n-channel JFETs *designed for . . .*

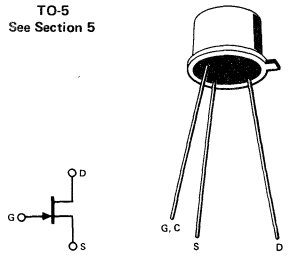
- **VHF Buffer Amplifiers**
- **IF Amplifiers**

Performance Curves NIP See Section 4

BENEFITS

- High Gain
  g_{fs} = 120,000 μmho Typical
- Wide Dynamic Range
- Low Intermodulation Distortion

TO-5
See Section 5



ABSOLUTE MAXIMUM RATINGS (25°C)

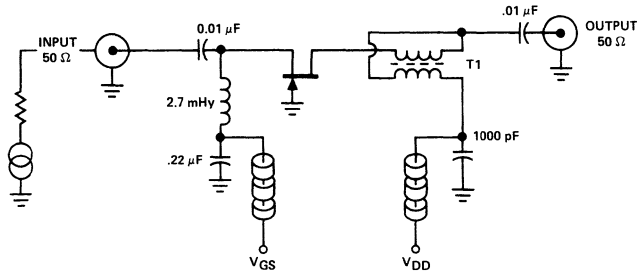
Gate-Drain or Gate-Source Voltage . . . . . −25 V
Gate Current . . . . . 100 mA
Total Device Dissipation (25°C Case Temperature) . . . . . 3 W
Power Derating (to 150°C) . . . . . 24 mW/°C
Storage Temperature Range . . . . . −55 to +150°C
Operating Temperature Range . . . . . −55 to +150°C
Lead Temperature
(1/16" from case for 10 seconds) . . . . . 300°C

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

		Characteristic		U320			U321			U322			Unit	Test Conditions	
				Min	Typ	Max	Min	Typ	Max	Min	Typ	Max			
1	STATIC	I_{GSS}	Gate Reverse Current (Note 1)			-3			-3			-3	nA	V_{GS} = -15 V, V_{DS} = 0 V	
2						-0.5			-0.5			-0.5	μA		T = 100°C
3		$V_{GS(off)}$	Gate-Source Cutoff Voltage	-2		-10	-1		-4	-3		-10	V	V_{DS} = 5 V, I_D = 1 mA	
4		BV_{GSS}	Gate-Source Breakdown Voltage	-25			-25			-25				I_G = -1 μA, V_{DS} = 0 V	
5		I_{DSS}	Saturation Drain Current (Note 2)	100		500	80		250	200		700	mA	V_{DS} = 15 V, V_{GS} = 0 V	
6		$V_{GS(f)}$	Gate-Source Forward Voltage			1			1			1	V	I_G = 1 mA, V_{DS} = 0 V	
7		$r_{DS(on)}$	Drain-Source ON Resistance			10			11			8	Ω	V_{GS} = 0 V, I_D = 10 mA	
8	DYNAMIC	g_{fs}	Common-Source Forward Transconductance (Note 2)	75	120	200	75	120	200	75	130	200	mmhos	V_{DS} = 15 V, V_{GS} = 0 V	f = 1 kHz
9		C_{iss}	Common-Source Input Capacitance			30			30			30	pF	V_{GS} = -10 V, V_{DS} = 0 V	f = 1 MHz
10		C_{rss}	Common-Source Reverse Transfer Capacitance			15			15			15			
11		C_{gs}	Gate-Source Capacitance		12			12			12			V_{GS} = -10 V, I_D = 0	
12		C_{gd}	Gate-Drain Capacitance		12			12			12			V_{GD} = -10 V, I_S = 0	
13		$\overline{e_n}$	Equivalent Short Circuit Input Noise Voltage		2			2			2		$\frac{nV}{\sqrt{Hz}}$	V_{DS} = 5 V, I_D = 10 mA	f = 1 kHz
14	HIGH FREQ	g_{fg}	Common Gate Forward Transconductance		55			55			55		mmho	V_{DG} = 20 V, I_D = 25 mA	f = 50 MHz
15		g_{ig}	Common-Gate Input Conductance		56			56			56				
16		g_{og}	Common-Gate Output Conductance		0.5			0.5			0.5				
17		G_{PS}	Power Gain (Note 3)		9			9			9		dB		
18		F_t	Gain-Bandwidth (Note 4)		400			400			400		MHz	V_{DS} = 15 V, V_{GS} = 0 V	
19		NF	Noise Figure (Note 3)		2.5			2.5			2.5		dB	V_{DG} = 20 V, I_D = 25 mA	f = 30 MHz

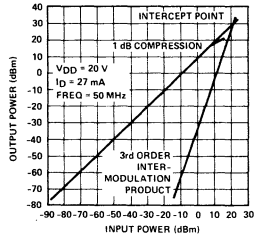
NOTES:
1. Approximately doubles for every 10°C increase in T_A.
2. Pulse test duration = 2 ms.
3. Noise figure (SSB) and power gain measured in circuit shown in Figure 1.
4. Computed as g_{fs}/C_{rss}.

NIP



T1–6 TURNS #22 AWG TWISTED PAIR WIRE ON 0.375 INCH DIAMETER INDIANA GENERAL F625-9Q2 TOROID CORE.

50 MHz Power Gain and Noise Figure Test Circuit for U320, U321 and U322
Figure 1



Gain – Intermodulation Characteristics
Figure 2

3