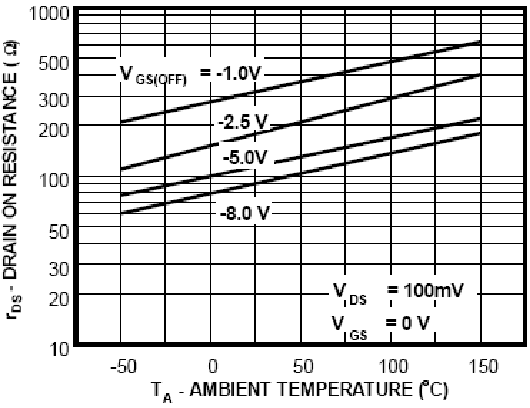
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	I_G = - 1.0 µA, V_{DS} = 0	- 25			V
I_{GSS}	Gate Reverse Current	V_{GS} = - 20 V, V_{DS} = 0			- 1.0	nA
		V_{GS}= - 20 V, V_{DS}= 0, T_A= 100°C			- 0.2	µA
$V_{GS(off)}$	Gate-Source 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

Typical Characteristics

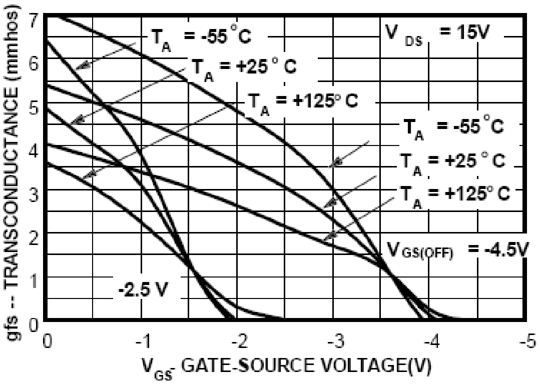
Transfer Characteristics



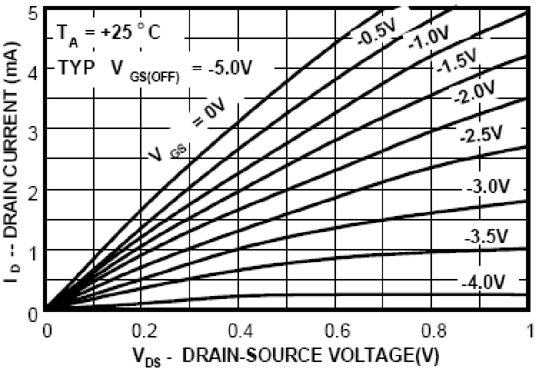
Channel Resistance vs Temperature



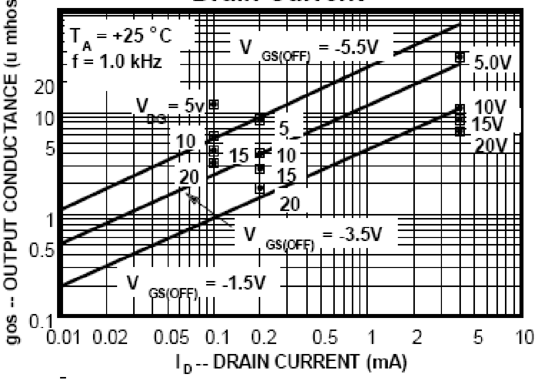
Transconductance Characteristics



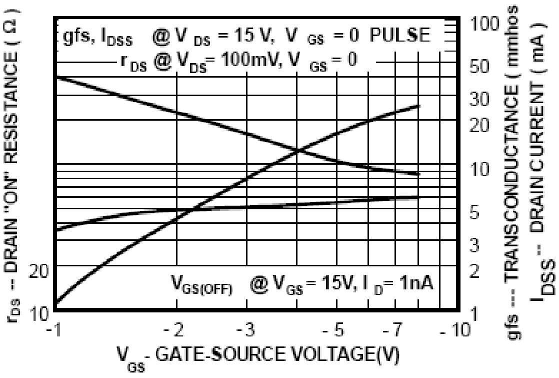
Common Drain-Source Characteristics



Output Conductance vs Drain Current

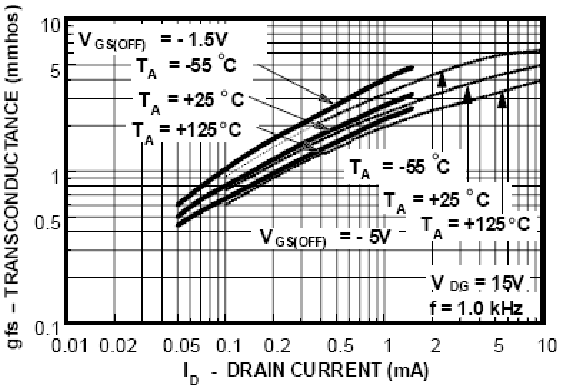


Transconductance Parameter Interactions

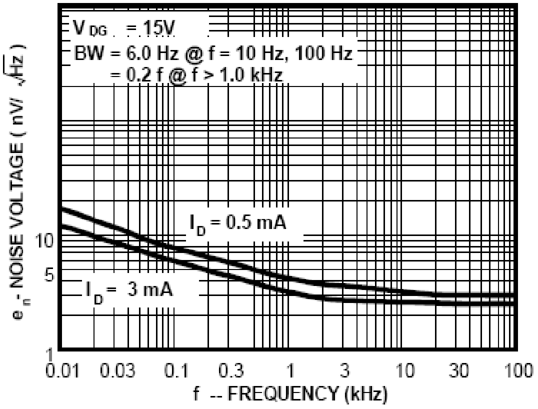


Typical Characteristics (continued)

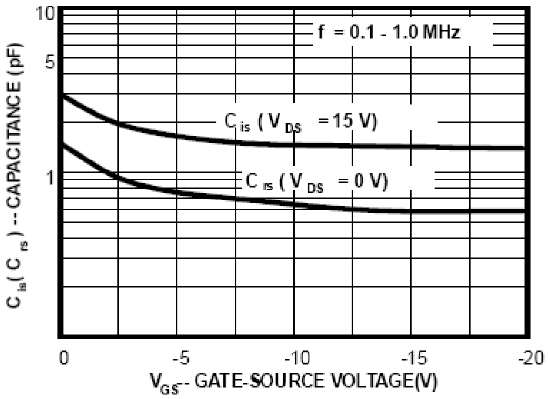
Transconductance vs Drain Current



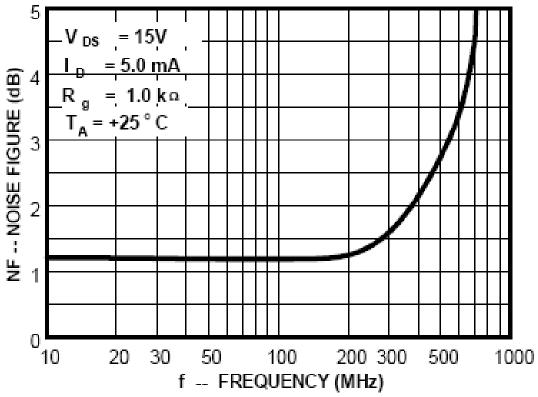
Noise Voltage vs Frequency



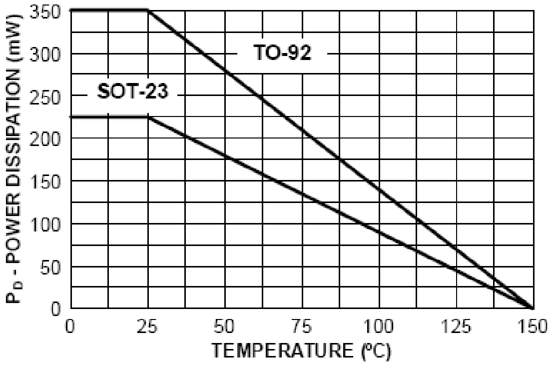
Capacitance vs Voltage



Noise Figure Frequency

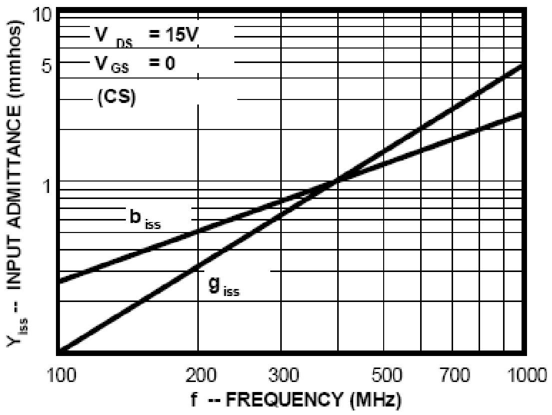


Power Dissipation vs. Ambient Temperature

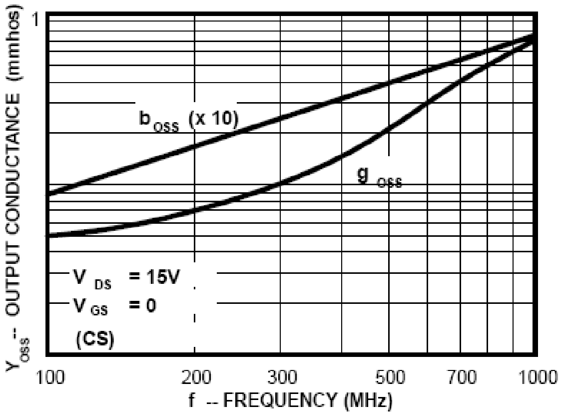


Common Source Characteristics

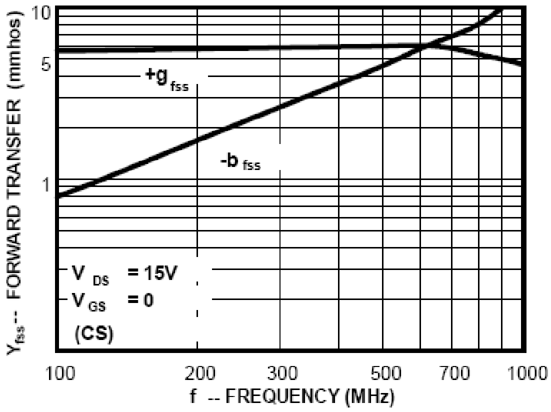
Input Admittance



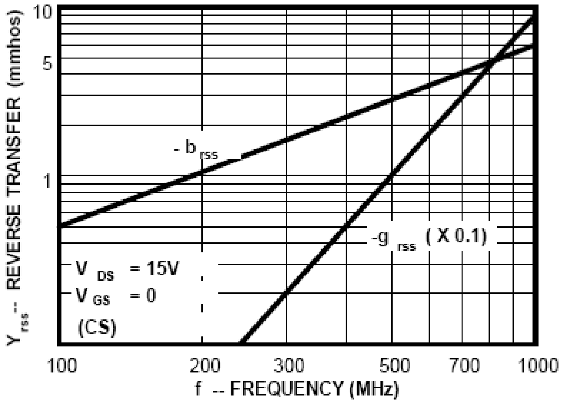
Output Admittance



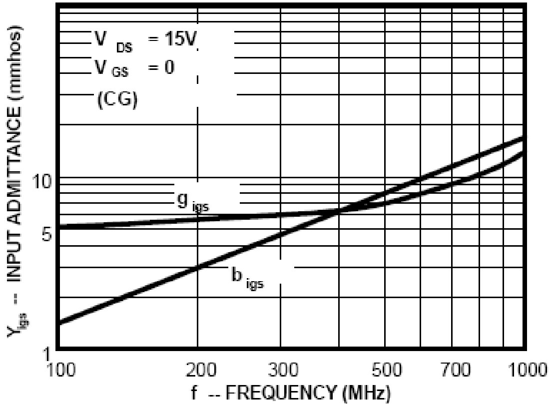
Forward Transadmittance

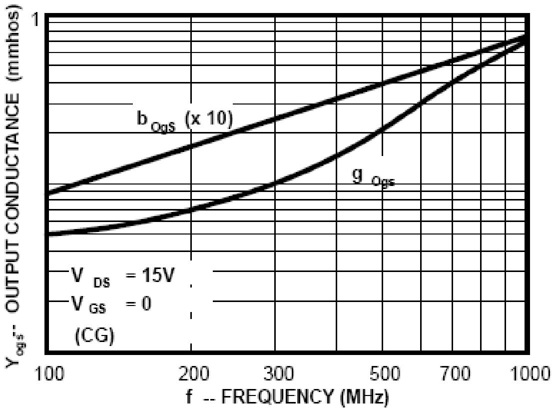


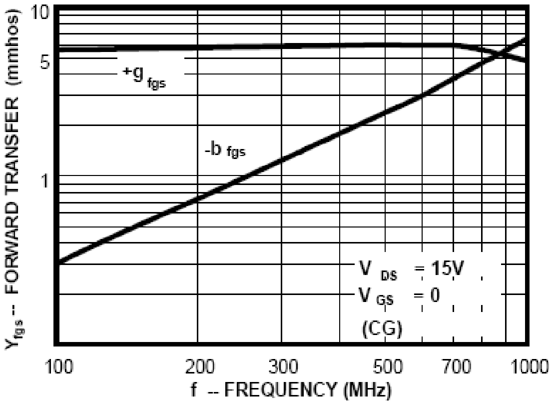
Reverse Transadmittance

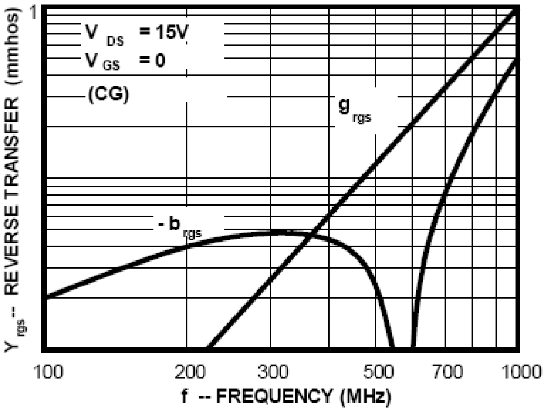


Common Gate Characteristics


Input Admittance


Output Admittance


Forward Transadmittance


Reverse Transadmittance

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