

## P1086, P1087 P-Channel JFET

### Features

- InterFET [P0099F Geometry](#)
- Low Noise: 8 nV/VHz Typical
- Low  $R_{ds(on)}$ : 75 Ohms Maximum (P1086)
- RoHS Compliant
- SMT, TH, and Bare Die Package options.

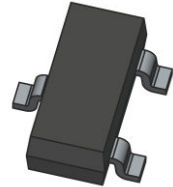
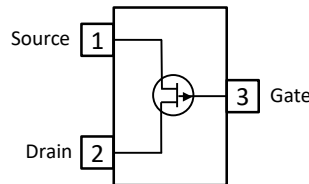
### Applications

- Choppers
- Analog Switches

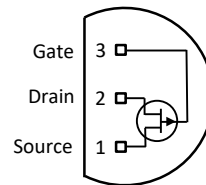
### Description

The 30V InterFET P1086 and P1087 JFET's are targeted for low noise switching and chopper applications.

SOT23 Top View



TO-92 Bottom View



### Product Summary

Parameters		P1086 Min	P1087 Min	Unit
$BV_{GSS}$	Gate to Source Breakdown Voltage	30	30	V
$I_{DSS}$	Drain to Source Saturation Current	-10	-5	mA
$V_{GS(off)}$	Gate to Source Cutoff Voltage	10 (max)	5 (max)	V

### Ordering Information Custom Part and Binning Options Available

Part Number	Description	Case	Packaging
P1086; P1087	Through-Hole	TO-92	Bulk
SMPP1086; SMPP1087	Surface Mount	SOT23	Bulk
SMPP1086TR; SMPP1087TR	7" Tape and Reel: Max 3,000 Pieces 13" Tape and Reel: Max 9,000 Pieces	SOT23	Minimum 1,000 Pieces Tape and Reel
P1086COT; P1087COT	Chip Orientated Tray (COT Waffle Pack)	COT	400/Waffle Pack
P1086CFT; P1087CFT	Chip Face-up Tray (CFT Waffle Pack)	CFT	400/Waffle Pack



**Disclaimer:** It is the Buyers responsibility for designing, validating and testing the end application under all field use cases and extreme use conditions. Guaranteeing the application meets required standards, regulatory compliance, and all safety and security requirements is the responsibility of the Buyer. These resources are subject to change without notice.

## Electrical Characteristics

### Maximum Ratings (@ T<sub>A</sub> = 25°C, Unless otherwise specified)

Parameters	Value	Unit
V <sub>RGS</sub> Reverse Gate Source and Gate Drain Voltage	30	V
I <sub>FG</sub> Continuous Forward Gate Current	50	mA
P <sub>D</sub> Continuous Device Power Dissipation	360	mW
P Power Derating	3.27	mW/°C
T <sub>J</sub> Operating Junction Temperature	-55 to 125	°C
T <sub>STG</sub> Storage Temperature	-65 to 200	°C

### Static Characteristics (@ T<sub>A</sub> = 25°C, Unless otherwise specified)

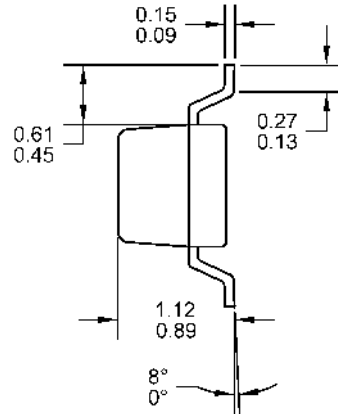
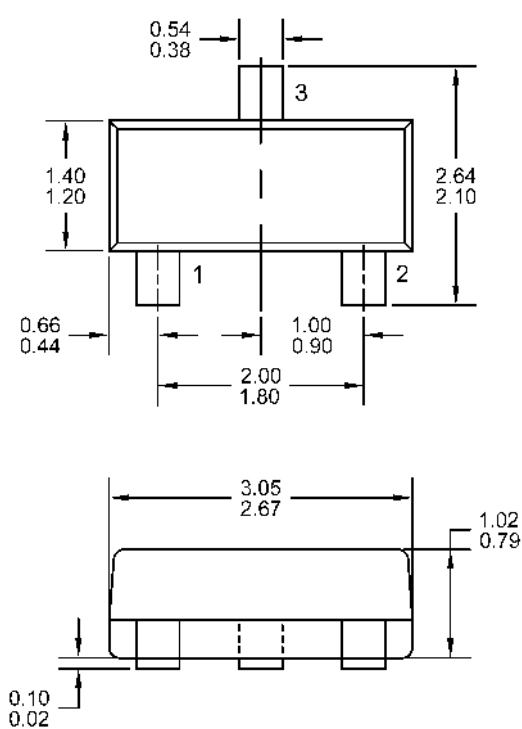
Parameters	Conditions	P1086		P1087		Unit
		Min	Max	Min	Max	
V <sub>(BR)GSS</sub> Gate to Source Breakdown Voltage	V <sub>DS</sub> = 0V, I <sub>G</sub> = 1μA	30		30		V
I <sub>GSS</sub> Gate to Source Reverse Current	V <sub>GS</sub> = 15V, V <sub>DS</sub> = 0V		2		2	nA
V <sub>GS(OFF)</sub> Gate to Source Cutoff Voltage	V <sub>DS</sub> = -15V, I <sub>D</sub> = -1μA		10		5	V
I <sub>DSS</sub> Drain to Source Saturation Current	V <sub>GS</sub> = 0V, V <sub>DS</sub> = -20V (Pulsed)	-10		-5		mA
I <sub>D(OFF)</sub> Drain Cutoff Current	V <sub>DS</sub> = -15V, T <sub>A</sub> = 25°C P1086: V <sub>GS</sub> = 12V, T <sub>A</sub> = 85°C P1087: V <sub>GS</sub> = 7V		-10 -0.5		-10 -0.5	nA μA
I <sub>DGO</sub> Drain Reverse Current	V <sub>DG</sub> = -15V, I <sub>S</sub> = 0A, T <sub>A</sub> = 25°C V <sub>DG</sub> = -15V, I <sub>S</sub> = 0A, T <sub>A</sub> = 85°C		2 0.1		2 0.1	nA μA
V <sub>DS(ON)</sub> Drain to Source ON Voltage	P1086: V <sub>GS</sub> = 0V, I <sub>D</sub> = -6mA P1087: V <sub>GS</sub> = 0V, I <sub>D</sub> = -3mA		-0.5 -0.5		-0.5 -0.5	V
R <sub>DS(ON)</sub> Static Drain to Source ON Resistance	I <sub>D</sub> = -1mA, V <sub>GS</sub> = 0V		75		150	Ω

### Dynamic Characteristics (@ T<sub>A</sub> = 25°C, Unless otherwise specified)

Parameters	Conditions	P1086		P1087		Unit
		Min	Max	Min	Max	
R <sub>DS(ON)</sub> Drain to Source ON Resistance	I <sub>D</sub> = 0A, V <sub>GS</sub> = 0V, f = 1kHz		75		150	Ω
C <sub>iss</sub> Input Capacitance	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V, f = 1kHz		45		45	pF
C <sub>rss</sub> Reverse Transfer Capacitance	P1086: V <sub>DS</sub> = 0V, V <sub>GS</sub> = 12V, f = 1MHz P1087: V <sub>DS</sub> = 0V, V <sub>GS</sub> = 7V, f = 1MHz		10 10		10 10	pF
t <sub>d(ON)</sub> Turn ON Delay Time	V <sub>DD</sub> = -6V, V <sub>GS(ON)</sub> = 0V P1086: V <sub>GS(OFF)</sub> = 12V, I <sub>D(ON)</sub> = -6mA, R <sub>L</sub> = 910Ω P1087: V <sub>GS(OFF)</sub> = 7V, I <sub>D(ON)</sub> = -3mA, R <sub>L</sub> = 1.8KΩ		15		15	ns
t <sub>r</sub> Rise Time			20		20	ns
t <sub>d(OFF)</sub> Turn OFF Delay Time			15		25	ns
t <sub>f</sub> Fall Time			50		100	ns

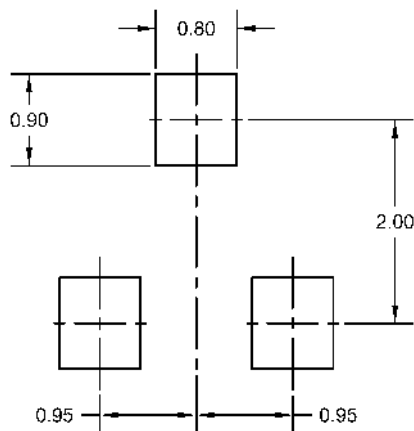
## SOT23 (TO-236AB) Mechanical and Layout Data

### 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.

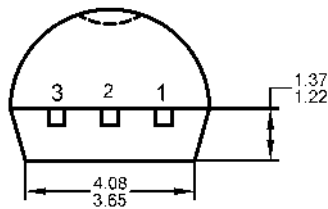
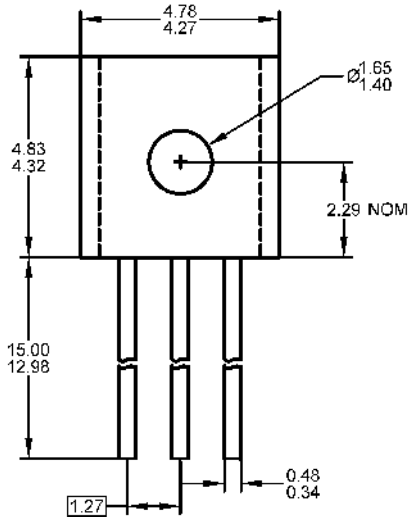
### Suggested Pad Layout



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.

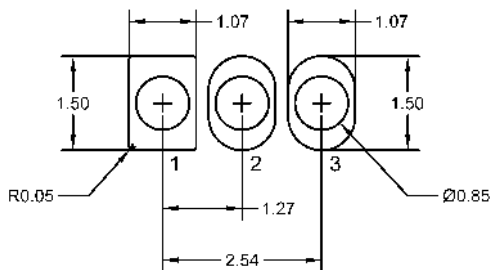
## TO-92 Mechanical and Layout Data

### 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.