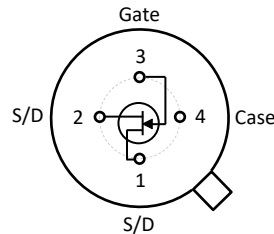


2N3821, 2N3822 N-Channel JFET JAN equivalent parts

Features

- InterFET [N0032H Geometry](#)
- Low gate leakage: 750fA typical @20V
- Low Ciss: 3pF typical
- Typical noise: 2.0 nV/√Hz
- Typical gain: 2mS
- Low cutoff voltage: -1.0 typical
- Typical I_{SS}: 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

InterFET Similar Parts

- 2N5457, 2N3822

(Source and Drain are interchangeable)

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



NOTICE: Please refer to the end of this document for information on product materials, compliance, safety, and legal statements.

Electrical Characteristics

Maximum Ratings (@ $T_A = 25^\circ\text{C}$, 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/ $^\circ\text{C}$
T_J Operating Junction Temperature	-65 to 175	$^\circ\text{C}$
T_{STG} Storage Temperature	-65 to 175	$^\circ\text{C}$

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

Static Characteristics (@ $T_A = 25^\circ\text{C}$, Unless otherwise specified)

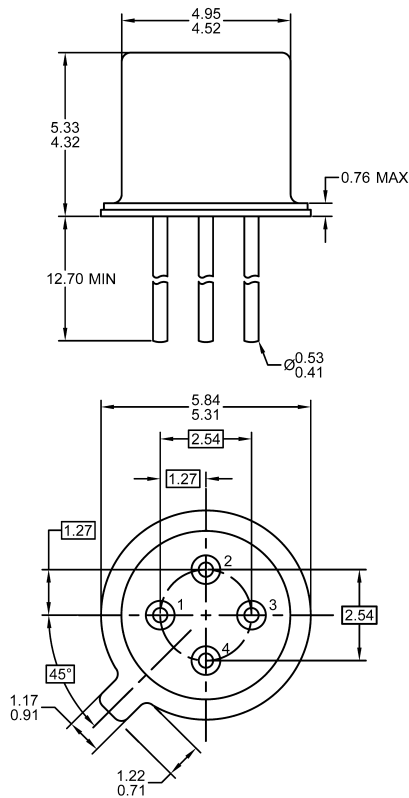
Parameters	Conditions	2N3821		2N3822		Unit
		Min	Max	Min	Max	
$V_{(BR)GSS}$ Gate to Source Breakdown Voltage	$V_{DS} = 0V, I_G = -1\mu A$	-50		-50		V
I_{GSS} Gate to Source Reverse Current	$V_{GS} = -30V, V_{DS} = 0V, T_A = 25^\circ\text{C}$		-0.1		-0.1	nA
	$V_{GS} = -30V, V_{DS} = 0V, T_A = 150^\circ\text{C}$		-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 (@ $T_A = 25^\circ\text{C}$, 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
$ Y_{fs} $ 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/ $\sqrt{Hz}$
NF Noise Figure	$V_{DS} = 15V, V_{GS} = 0V, f = 10Hz$ $R_G = 1 M\Omega$		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

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