MFE3004
MFE3005

CASE 20-03, STYLE 7
TO-72 (TO-206AF)

MOSFET
VHF/UHF AMPLIFIER

N-CHANNEL — DEPLETION

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	Vdc
Drain-Gate Voltage	V_{DG}	20	Vdc
Gate-Source Voltage	V_{GS}	±20	Vdc
Drain Current	I_D	10	mAdc
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	200 1.33	mW mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +175	°C

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Drain-Source Breakdown Voltage (V_{GS} = −5.0 Vdc, I_D = 10 μAdc)	$V_{(BR)DSX}$	20	—	Vdc
Gate Reverse Current (V_{GS} = ±15 Vdc, V_{DS} = 0)	I_{GSS}	—	±50	pAdc
Gate Source Cutoff Voltage (I_D = 10 μAdc, V_{DS} = 15 Vdc)	$V_{GS(off)}$	—	−5.0	Vdc
ON CHARACTERISTICS				
Zero-Gate-Voltage Drain Current (V_{DS} = 15 Vdc, V_{GS} = 0)	I_{DSS}	2.0	10	mAdc
SMALL-SIGNAL CHARACTERISTICS				
Forward Transfer Admittance (V_{DS} = 15 Vdc, I_D = 2.0 mAdc, f = 1.0 kHz)	$\|Y_{fs}\|$	2000	—	μmhos
Input Capacitance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 MHz)	C_{iss}	—	4.5	pF
Reverse Transfer Capacitance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 MHz)	C_{rss}	—	0.4	pF
FUNCTIONAL CHARACTERISTICS				
Noise Figure	NF			dB
(V_{DS} = 15 Vdc, I_D = 2.0 mAdc, R_S ≈ 1.8 k ohms, f = 200 MHz) (Figure 1) MFE3004		—	4.5	
(V_{DS} = 15 Vdc, I_D = 2.0 mAdc, R_S ≈ 650 ohms, f = 400 MHz) (Figure 2) MFE3005		—	4.5	
Common Source Power Gain	G_{ps}			dB
(V_{DS} = 15 Vdc, I_D = 2.0 mAdc, R_S ≈ 1.8 k ohms, f = 200 MHz) (Figure 1) MFE3004		16	—	
(V_{DS} = 15 Vdc, I_D = 2.0 mAdc, R_S ≈ 650 ohms, f = 400 MHz) (Figure 2) MFE3005		10	—	

FIGURE 1 - 200 MHz TEST CIRCUIT - NEUTRALIZED

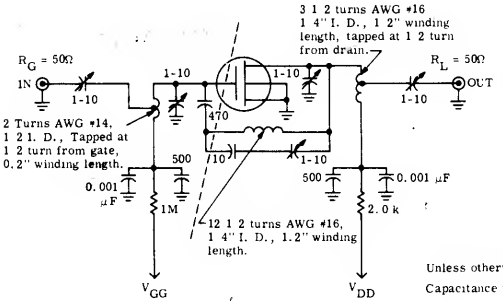
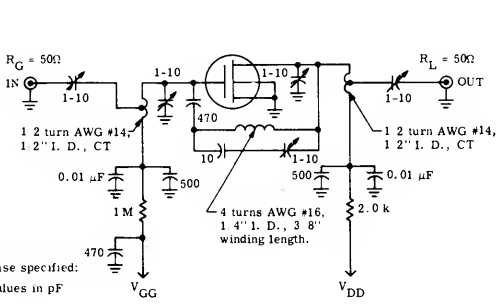


FIGURE 2 - 400 MHz TEST CIRCUIT - NEUTRALIZED



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