IFND89

N-Channel Silicon Junction Field-Effect Transistor with Diodes

Power Supply Voltage down to 0.9 V & Low Current Operation with Ultra-High Impedance

- **Hearing Aids, Mini Microphones**
- **Infrared Detector Amplifiers**
- **Low-Current, Low-Voltage, Battery Powered Amplifiers**
- **High-Gain, Low-Noise Amplifiers**

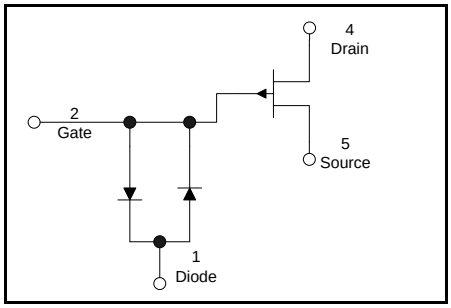
Absolute maximum ratings at $T_A = 25^oC$

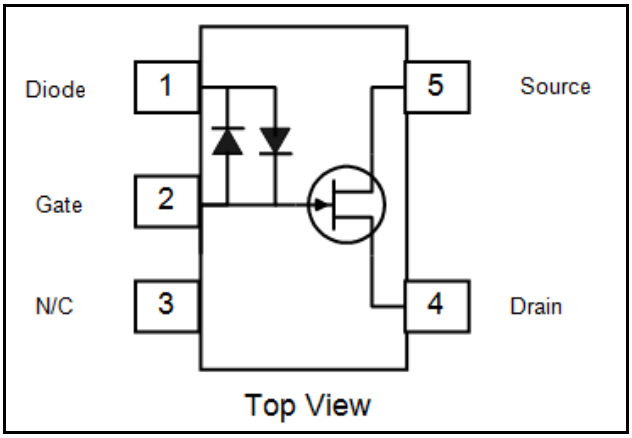
Reverse Gate Source & Gate Drain Voltage	-15V
Continuous Forward Gate Current	10 mA
Continuous Device Power Dissipation	250 mW
Power Derating	2 mW/^{o}C
Storage Temperature Range	-65^{o}C to +150^{o}C

At 25^{o}C free air temperature Static Electrical Characteristics		**IFND89**		**Process NJ14EU**		
		Min	**Max**	**Unit**	**Test Conditions**	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	-15		V	I_G = -1 uA, V_{DS} = 0 V	
Gate Reverse Current	I_{GSS}		-0.10	nA	V_{GS} = -10 V, V_{DS} = 0 V	
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	-0.2	-0.9	V	V_{DS} = 1.3 V, I_D = 1 µA	
Gate Source Cutoff Voltage (Note1)	$V_{GS(OFF)}$	-0.2	-2.5	V	V_{DS} = 3.3 V, I_D = 1 µA	
Drain Saturation Current (pulsed)	I_{DSS}	50	1000	µA	V_{DS} = 0.92 V, V_{GS} = 0 V	
Gate Diode Breakdown Voltage+	$V_{(BR)Gdiode}$	0.4	0.8	V	I_G = 10 uA, V_{DS} = 0 V	
Gate Diode Breakdown Voltage-	$V_{(BR)Gdiode}$	-0.4	-0.8	V	I_G = -10 uA, V_{DS} = 0 V	
Dynamic Electrical Characteristics						
Common-Source Forward Transconductance	g_{fs}	0.6	2.25	mS	V_{DS} = 1.3 V, V_{GS} = 0 V	f = 1 kHz
Gate-Source Input Capacitance	C_{GS}		5	pF	V_{DS} = 1.3 V, V_{GS} = 0 V	f = 1 MHz
Drain-Source On Resistance	$r_{ds\ (on)}$		3000	Ω	$V_{DS} \leq$ 0.1 V, $I_D \leq$ 100 µA	f = 1 kHz
Equivalent Short Circuit Input Noise Voltage	$\bar{e}_N$		12	$\frac{nV}{\sqrt{Hz}}$	V_{DS} = 1.3 V, V_{GS} = 0 V	f = 100 Hz

Notes: 1. Internal diodes are not connected.

IFND89
SC70-5
SOT-353





InterFET

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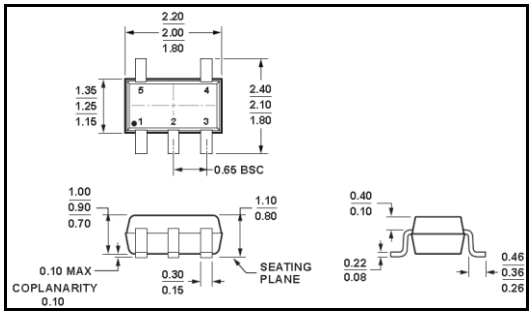
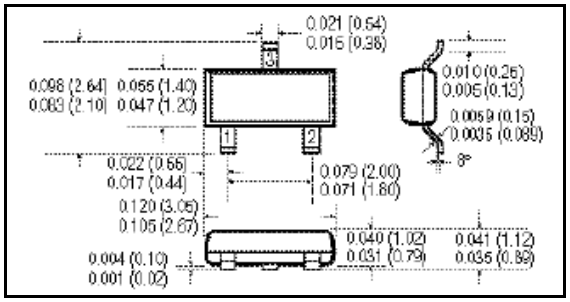
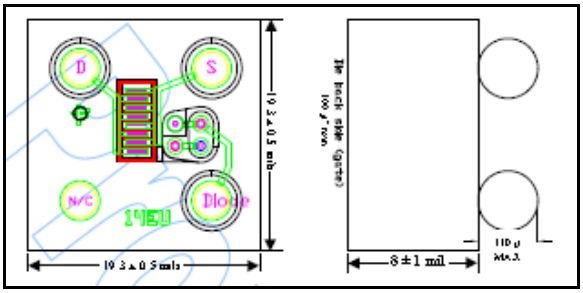




Dimensions in Inches (mm)

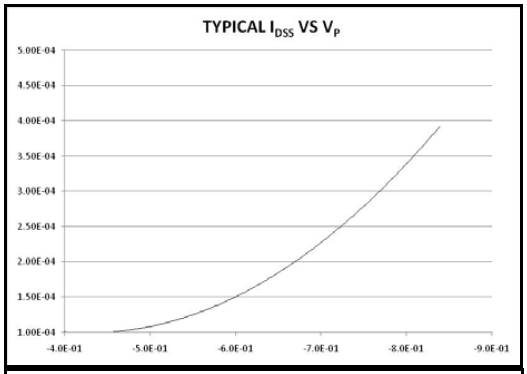
SC70-5: IFND89
1-Diodes, 2-Gate, 3-N/C, 4-Source, 5-Drain

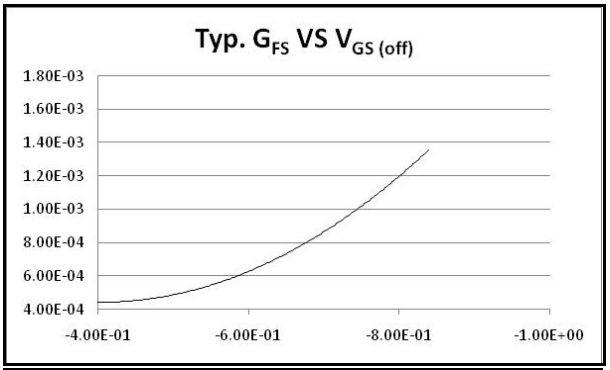
SOT-23: SMPD89
1-Source, 2-Drain, 3-Gate, Diodes-N/C



Flip-Chip-Bump: IFND89BP
1-Drain, 2-Source, 3-Diodes, 4-N/C,
Top side-Gate, Dimensions in Mils.
Marking: There is a dot lasered on the top above the N/C ball for alignment.

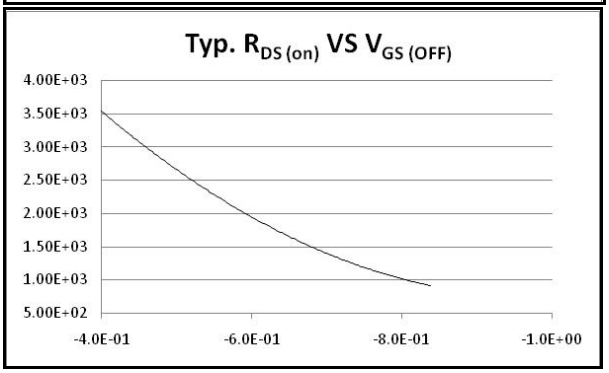
Typical Performance Curves





Typ. Noise Voltage:
@ VDS = 1.3 Volts & $I_D = I_{DSS}$
(nanoV per root Hz)

10 Hz	100 Hz	1K Hz	10K Hz	100K Hz
6.8	5.8	4.9	4.6	4.5



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