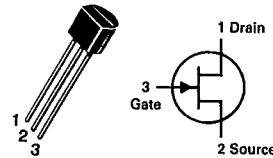


# MPF820

CASE 29-04, STYLE 5  
TO-92 (TO-226AA)



**JFET**  
**RF AMPLIFIER**

**N-CHANNEL — DEPLETION**

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	25	Vdc
Drain-Gate Voltage	$V_{DG}$	25	Vdc
Reverse Gate-Source Voltage	$V_{GSR}$	25	Vdc
Forward Gate Current	$I_{G(f)}$	10	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	625 5.0	mW mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-65 to +150	$^\circ\text{C}$

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Gate-Source Breakdown Voltage ( $I_G = 10 \mu\text{Adc}, V_{DS} = 0$ )	$V_{(BR)GSS}$	25	—	—	Vdc
Gate Reverse Current ( $V_{GS} = 15 \text{Vdc}, V_{DS} = 0$ )	$I_{GSS}$	—	—	5.0	nAdc
Gate Source Cutoff Voltage ( $V_{DS} = 15 \text{Vdc}, I_D = 200 \mu\text{Adc}$ )	$V_{GS(off)}$	—	—	-5.0	Vdc
<b>ON CHARACTERISTICS</b>					
Zero-Gate-Voltage Drain ( $V_{DS} = 15 \text{Vdc}, V_{GS} = 0$ )	$I_{DSS}$	10	—	—	mAdc
<b>SMALL-SIGNAL CHARACTERISTICS</b>					
Forward Transfer Admittance ( $V_{DS} = 15 \text{Vdc}, V_{GS} = 0, f = 1.0 \text{kHz}$ )	$ y_{fs} $	—	20	—	mmhos
Input Capacitance ( $V_{DS} = 15 \text{Vdc}, I_D = 10 \text{mAdc}, f = 1.0 \text{MHz}$ )	$C_{iss}$	—	15	—	pF
Reverse Transfer Capacitance ( $V_{DS} = 15 \text{Vdc}, I_D = 10 \text{mAdc}, f = 1.0 \text{MHz}$ )	$C_{rss}$	—	3.5	—	pF
Common-Gate Input Conductance ( $V_{DS} = 15 \text{Vdc}, I_D = 10 \text{mAdc}, f = 100 \text{MHz}$ )	$g_{ig}$	—	16	—	mmhos
Common-Gate Output Conductance ( $V_{DS} = 15 \text{Vdc}, I_D = 10 \text{mAdc}, f = 100 \text{MHz}$ )	$G_{og}$	—	—	16	$\mu\text{mhos}$
Common-Gate Forward Transadmittance ( $V_{DS} = 15 \text{Vdc}, I_D = 10 \text{mAdc}, f = 100 \text{MHz}$ )	$Y_{fg}$	—	18	—	mmhos
Common-Gate Reverse Transadmittance ( $V_{DS} = 15 \text{Vdc}, I_D = 10 \text{mAdc}, f = 100 \text{MHz}$ )	$Y_{rg}$	—	—	130	$\mu\text{mhos}$
Output Capacitance ( $V_{DS} = 15 \text{Vdc}, I_D = 10 \text{mAdc}, f = 1.0 \text{kHz}$ )	$C_{oss}$	—	3.5	—	pF
<b>FUNCTIONAL CHARACTERISTICS</b>					
Noise Figure ( $V_{DS} = 15 \text{Vdc}, I_D = 10 \text{mAdc}$ , See Figure 5)	NF	—	—	4.0	dB
Small-Signal Power Gain ( $V_{DS} = 15 \text{Vdc}, I_D = 10 \text{mAdc}$ , See Figure 5)	$G_{pg}$	—	11	—	dB

FIGURE 1 - NOISE FIGURE

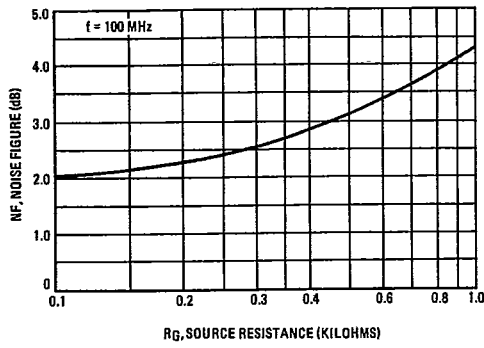


FIGURE 2 - FORWARD TRANSMITTANCE

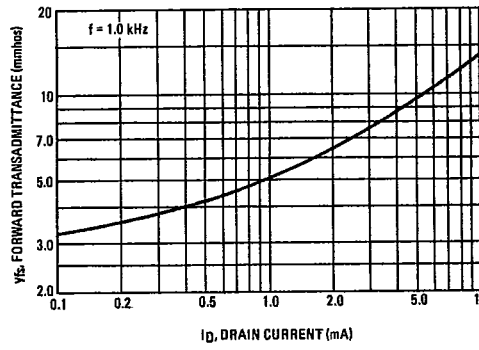


FIGURE 3 - INPUT CAPACITANCE

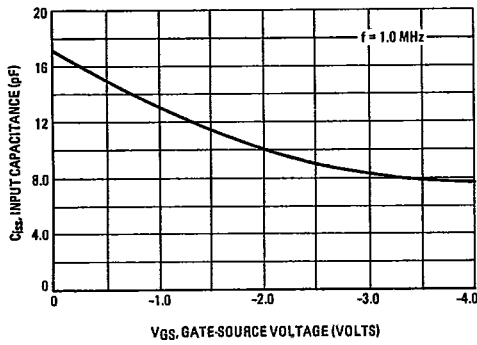
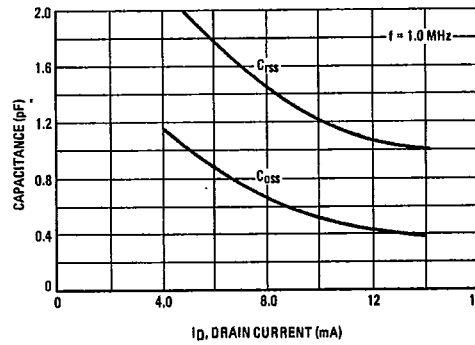


FIGURE 4 - OUTPUT AND REVERSE TRANSFER CAPACITANCE



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FIGURE 5 - 100 MHz TEST CIRCUIT

