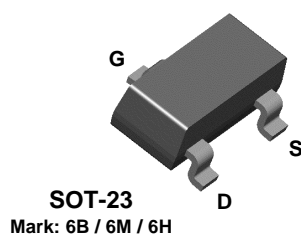
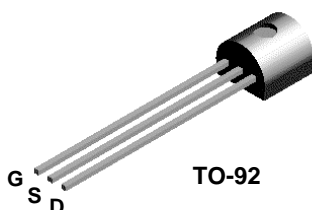


2N5484
2N5485
2N5486

MMBF5484
MMBF5485
MMBF5486



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."

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

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	$I_G = -1.0 \mu A, V_{DS} = 0$	-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	$V_{DS} = 15 V, I_D = 10 nA$	-0.3 -0.5 -2.0		-3.0 -4.0 -6.0	V V V
ON CHARACTERISTICS						
I_{DSS}	Zero-Gate Voltage Drain Current*	$V_{DS} = 15 V, V_{GS} = 0$	1.0 4.0 8.0		5.0 10 20	mA mA mA
SMALL SIGNAL CHARACTERISTICS						
g_{fs}	Forward Transfer Conductance	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz$	3000 3500 4000		6000 7000 8000	$\mu mhos$ $\mu mhos$ $\mu mhos$
$Re(y_{is})$	Input Conductance	$V_{DS} = 15 V, V_{GS} = 0, f = 100 MHz$ $V_{DS} = 15 V, V_{GS} = 0, f = 400 MHz$			100 1000	$\mu mhos$ $\mu mhos$
g_{os}	Output Conductance	$V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz$			50 60 75	$\mu mhos$ $\mu mhos$ $\mu mhos$
$Re(y_{os})$	Output Conductance	$V_{DS} = 15 V, V_{GS} = 0, f = 100 MHz$ $V_{DS} = 15 V, V_{GS} = 0, f = 400 MHz$			75 100	$\mu mhos$ $\mu mhos$
$Re(y_{fs})$	Forward Transconductance	$V_{DS} = 15 V, V_{GS} = 0, f = 100 MHz$ $V_{DS} = 15 V, V_{GS} = 0, f = 400 MHz$	2500 3000 3500			$\mu mhos$ $\mu mhos$ $\mu mhos$
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	$V_{DS} = 15 V, R_G = 1.0 k\Omega, f = 100 MHz$ $V_{DS} = 15 V, R_G = 1.0 k\Omega, f = 400 MHz$ $V_{DS} = 15 V, R_G = 1.0 k\Omega, f = 100 MHz$ $V_{DS} = 15 V, R_G = 1.0 k\Omega, f = 400 MHz$		4.0	3.0 2.0 4.0	dB dB dB dB

*Pulse Test: Pulse Width $\leq 300 ms$, Duty Cycle $\leq 2\%$

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

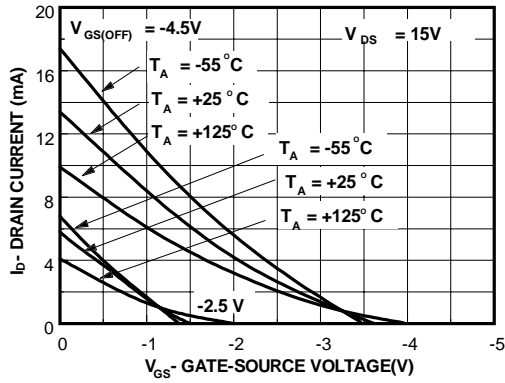
N-Channel RF Amplifier

(continued)

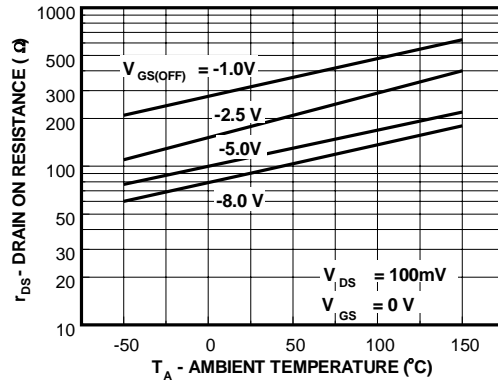
2N5484 / 5485 / 5486 / MMBF5484 / 5485 / 5486

Typical Characteristics

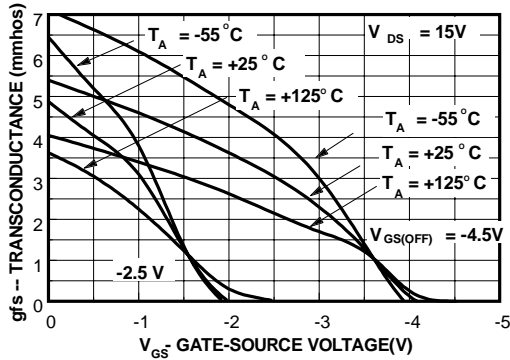
Transfer Characteristics



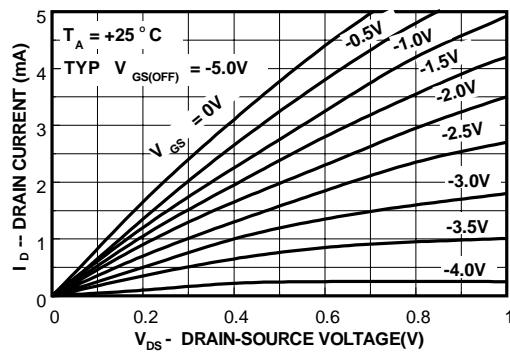
Channel Resistance vs Temperature



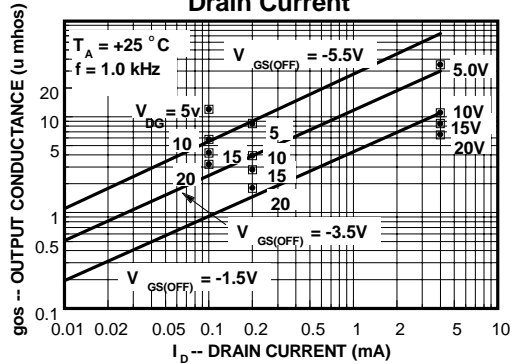
Transconductance Characteristics



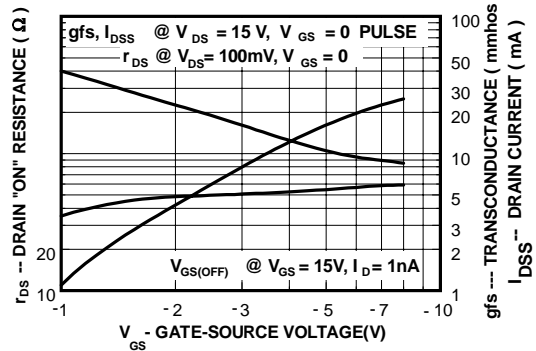
Common Drain-Source Characteristics



Output Conductance vs Drain Current



Transconductance Parameter Interactions

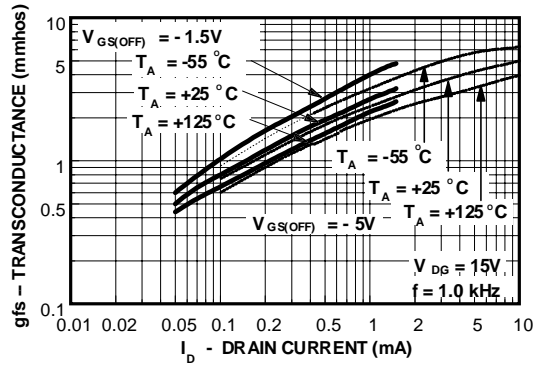


N-Channel RF Amplifier

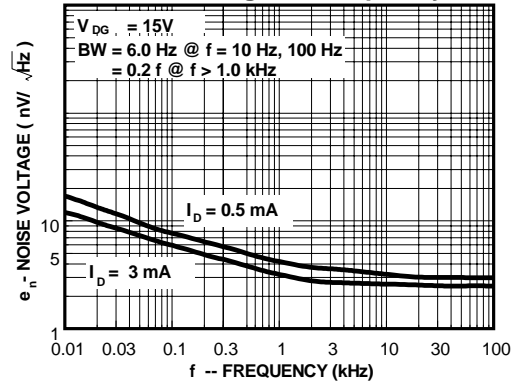
(continued)

Typical Characteristics (continued)

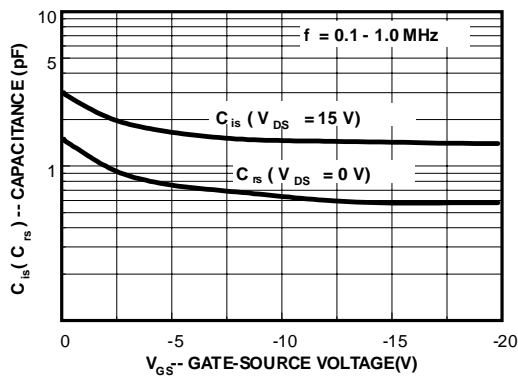
Transconductance vs
Drain Current



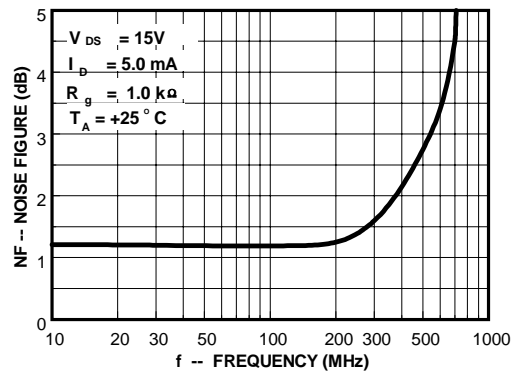
Noise Voltage vs Frequency



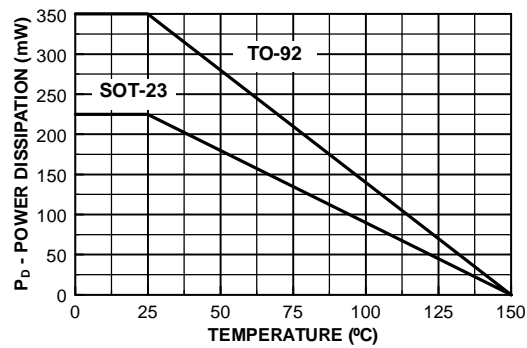
Capacitance vs Voltage



Noise Figure Frequency

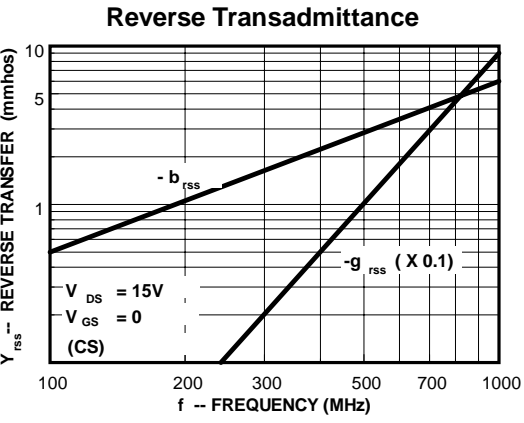
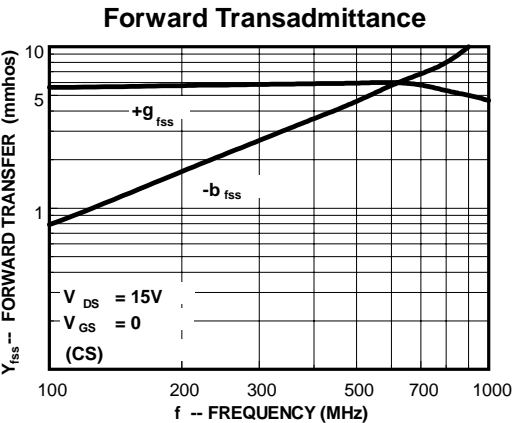
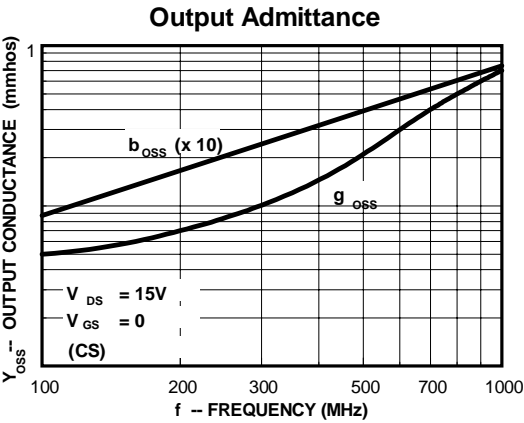
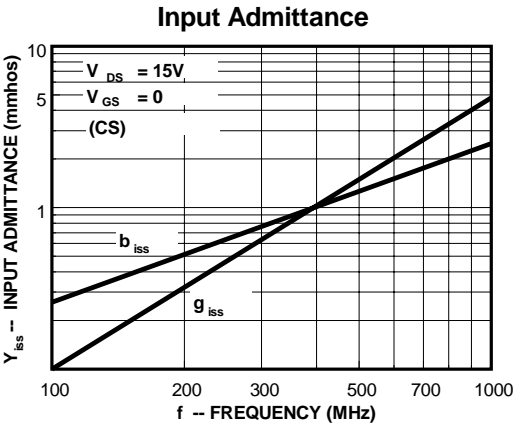


Power Dissipation vs.
Ambient Temperature



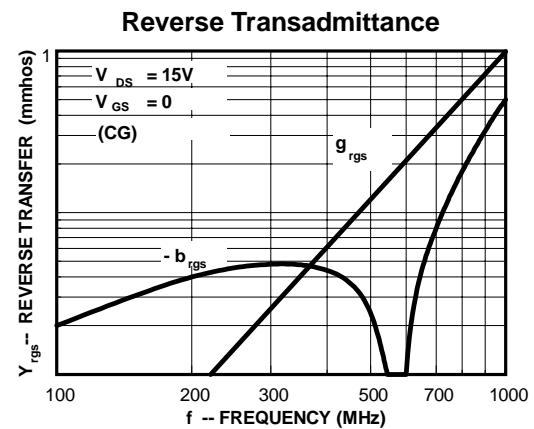
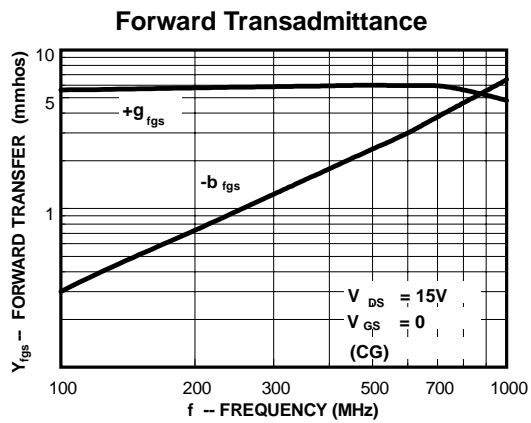
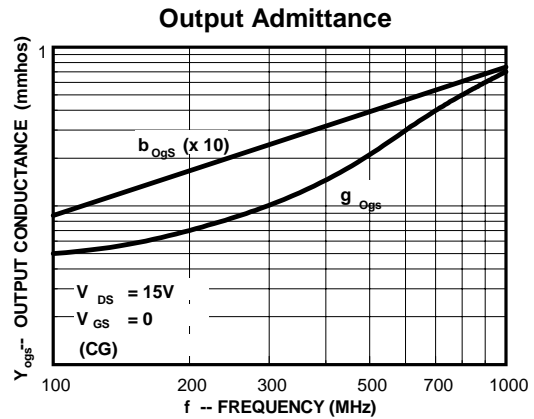
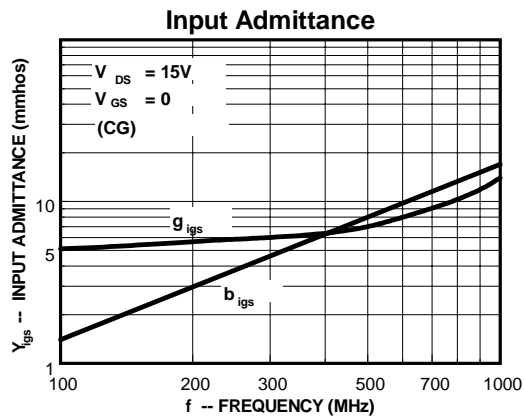
2N5484 / 5485 / 5486 / MMBF5484 / 5485 / 5486

Common Source Characteristics



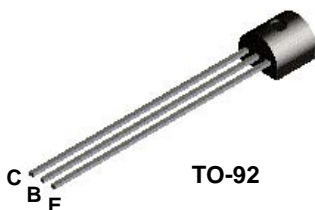
N-Channel RF Amplifier (continued)

Common Gate Characteristics



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

MPSA18



NPN General Purpose Amplifier

This device is designed for low noise, high gain, applications at collector currents from 1μ A to 50 mA. Sourced from Process 07. See 2N5088 for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CEO}	Collector-Emitter Voltage	45	V
V _{CBO}	Collector-Base Voltage	45	V
V _{EBO}	Emitter-Base Voltage	6.5	V
I _C	Collector Current - Continuous	100	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
		MPSA18	
P _D	Total Device Dissipation Derate above 25°C	625 5.0	mW mW/°C
R _{θJC}	Thermal Resistance, Junction to Case	83.3	°C/W
R _{θJA}	Thermal Resistance, Junction to Ambient	200	°C/W

NPN General Purpose Amplifier

(continued)

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
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OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 10 \text{ mA}, I_B = 0$	45		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \text{ } \mu\text{A}, I_E = 0$	45		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \text{ } \mu\text{A}, I_C = 0$	6.5		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 30 \text{ V}, I_E = 0$		50	nA

ON CHARACTERISTICS*

h_{FE}	DC Current Gain	$V_{CE} = 5.0 \text{ V}, I_C = 10 \text{ } \mu\text{A}$ $V_{CE} = 5.0 \text{ V}, I_C = 100 \text{ } \mu\text{A}$ $V_{CE} = 5.0 \text{ V}, I_C = 1.0 \text{ mA}$ $V_{CE} = 5.0 \text{ V}, I_C = 10 \text{ mA}$	400 500 500 500	1500	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10 \text{ mA}, I_B = 0.5 \text{ mA}$ $I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$		0.2 0.3	V V
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = 5.0 \text{ V}, I_C = 1.0 \text{ mA}$		0.7	V

SMALL SIGNAL CHARACTERISTICS

C_{cb}	Collector-Base Capacitance	$V_{CB} = 5.0 \text{ V}, f = 1.0 \text{ MHz}$		3.0	pF
C_{eb}	Emitter-Base Capacitance	$V_{EB} = 0.5 \text{ V}, f = 1.0 \text{ MHz}$		6.5	pF
f_T	Current Gain - Bandwidth Product	$I_C = 1.0 \text{ mA}, V_{CE} = 5.0 \text{ V},$ $f = 100 \text{ MHz}$	100		MHz
NF	Noise Figure	$V_{CE} = 5.0 \text{ V}, I_C = 100 \text{ } \mu\text{A},$ $R_S = 10 \text{ k}\Omega, f = 1.0 \text{ kHz},$		1.5	dB

*Pulse Test: Pulse Width $\leq 300 \text{ } \mu\text{s}$, Duty Cycle $\leq 2.0\%$