J270, J271 P-Channel JFET

Features

- InterFET P0099F Geometry
- Low Noise: 6 nV/√Hz Typical
- RoHS Compliant
- SMT, TH, and Bare Die Package options.

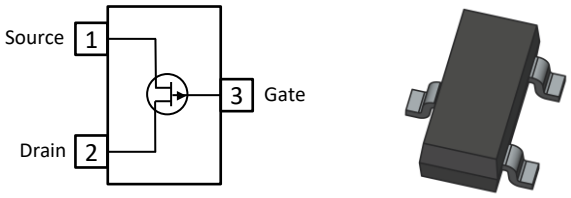
Applications

- Analog Switch
- Sample and Hold
- Low Noise, High Gain Amplifier

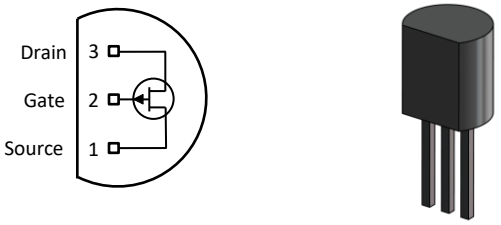
Description

The -30V InterFET J270 and J271 JFET is targeted for low noise high gain amplifiers and switch applications. The J270 has a cutoff voltage of less than 2.0V ideal for low-level power supplies.

SOT23 Top View



TO-92 Bottom View



Product Summary

Parameters		J270 Min	J271 Min	Unit
BV_{GSS}	Gate to Source Breakdown Voltage	30	30	V
I_{DSS}	Drain to Source Saturation Current	-2	-6	mA
$V_{GS(off)}$	Gate to Source Cutoff Voltage	0.5	1.5	V
G_{fs}	Forward Transconductance	6	8	mS

Ordering Information Custom Part and Binning Options Available

Part Number	Description	Case	Packaging
J270; J271	Through-Hole	TO-92	Bulk
SMPJ270; SMPJ271	Surface Mount	SOT23	Bulk
SMPJ270TR; SMPJ271TR	7" Tape and Reel: Max 3,000 Pieces 13" Tape and Reel: Max 9,000 Pieces	SOT23	Minimum 1,000 Pieces Tape and Reel
J270COT; J271COT	Chip Orientated Tray (COT Waffle Pack)	COT	400/Waffle Pack
J270CFT; J271CFT	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	30	V
I_{FG}	Continuous Forward Gate Current	50	mA
P_D	Continuous Device Power Dissipation	360	mW
P	Power Derating	2.8	mW/°C
T_J	Operating Junction Temperature	-55 to 125	°C
T_{STG}	Storage Temperature	-65 to 200	°C

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

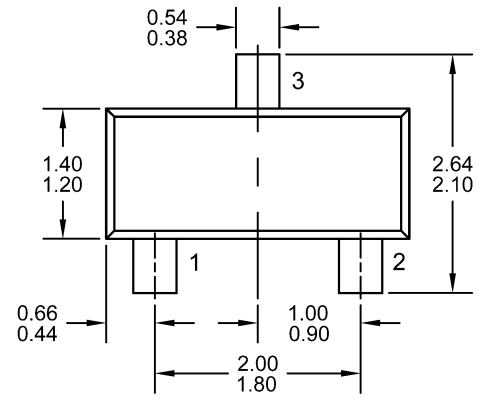
Parameters		Conditions	J270		J271		Unit
			Min	Max	Min	Max	
$V_{(BR)GSS}$	Gate to Source Breakdown Voltage	V_{DS} = 0V, I_G = 1µA	30		30		V
I_{GSS}	Gate to Source Reverse Current	V_{GS} = 10V, V_{DS} = 0V		200		200	pA
$V_{GS(OFF)}$	Gate to Source Cutoff Voltage	V_{DS} = -10V, V_{GS} = 0V	0.5	2	1.5	4.5	V
I_{DSS}	Drain to Source Saturation Current	V_{GS} = 0V, V_{DS} = -10V (Pulsed)	-2	15	-6	-50	mA

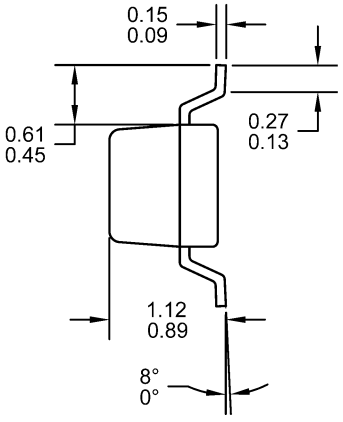
Dynamic Characteristics (@ TA = 25°C, Unless otherwise specified)

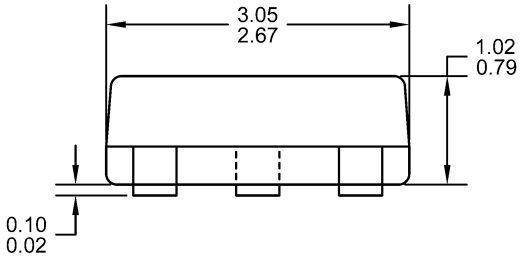
Parameters		Conditions	J270		J271		Unit
			Min	Max	Min	Max	
G_{FS}	Forward Transconductance	V_{DS} = -10V, V_{GS} = 0V, f = 1kHz	6	15	8	18	mS
C_{iss}	Input Capacitance	V_{DS} = -10V, V_{GS} = 0V, f = 1MHz		32		32	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = -10V, V_{GS} = 0V, f = 1MHz		4		4	pF
e_n	Noise Voltage	V_{DS} = 10V, I_D = 5mA, f = 1kHz	6 (typ)		6 (typ)		nV/√Hz

SOT23 (TO-236AB) Mechanical and Layout Data

Package Outline Data

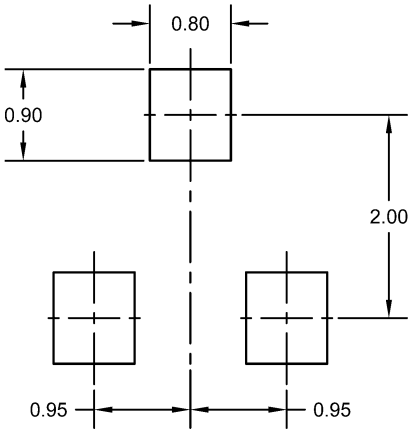






1. All linear dimensions are in millimeters.
2. Package weight approximately 0.12 grams
3. Molded plastic case UL 94V-0 rated
4. For Tape and Reel specifications refer to InterFET CTC-021 Tape and Reel Specification, Document number: IF39002
5. Bulk product is shipped in standard ESD shipping material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