

**2N5245
2N5246
2N5247**

**CASE 29-02, STYLE 23
TO-92 (TO-226AA)**

**JFET
HIGH-FREQUENCY
AMPLIFIER**

N-CHANNEL — DEPLETION

Refer to 2N4416 for graphs.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Gate Voltage	V_{DG}	30	Vdc
Gate-Source Voltage	V_{GS}	-30	Vdc
Gate Current	I_G	50	mA
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C (Free Air)	P_D	360 2.88	mW mW/°C
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	500 4.0	mW mW/°C
Lead Temperature (1/16" from Case for 10 Seconds)	T_L	260	°C
Storage Temperature Range	T_{stg}	-65 to +150	°C

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

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Gate-Source Breakdown Voltage ($I_G = -1.0 \mu\text{A}$, $V_{DS} = 0$)	$V_{(BR)GSS}$	-30	—	Vdc
Gate Reverse Current ($V_{GS} = -20 \text{ V}$, $V_{DS} = 0$)	I_{GSS}	—	-1.0	nA
Gate 1 Leakage Current ($V_{G1S} = -20 \text{ V}$, $V_{DS} = 0$, $T_A = 100^\circ\text{C}$)	I_{G1SS}	—	-0.5	μA
Gate Source Cutoff Voltage ($V_{DS} = 15 \text{ V}$, $I_D = 10 \text{ mA}$)	$V_{GS(off)}$	-1.0 -0.5 -1.5	-6.0 -4.0 -8.0	Vdc

ON CHARACTERISTICS

Zero-Gate-Voltage Drain Current ($V_{DS} = 15 \text{ V}$, $V_{GS} = 0$, Pulsed: See Note 1)	I_{DSS}	5.0 1.5 8.0	15 7.0 24	mA
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SMALL-SIGNAL CHARACTERISTICS

Forward Transfer Admittance ($V_{DS} = 15 \text{ V}$, $V_{GS} = 0$, $f = 1.0 \text{ kHz}$)	$ y_{fs} $	4500 3000 4500	7500 6000 8000	μmhos
Input Admittance ($V_{DS} = 15 \text{ V}$, $V_{GS} = 0$)	$\text{Re}(y_{is})$	— —	100 1000	μmhos
Output Admittance ($V_{DS} = 15 \text{ V}$, $V_{GS} = 0$, $f = 1.0 \text{ kHz}$)	$ y_{os} $	— — —	50 50 70	μmhos
Output Conductance ($V_{DS} = 15 \text{ V}$, $V_{GS} = 0$)	$\text{Re}(y_{os})$	— — — — — —	75 75 100 100 100 150	μmhos

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

Characteristic	Symbol	Min	Max	Unit
Forward Transconductance ($V_{DS} = 15\text{ V}$, $V_{GS} = 0$, $f = 400\text{ MHz}$)	$Re(y_{fs})$	4000 2500 4000	—	μmhos
Input Capacitance ($V_{DS} = 15\text{ V}$, $V_{GS} = 0$, $f = 1.0\text{ MHz}$)	C_{iss}	—	4.5	pF
Reverse Transfer Capacitance ($V_{DS} = 15\text{ V}$, $V_{GS} = 0$, $f = 1.0\text{ MHz}$)	C_{rss}	—	1.0	pF
Input Susceptance ($V_{DS} = 15\text{ V}$, $V_{GS} = 0$)	$I_M(Y_{is})$	—	3.0 12.0	mmho

FUNCTIONAL CHARACTERISTICS

Noise Figure ($V_{DS} = 15\text{ V}$, $I_D = 5.0\text{ mA}$, $R'_G = 1.0\text{ k}\Omega$)	NF	—	2.0 4.0	dB
Common Source Power Gain ($V_{DS} = 15\text{ V}$, $I_D = 5.0\text{ mA}$, $R'_G = 1.0\text{ k}\Omega$)	G_{ps}	18 10	—	dB
Output Susceptance ($V_{DS} = 15\text{ V}$, $V_{GS} = 0$)	$I_M(Y_{os})$	—	1000 4000	μmho

Note 1: $t_p = 100\text{ ms}$, Duty Cycle = 10%.