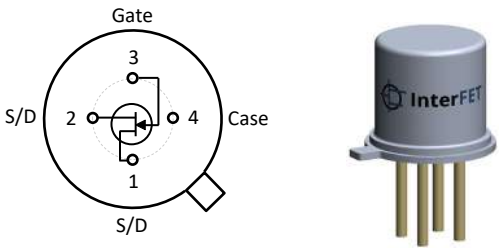
2N3821, 2N3822 N-Channel JFET
JAN equivalent parts

Features

- InterFET N0032H Geometry
- Low gate leakage: 750fA typical @20V
- Low C_{ISS}: 3pF typical
- Typical noise: 2.0 nV/√Hz
- Typical gain: 2mS
- Low cutoff voltage: -1.0 typical
- Typical I_{DSS}: 12mA
- Typical BV_{GSS}: -35V
- High radiation tolerance
- RoHS, REACH, CMR compliant
- Custom test and binning options available
- Edge case SPICE modeling: InterFET SPICE

TO-72 Bottom View



Built to MIL-PRF-19500

(Source and Drain are interchangeable)

InterFET Similar Parts

- 2N5457, 2N3822

Applications

- General: Amplifiers; Switches; Voltage regulators; Oscillators; Signal mixers; Noise generators
- Military/Aero: Radar; Communications; Satellites; Missiles guidance; Hydrophone Pre-Amps
- Medical: Medical imaging systems; Medical monitors and recorders; Ultrasound equipment
- Audio: Tone control circuits; Headphone amplifiers; Audio filters; Electret Microphone

Description

The -50V InterFET 2N3821 and 2N3822 are targeted for sensitive amplifier stages for VHF designs. Gate leakages are typically less than 10pA at room temperatures. The TO-72 package is hermetically sealed and suitable for military applications.

Ordering Information Custom Part and Binning Options Available

Part Number	Description	Case	Packaging
2N3821JANequiv, 2N3822JANequiv	JAN equivalent	TO-72	Bulk
2N3821JANTXequiv, 2N3822JANTXequiv	JANTX equivalent	TO-72	Bulk
2N3821JANTXVequiv, 2N3822JANTXVequiv	JANTXV equivalent	TO-72	Bulk
2N3821JANSequiv, 2N3822JANSequiv	JANS equivalent	TO-72	Minimum 1000 Pieces

Electrical Characteristics

Maximum Ratings (@ T_A = 25°C, Unless otherwise specified)

Parameters		TO-72	Unit
V_{RGS}	Reverse Gate Source and Gate Drain Voltage	-20	V
I_{FG}	Continuous Forward Gate Current	50	mA
P_D	Continuous Device Power Dissipation[1]	500	mW
P	Power Derating[1]	3.3	mW/°C
T_J	Operating Junction Temperature	-65 to 175	°C
T_{STG}	Storage Temperature	-65 to 175	°C

[1] Thermal power dissipation and derating values obtained with gate pin (substrate) thermally connected to pad and/or internal layer.

Static Characteristics (@ TA = 25°C, Unless otherwise specified)

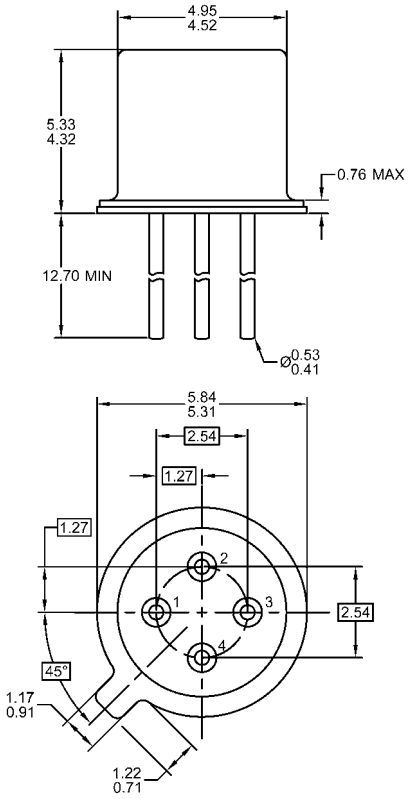
Parameters		Conditions	2N3821		2N3822		Unit
			Min	Max	Min	Max	
$V_{(BR)GSS}$	Gate to Source Breakdown Voltage	V_{DS} = 0V, I_G = -1µA	-50		-50		V
I_{GSS}	Gate to Source Reverse Current	V_{GS} = -30V, V_{DS} = 0V, T_A = 25°C		-0.1		-0.1	nA
		V_{GS} = -30V, V_{DS} = 0V, T_A = 150°C		-0.1		-0.1	µA
V_{GS}	Gate to Source Voltage	V_{DS} = 15V, I_D = ( )	-0.5 (50)	-2 (50)	-1 (200)	-4 (200)	V µA
$V_{GS(OFF)}$	Gate to Source Cutoff Voltage	V_{DS} = 15V, I_D = 0.5nA		-4		-6	V
I_{DSS}	Drain to Source Saturation Current	V_{GS} = 0V, V_{DS} = 15V (Pulsed)	0.5	2.5	2	10	mA

Dynamic Characteristics (@ TA = 25°C, Unless otherwise specified)

Parameters		Conditions	2N3821		2N3822		Unit
			Min	Max	Min	Max	
G_{FS}	Forward Transconductance	V_{DS} = 15V, V_{GS} = 0V, f = 1kHz	1500	4500	3000	6500	µS
G_{OS}	Output Conductance	V_{DS} = 15V, V_{GS} = 0V, f = 1kHz		10		20	µS
$\lvert Y_{fs} \rvert$	Forward Transmittance	V_{DS} = 15V, V_{GS} = 0V, f = 100MHz	1500		3000		µS
C_{iss}	Input Capacitance	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		6		6	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		2		2	pF
e_n	Equivalent Circuit Input Noise Voltage	V_{DS} = 15V, V_{GS} = 0V, f = 10Hz		200		200	nV/√Hz
NF	Noise Figure	V_{DS} = 15V, V_{GS} = 0V, f = 10Hz R_G = 1 MΩ		5		5	dB

TO-72 Mechanical and Layout Data

Package Outline Data



1. All linear dimensions are in millimeters.
2. Four leaded device. Not all leads are shown in drawing views.
3. Package weight approximately 0.31 grams
4. Bulk product is shipped in standard ESD shipping material
5. Refer to JEDEC standards for additional information.

Compliance and Legal

Environment

InterFET parts follow the latest RoHS Compliance, REACH Compliance, Proposition 65 Statement, TSCA Statement, and Chemical Disposal and Waste Mitigation requirement and guidelines. For more on InterFET's Environmental Commitment please visit www.InterFET.com/environmental/.

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