J111/A, J112/A, J113/A N-Channel JFET

Features

- InterFET N0132S Geometry
- Low Noise: 1.2 nV/√Hz Typical
- High Gain: 15mS Typical
- RoHS Compliant
- SMT, TH, and Bare Die Package options.

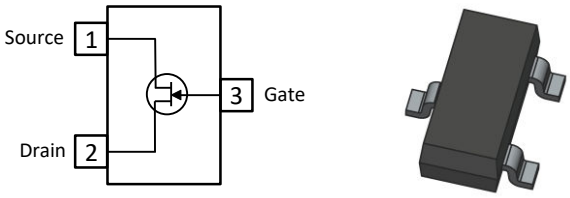
Applications

- Choppers
- Commutators
- Analog Switches

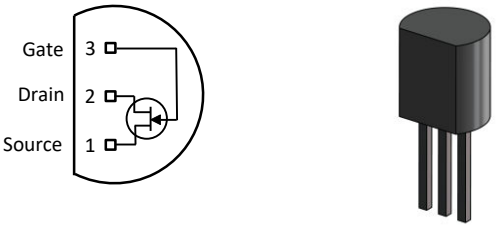
Description

The -25V InterFET J111/A, J112/A, and J113/A JFET's are targeted for high gain low noise switching, commutator, and chopper applications.

SOT23 Top View



TO-92 Bottom View



Product Summary

Parameters		J111/A Min	J112/A Min	J113/A Min	Unit
BV_{GSS}	Gate to Source Breakdown Voltage	-40	-40	-40	V
I_{DSS}	Drain to Source Saturation Current	-2	-2	-2	mA
$V_{GS(off)}$	Gate to Source Cutoff Voltage	-5	-2	-1	V

Ordering Information Custom Part and Binning Options Available

Part Number	Description	Case	Packaging
J111; J112; J113 J111A; J112A; J113A	Through-Hole	TO-92	Bulk
SMPJ111; SMPJ112; SMPJ113 SMPJ111A; SMPJ112A; SMPJ113A	Surface Mount	SOT23	Bulk
SMPJ111TR; SMPJ112TR; SMPJ113TR SMPJ111ATR; SMPJ112ATR; SMPJ113ATR	7" Tape and Reel: Max 3,000 Pieces 13" Tape and Reel: Max 9,000 Pieces	SOT23	Minimum 1,000 Pieces Tape and Reel
J111COT; J112COT; J113COT J111ACOT; J112ACOT; J113ACOT	Chip Orientated Tray (COT Waffle Pack)	COT	400/Waffle Pack
J111CFT; J112CFT; J113CFT J111ACFT; J112ACFT; J113ACFT	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	-40	V
I_{FG}	Continuous Forward Gate Current	50	mA
P_D	Continuous Device Power Dissipation	360	mW
P	Power Derating	3.3	mW/°C
T_J	Operating Junction Temperature	-55 to 125	°C
T_{STG}	Storage Temperature	-65 to 150	°C

Static Characteristics (@ TA = 25°C, Unless otherwise specified, Highlighted values = A variant)

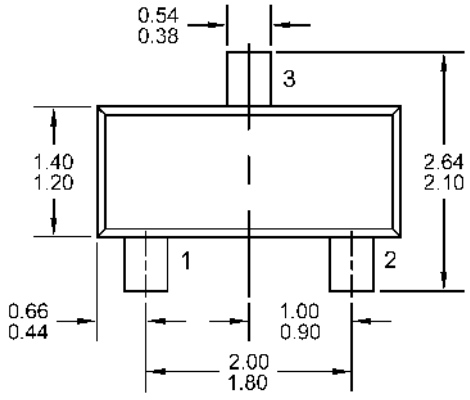
	Parameters	Conditions	J111/A		J112/A		J113/A		Unit
			Min	Max	Min	Max	Min	Max	
$V_{(BR)GSS}$	Gate to Source Breakdown Voltage	V_{DS} = 0V, I_G = -1µA	-35		-35		-35		V
			-40		-40		-40		
I_{GSS}	Gate to Source Reverse Current	V_{GS} = -15V, V_{DS} = 0V		-1		-1		-1	nA
				-2		-2		-2	
$V_{GS(OFF)}$	Gate to Source Cutoff Voltage	V_{DS} = 5V, I_D = 1µA	-3	-10	-1	-5		-3	V
			-5	-10	-2	-7	-1	-5	
I_{DSS}	Drain to Source Saturation Current	V_{GS} = 0V, V_{DS} = 15V (Pulsed)	20		5		2		mA
			30		15		8		
$I_{D(OFF)}$	Drain Cutoff Current	V_{DS} = 15V, V_{GS} = -10V		-1		-1		-1	nA
				-1		-1		-1	mA

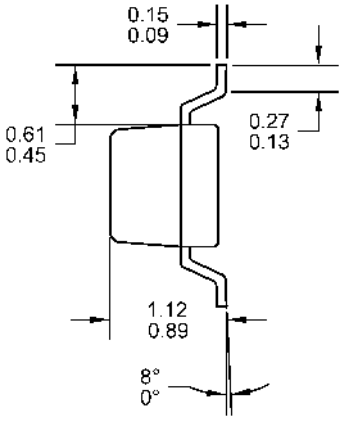
Dynamic Characteristics (@ TA = 25°C, Unless otherwise specified, Highlighted values = A variant)

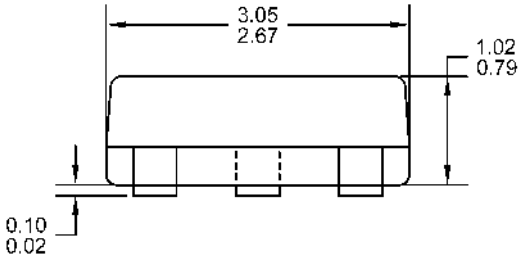
	Parameters	Conditions	J111/A		J112/A		J113/A		Unit
			Min	Max	Min	Max	Min	Max	
$R_{DS(ON)}$	Drain to Source ON Resistance	V_{DS} = 0.1V, V_{GS} = 0V, f = 1kHz		30		50		100	Ω
				30		50		80	
C_{gd}	Drain Gate Capacitance	V_{DS} = 0V, V_{GS} = -10V, f = 1MHz		5		5		5	pF
C_{gs}	Input Capacitance	V_{DS} = 0V, V_{GS} = -10V, f = 1MHz		5		5		5	pF
$C_{gd} + C_{gs}$	Drain + Source Gate Capacitance	V_{DS} = V_{GS} = 0V, f = 1MHz		28		28		28	pF
$t_{d(ON)}$	Turn ON Delay Time	V_{DD} = 10V J111/A: $V_{GS(OFF)}$ = -12V, R_L = 800 Ω J112/A: $V_{GS(OFF)}$ = -7V, R_L = 1600 Ω J113/A: $V_{GS(OFF)}$ = -5V, R_L = 3200 Ω	7 (typ)		7 (typ)		7 (typ)		ns
t_r	Rise Time		6 (typ)		6 (typ)		2 (typ)		ns
$t_{d(OFF)}$	Turn OFF Delay Time		20 (typ)		20 (typ)		20 (typ)		ns
t_f	Fall Time		15 (typ)		15 (typ)		15 (typ)		ns

SOT23 (TO-236AB) Mechanical and Layout Data

Package Outline Data

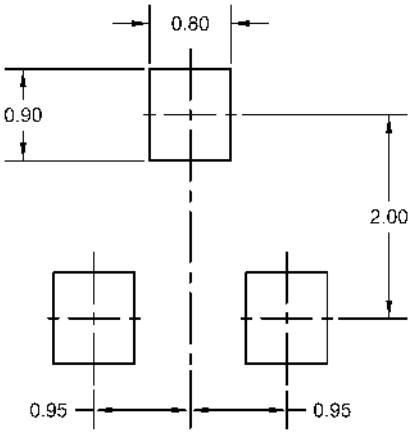






1. All linear dimensions are in millimeters.
2. Package weight approximately 0.12 grams
3. Molded plastic case UL 94V-0 rated
4. For Tape and Reel specifications refer to InterFET CTC-021 Tape and Reel Specification, Document number: IF39002
5. Bulk product is shipped in standard ESD shipping material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

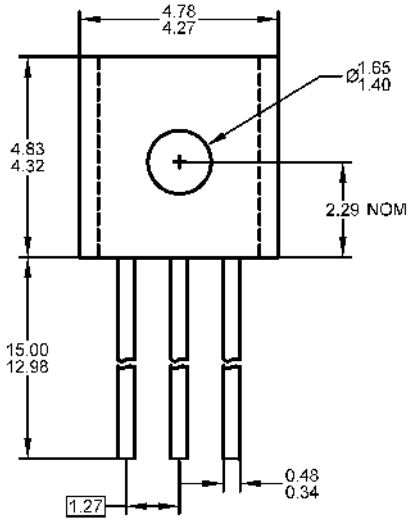
Suggested Pad Layout

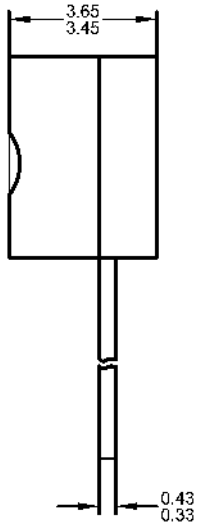


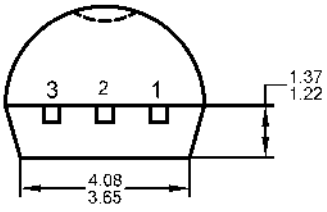
1. All linear dimensions are in millimeters.
2. The suggested land pattern dimensions have been provided for reference only. A more robust pattern may be desired for wave soldering.

TO-92 Mechanical and Layout Data

Package Outline Data

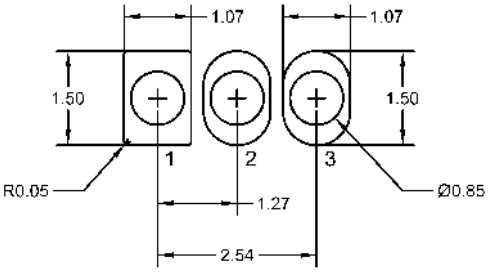






1. All linear dimensions are in millimeters.
2. Package weight approximately 0.19 grams
3. Molded plastic case UL 94V-0 rated
4. Bulk product is shipped in standard ESD shipping material
5. Refer to JEDEC standards for additional information.

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.