2N3969 N-Channel JFET

Features

- InterFET N0016H Geometry
- Low Noise: 5 nV/√Hz Typical
- Low Input Capacitance: 3.5pF Typical
- RoHS Compliant
- SMT, TH, and Bare Die Package options.

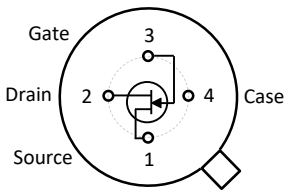
Applications

- Audio Amplifiers
- Small Signal Amplifier
- High Impedance Pre-Amplifier

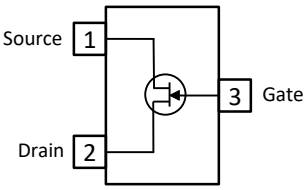
Description

The -30V InterFET 2N3969 is targeted for sensitive amplifier stages with gate leakages typically less than 10pA at room temperatures. The TO-72 package is hermetically sealed and suitable for military applications.

TO-72 Bottom View



SOT23 Top View



Product Summary

Parameters		2N3969 Min	2N3969A Min	Unit
BV_{GSS}	Gate to Source Breakdown Voltage	-30	-30	V
I_{DSS}	Drain to Source Saturation Current	0.4	0.4	mA
$V_{GS(off)}$	Gate to Source Cutoff Voltage	-1.7 (Max)	-1.7 (Max)	V
G_{FS}	Forward Transconductance	1.3	1.3	mS

Ordering Information Custom Part and Binning Options Available

Part Number	Description	Case	Packaging
2N3969	Through-Hole	TO-72	Bulk
SMP3969	Surface Mount	SOT23	Bulk
SMP3969TR	7" Tape and Reel: Max 3,000 Pieces 13" Tape and Reel: Max 9,000 Pieces	SOT23	Minimum 1,000 Pieces Tape and Reel
2N3969COT	Chip Orientated Tray (COT Waffle Pack)	COT	400/Waffle Pack
2N3969CFT	Chip Face-up Tray (CFT Waffle Pack)	CFT	400/Waffle Pack

Electrical Characteristics

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

Parameters		Value	Unit
V_{RGS}	Reverse Gate Source and Gate Drain Voltage	-50	V
I_{FG}	Continuous Forward Gate Current	50	mA
P_D	Continuous Device Power Dissipation	300	mW
P	Power Derating	2	mW/°C
T_J	Operating Junction Temperature	-55 to 125	°C
T_{STG}	Storage Temperature	-65 to 175	°C

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

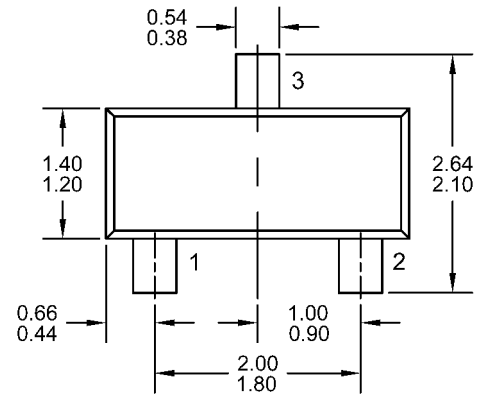
Parameters		Conditions	2N3969		2N3969A		Unit
			Min	Max	Min	Max	
$V_{(BR)GSS}$	Gate to Source Breakdown Voltage	V_{DS} = 0V, I_G = -1µA	-30		-30		V
I_{GSS}	Gate to Source Reverse Current	V_{GS} = -20V, V_{DS} = 0V		-1.0		-1.0	nA
$V_{GS(OFF)}$	Gate to Source Cutoff Voltage	V_{DS} = 20V, I_D = 1nA		-1.7		-1.7	V
I_{DSS}	Drain to Source Saturation Current	V_{GS} = 0V, V_{DS} = 20V (Pulsed)	0.4	2.0	0.4	2.0	mA

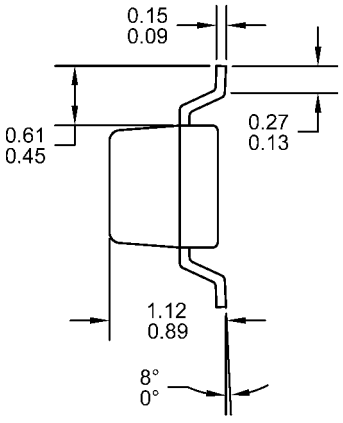
Dynamic Characteristics (@ TA = 25°C, Unless otherwise specified)

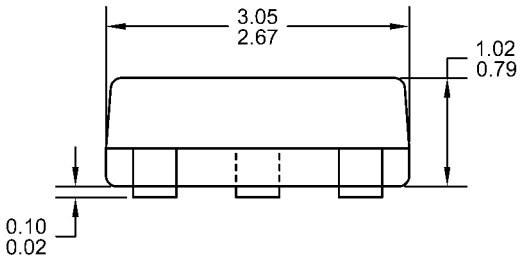
Parameters		Conditions	2N3969		2N3969A		Unit
			Min	Max	Min	Max	
G_{FS}	Forward Transconductance	V_{DS} = 20V, I_G = -1µA	1.3		1.3		mS
C_{iss}	Input Capacitance	V_{DS} = 20V, V_{GS} = 0V		5.0		5.0	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 20V, V_{GS} = 0V		1.3		1.3	pF

SOT23 (TO-236AB) Mechanical and Layout Data

Package Outline Data

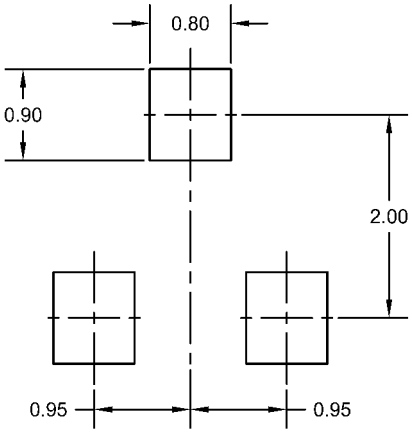






1. All linear dimensions are in millimeters.
2. Package weight approximately 0.12 grams
3. Molded plastic case UL 94V-0 rated
4. For Tape and Reel specifications refer to InterFET CTC-021 Tape and Reel Specification, Document number: IF39002
5. Bulk product is shipped in standard ESD shipping material
6. Refer to JEDEC standards for additional information.

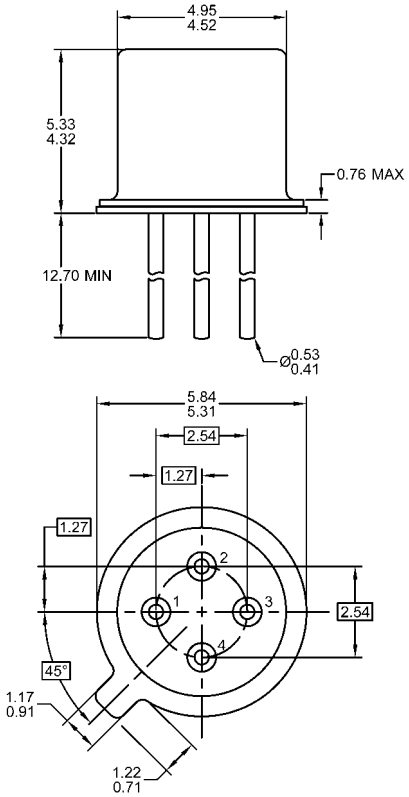
Suggested Pad Layout



1. All linear dimensions are in millimeters.
2. The suggested land pattern dimensions have been provided for reference only. A more robust pattern may be desired for wave soldering.

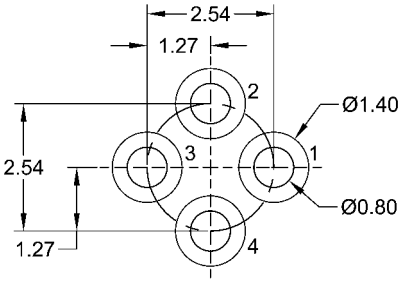
TO-72 Mechanical and Layout Data

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.

Suggested Through-Hole Layout



1. All linear dimensions are in millimeters.
2. The suggested land pattern dimensions have been provided as a straight lead reference only. A more robust pattern may be desired for wave soldering and/or bent lead configurations.