

MPF4416,A

CASE 29-02, STYLE 5
TO-92 (TO-226AA)

JFET
HIGH-FREQUENCY
AMPLIFIER

N-CHANNEL — DEPLETION

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Gate-Source Voltage MPF4416 MPF4416A	V _{GS}	-30 -35	V _{dc}
Gate Current	I _G	10	mA
Total Device Dissipation @ T _A = 25°C Derate above 25°C	P _D	300 1.7	mW mW/°C
Lead Temperature	T _L	300	°C
Operating and Storage Junction Temperature Range	T _J , T _{stg}	-65 to +150	°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Gate-Source Breakdown Voltage (I _G = -1.0 μA)	MPF4416 MPF4416A	V _{(BR)GSS}	-30 -35	—	V _{dc}
Gate Reverse Current (V _{GS} = -20 V)		I _{GSS}	—	-250	pA
Gate Source Cutoff Voltage (V _{DS} = 15 V, I _D = 1.0 nA)	MPF4416 MPF4416A	V _{GS(off)}	— -2.5	-6.0 -6.0	V _{dc}

ON CHARACTERISTICS

Zero-Gate-Voltage Drain Current* (V _{DS} = 15 V)	I _{DSS}	5.0	15	mA
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SMALL-SIGNAL CHARACTERISTICS

Forward Transfer Admittance (V _{DS} = 15 V, f = 1.0 kHz)	y _{fs}	4500	7500	μmhos
Input Admittance (V _{DS} = 15 V, f = 100 MHz) (V _{DS} = 15 V, f = 400 MHz)	Re(y _{is})	— —	100 1000	μmhos
Output Admittance (V _{DS} = 15 V, f = 1.0 kHz)	y _{os}	—	50	μmhos
Output Conductance (V _{DS} = 15 V, f = 100 MHz) (V _{DS} = 15 V, f = 400 MHz)	Re(y _{os})	— —	75 100	μmhos
Forward Transconductance* (V _{DS} = 15 V, f = 400 MHz)	Re(y _{fs})	4000	—	μmhos
Input Capacitance (V _{DS} = 15 V, f = 1.0 MHz)	C _{iss}	—	4.0	pF
Reverse Transfer Capacitance (V _{DS} = 15 V, f = 1.0 MHz)	C _{rss}	—	0.8	pF
Output Capacitance (V _{DS} = 15 V, f = 1.0 MHz)	C _{oss}	—	2.0	pF

FUNCTIONAL CHARACTERISTICS

Noise Figure (V _{DS} = 15 V, I _D = 5.0 mA, R _G = 1.0 kΩ, f = 100 MHz) (V _{DS} = 15 V, I _D = 5.0 mA, R _G = 1.0 kΩ, f = 400 MHz)	NF	— —	2.0 4.0	dB
Common Source Power Gain (V _{DS} = 15 V, I _D = 5.0 mA, f = 100 MHz) (V _{DS} = 15 V, I _D = 5.0 mA, f = 400 MHz)	G _{ps}	18 10	— —	dB

*Pulse Test Duration = 2.0 msec.