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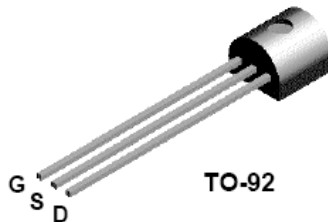


ON Semiconductor®

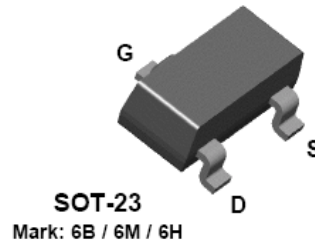
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2N5484/5485/5486 MMBF5484/5485/5486



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

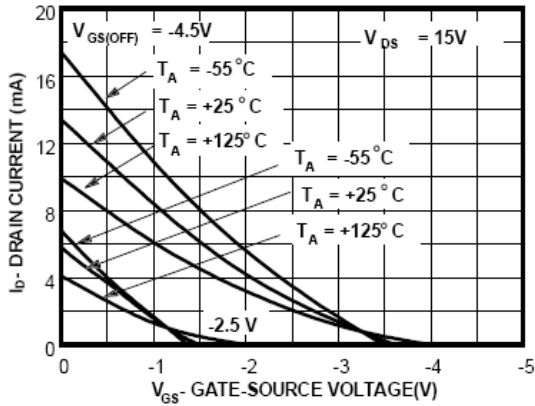
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
V _{(BR)GSS}	Gate-Source Breakdown Voltage	I _G = - 1.0 μA, V _{DS} = 0	- 25			V
I _{GSS}	Gate Reverse Current	V _{GS} = - 20 V, V _{DS} = 0 V _{GS} = - 20 V, V _{DS} = 0, T _A = 100°C			- 1.0 - 0.2	nA μA
V _{GS(off)}	Gate-Source 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
SMALL SIGNAL CHARACTERISTICS						
g _{fs}	Forward Transfer Conductance	V _{DS} = 15 V, V _{GS} = 0, f = 1.0 kHz	5484 5485 5486	3000 3500 4000	6000 7000 8000	μmhos μmhos μmhos
Re(y _{is})	Input Conductance	V _{DS} = 15 V, V _{GS} = 0, f = 100 MHz V _{DS} = 15 V, V _{GS} = 0, f = 400 MHz	5484 5485 / 5486		100 1000	μmhos μmhos
g _{os}	Output Conductance	V _{DS} = 15 V, V _{GS} = 0, f = 1.0 kHz	5484 5485 5486		50 60 75	μmhos μmhos μmhos
Re(y _{os})	Output Conductance	V _{DS} = 15 V, V _{GS} = 0, f = 100 MHz V _{DS} = 15 V, V _{GS} = 0, f = 400 MHz	5484 5485 / 5486		75 100	μmhos μmhos
Re(y _{fs})	Forward Transconductance	V _{DS} = 15 V, V _{GS} = 0, f = 100 MHz V _{DS} = 15 V, V _{GS} = 0, f = 400 MHz	5484 5485 5486	2500 3000 3500		μmhos μmhos 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 V _{DS} = 15 V, R _G = 1.0 kΩ, f = 400 MHz V _{DS} = 15 V, R _G = 1.0 kΩ, f = 100 MHz V _{DS} = 15 V, R _G = 1.0 kΩ, f = 400 MHz	5484 5484 5485 / 5486 5485 / 5486		4.0	3.0 dB 2.0 dB 4.0 dB

N-Channel RF Amplifier

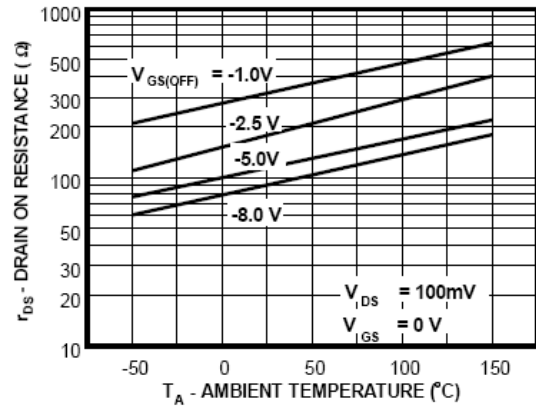
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Typical Characteristics

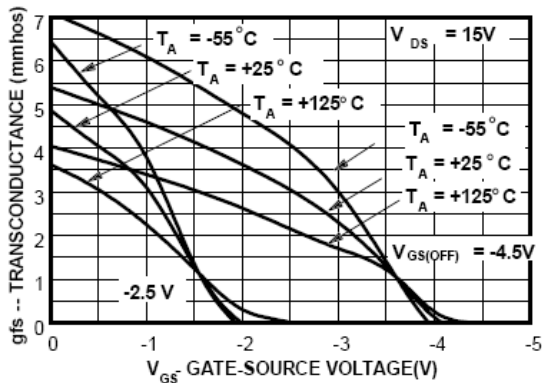
Transfer Characteristics



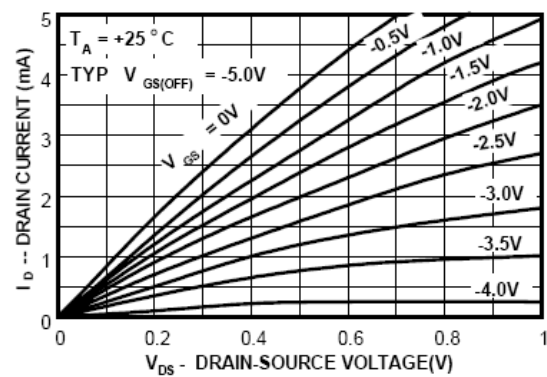
Channel Resistance vs Temperature



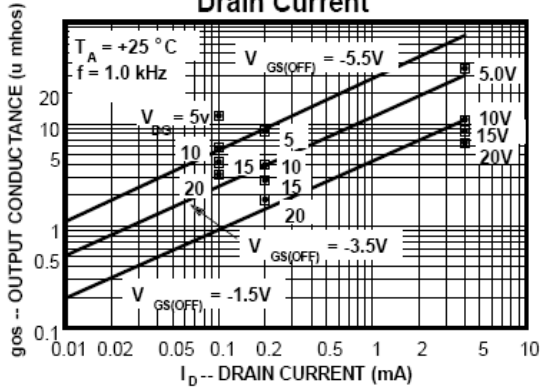
Transconductance Characteristics



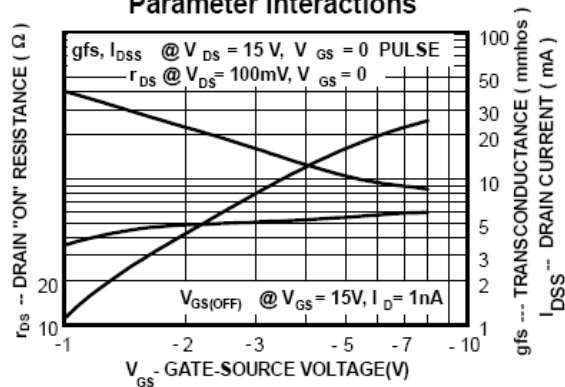
Common Drain-Source Characteristics



Output Conductance vs Drain Current

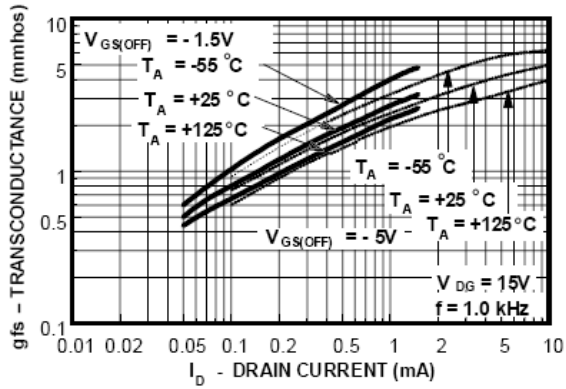


Transconductance Parameter Interactions

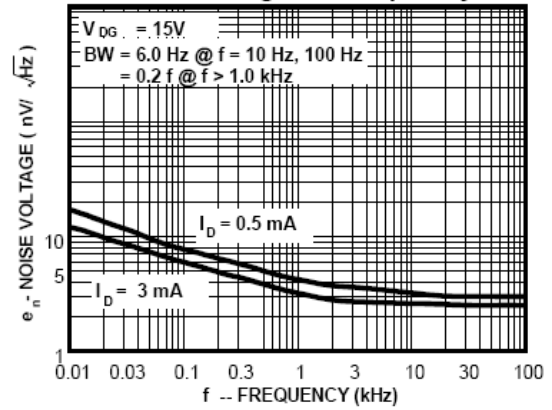


Typical Characteristics (continued)

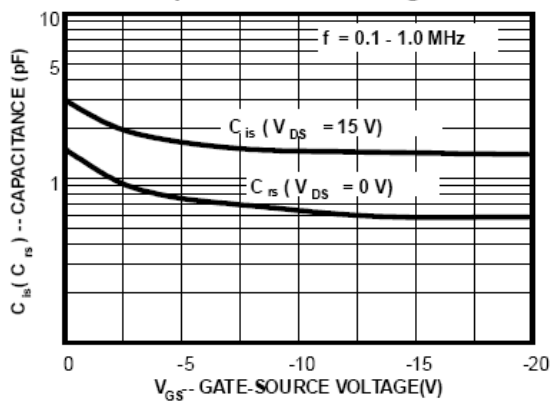
Transconductance vs Drain Current



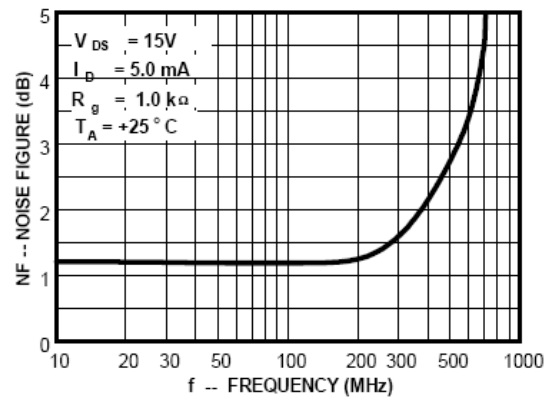
Noise Voltage vs Frequency



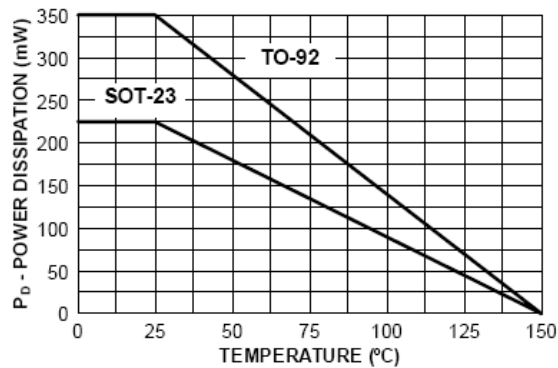
Capacitance vs Voltage



Noise Figure Frequency



Power Dissipation vs. Ambient Temperature

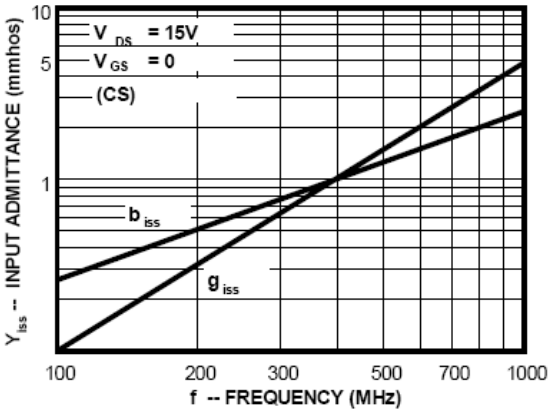


N-Channel RF Amplifier

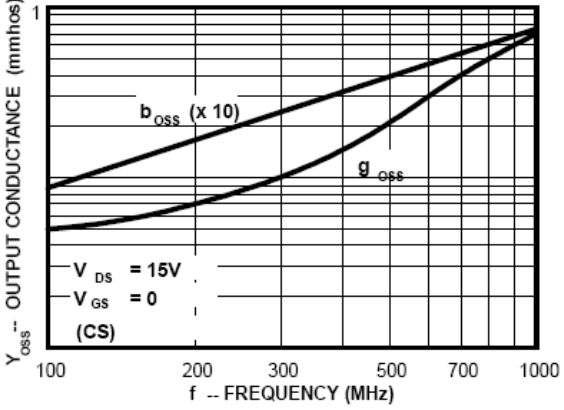
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Common Source Characteristics

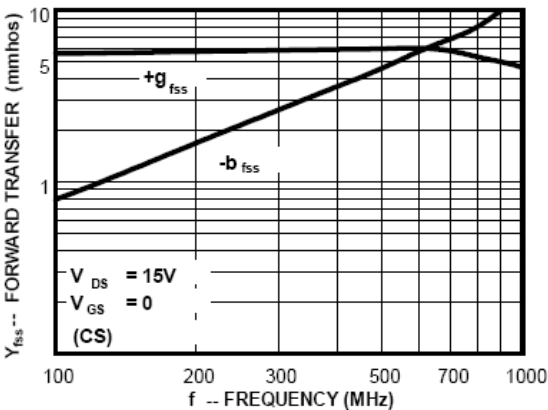
Input Admittance



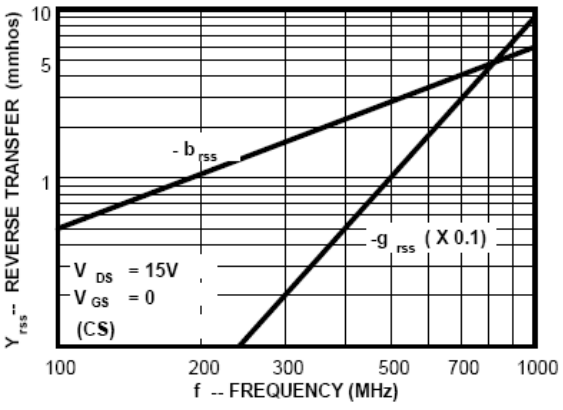
Output Admittance



Forward Transadmittance



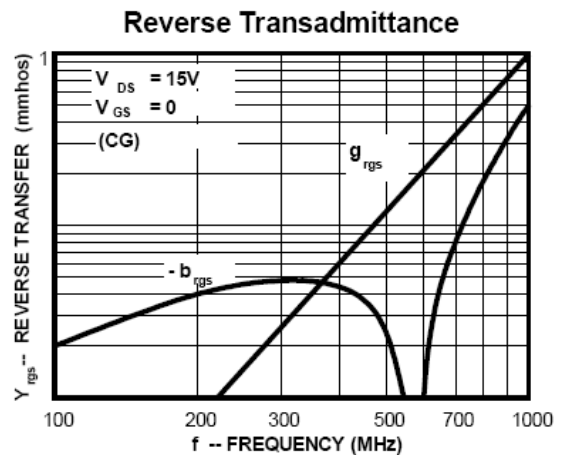
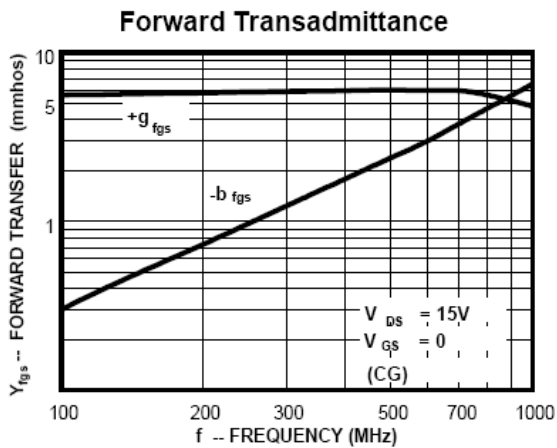
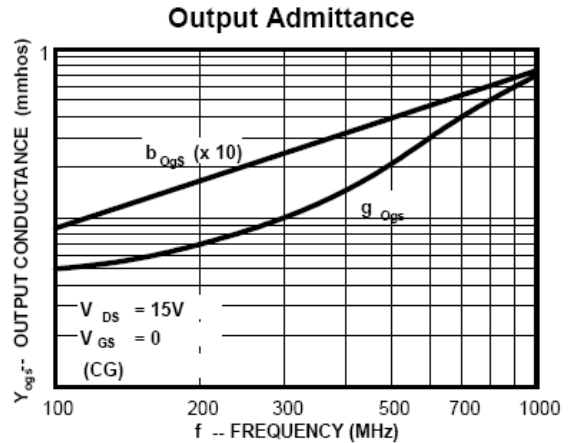
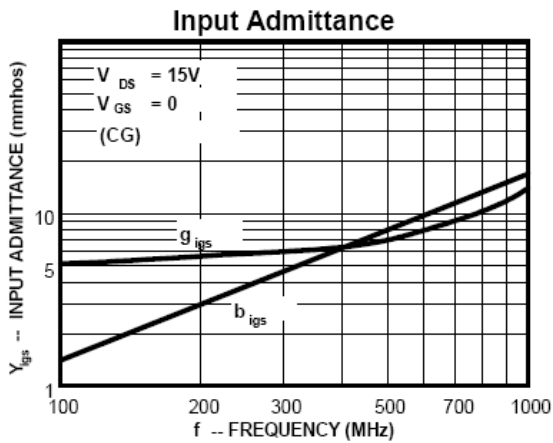
Reverse Transadmittance



N-Channel RF Amplifier

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Common Gate Characteristics





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