J300 N-Channel JFET

General Description

The J300 N-channel JFET is designed for VHF/UHF common-source or common-gate amplifier, oscillator and mixer applications.

Absolute Maximum Ratings (25°C)

Gate-Drain or Gate-Source Voltage	−25V
Gate Current	10 mA
Total Device Dissipation (25°C Free-Air Temperature)	350 mW
Power Derating (to +125°C)	3.5 mW/°C
Storage Temperature Range	−55°C to +150°C
Operating Temperature Range	−55°C to +150°C
Lead Temperature (1/16" from case for 10 seconds)	300°C

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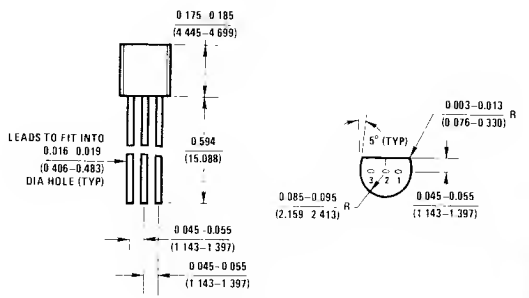

PIN	FET
1	G
2	S
3	D

Electrical Characteristics (25°C unless otherwise noted)

PARAMETER		CONDITIONS		J300 MIN	J300 TYP	J300 MAX	UNITS
I_{GSS}	Gate Reverse Current	V_{GS} = −15V, V_{DS} = 0, (Note 1)				−500	pA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	V_{DS} = 10V, I_D = 1 nA		−1		−6	V
BV_{GSS}	Gate-Source Breakdown Voltage	V_{DS} = 0, I_G = −1 μA		−25			V
I_{DSS}	Saturation Drain Current	V_{DS} = 10V, V_{GS} = 0, (Note 2)		6		30	mA
$V_{GS(f)}$	Gate-Source Forward Voltage	I_G = 1 mA, V_{DS} = 0				1	V
g_{fs}	Common-Source Forward Transconductance, (Note 2)	V_{DG} = 10V, I_D = 5 mA	f = 1 kHz	4500		9000	μmho
g_{os}	Common-Source Output Transconductance					200	
C_{iss}	Common-Source Input Capacitance	V_{DG} = 10V, I_D = 5 mA	f = 1 MHz		3.5	5.5	pF
C_{rss}	Common-Source Reverse Transfer Capacitance				0.8	1.7	
C_{oss}	Common-Source Output Capacitance				1.5		
$\|Y_{fs}\|$	Common-Source Forward Transadmittance	V_{DG} = 15V, I_D = 5 mA	f = 100 MHz		6200		μmho
			f = 450 MHz		6000		
$\|Y_{fg}\|$	Common-Gate Forward Transadmittance		f = 100 MHz		6000		
			f = 450 MHz		5500		
G_{fg}	Common-Gate Power Gain		f = 100 MHz, (Note 3)		17		dB
NF	Noise Figure (Single Sideband)				2		

Note 1: Approximately doubles for every 10°C increase in T_A.

Note 2: Pulse test duration = 2 ms.

Note 3: Typical values for performance at 100 MHz in a common-gate circuit operating 3 dB bandwidth is 2 MHz.