p-channel JFETs *designed for . . .*

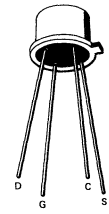
- **Small-Signal Amplifiers**
- **Analog Multipliers**
- **Modulators**

Performance Curves PC
See Section 4

BENEFITS

- Ease of Amplifier Design
  I_{DSS} & G_{fs} Closely Specified

TO-72
See Section 5



*ABSOLUTE MAXIMUM RATINGS (25°C)

Gate-Drain and Gate-Source Voltage (Note 1) . . . . . 20 V
Gate Current . . . . . 10 mA
Total Device Dissipation at (or below)
25°C Free-Air Temperature (Note 2) . . . . . 300 mW
Storage Temperature Range . . . . . -65 to +200°C
Lead Temperature
(1/16" from case for 10 seconds) . . . . . 230°C

*ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

		Characteristic		2N3329		2N3330		2N3331		2N3332		Unit	Test Conditions	
				Min	Max	Min	Max	Min	Max	Min	Max			
1	STATIC	I_{GSS}	Gate Reverse Current		0.01		0.01		0.01		0.01	μA	V_{GS} = 10 V, V_{DS} = 0	
2					10		10		10		10		V_{GS} = 10 V, V_{DS} = 0, T_A = 150°C	
3		BV_{GSS}	Gate-Source Breakdown Voltage	20		20		20		20		V	I_G = 10 μA, V_{DS} = 0	
4		$V_{GS(off)}$	Gate-Source Cutoff Voltage		5		6		8		6		V_{DS} = -15 V, I_D = -10 μA	
5		I_{DSS}	Saturation Drain Current	-1	-3	-2	-6	-5	-15	-1	-6	mA	V_{DS} = -10 V, V_{GS} = 0	
6		$r_{DS(on)}$	Drain-Source ON Resistance		1000		800		600			Ω	I_D = -100 μA, V_{GS} = 0	
7	DYNAMIC	g_{is}	Common-Source Input Conductance		0.2		0.2		0.2		0.2	μmho	V_{DS} = -10 V 2N3329: I_D = -1 mA 2N3330: I_D = -2 mA 2N3331: I_D = -5 mA 2N3332: I_D = -1 mA	f = 1 kHz
8		g_{rs}	Common-Source Reverse Transfer Conductance		0.1		0.1		0.1		0.1			
9		g_{os}	Common-Source Output Conductance		20		40		100		20			
10		g_{fs}	Common-Source Forward Transconductance	1000	2000	1500	3000	2000	4000	1000	2200			f = 10MHz
11				900		1350		1800		900				
12		C_{iss}	Common-Source Input Capacitance		20		20		20		20	pF	V_{DS} = -10 V, V_{GS} = 1 V	f = 1 MHz
13		NF	Noise Figure		3		3		4		1	dB	V_{DS} = -5 V, I_D = -1 mA R_{gen} = 1 MΩ	f = 1 kHz
14		NF	Noise Figure								5		V_{DS} = -5 V, I_D = -1 mA R_{gen} = 10 MΩ	f = 10 Hz

*JEDEC registered data

PC

NOTES:
1. Due to symmetrical geometry, these units may be operated with source and drain leads interchanged.
2. Derate linearly to 175°C free-air temperature at rate of 2.0 mW/°C