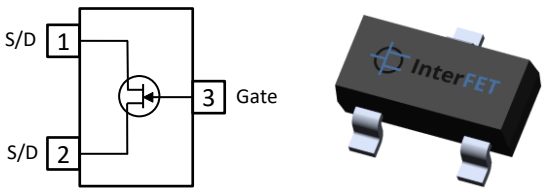
IFN201, IFN201A, IFN202 N-Channel JFET

Features

- InterFET N106A Geometry
- Tightly screened IFN201A: $V_{GS(OFF)}$: -0.5V to -1.0V
- Low gate leakage: 750fA typical @20V
- Low C_{ISS}: 3pF typical
- High radiation tolerance
- RoHS, REACH, CMR compliant
- Custom test and binning options available
- SMT and bare die package options
- Edge case SPICE modeling: InterFET SPICE

SOT23 Top View



NOTE: S/D pins are interchangeable Source Drain connections

Industry Standard Crosses

- SST201, MMBFJ201, J201, J202

InterFET Similar Parts

- 2N4338, 2N4339, 2N4867, 2N4868, 2N4869, J201, J202, 2N3458, 2N3459, 2N3460
- SMP4338, SMP4339, SMP4867, SMP4868, SMP4869, SMPJ201, SMPJ202, SMP3458, SMP3459, SMP3460

InterFET Similar Dual Parts

- IFN3954-8; IFN5197-9; IFNU231-5; IFNU401-6; IFNU410-2
- SMP3954-8; SMP5197-9; SMPU231-5; SMPU401-6; SMPU410-2

Applications

- General: Amplifiers; Low leakage switches; Signal mixers
- Audio: Tone control circuits; Headphone amplifiers; Audio filters; Preamplifier speaker drive; Microphone impedance transformation and drive; Phono preamplifiers
- Military/Aero: Radar and communication systems; Missiles and guidance systems; Radiation detection
- Medical: Medical imaging systems; Medical monitors and recorders; Ultrasound equipment

Description

The InterFET IFN201, IFN201A, and IFN202 parts are targeted for cost sensitive low noise applications. These parts are ideal for audio mic and preamplifier designs. Gate leakages are less than 1pA at 20V at room temperatures. Exact crosses for SST201, MMBFJ201, MMBFJ201, J201, and J202 JFETs.

Ordering Information Custom Part and Binning Options Available

Part Number	Description	Case	Packaging
IFN201ST3; IFN201AST3; IFN202ST3	Surface Mount	SOT23	Bulk
IFN201ST3TR; IFN201AST3TR; IFN202ST3TR	7" Tape and Reel: Max 3,000 Pieces 13" Tape and Reel: Max 9,000 Pieces	SOT23	Minimum 1,000 Pieces Tape and Reel
IFN201COT; IFN201ACOT; IFN202COT	Chip Orientated Tray (COT Waffle Pack)	COT	400/Waffle Pack
IFN201CFT; IFN201ACFT; IFN202CFT	Chip Face-up Tray (CFT Waffle Pack)	CFT	400/Waffle Pack

NOTICE: Please refer to the end of this document for information on product materials, compliance, safety, and legal statements.

Electrical Characteristics

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

Parameters		SOT-23	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[1]	350	mW
P	Power Derating[1]	2.8	mW/°C
T_J	Operating Junction Temperature	-55 to 150	°C
T_{STG}	Storage Temperature	-55 to 150	°C

[1] Thermal power dissipation and derating values obtained with gate pin (substrate) thermally connected to pad and/or internal layer.

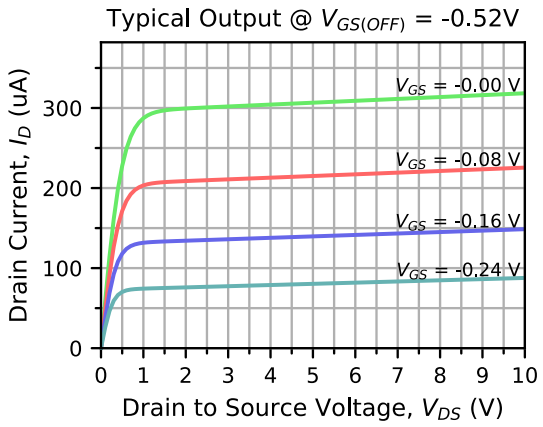
Static Characteristics (@ TA = 25°C, Unless otherwise specified)

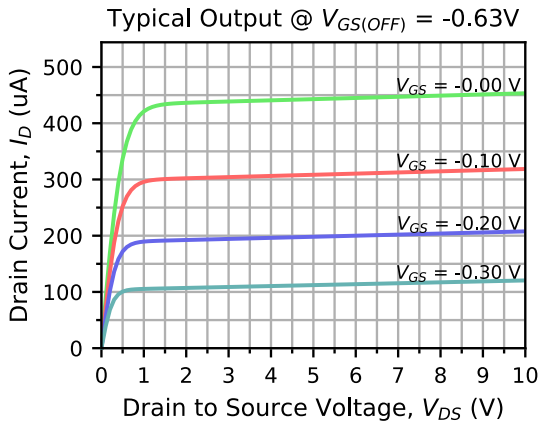
	Parameters	Conditions	IFN201A		IFN201		IFN202		Unit
			Min	Max	Min	Max	Min	Max	
$V_{(BR)GSS}$	Gate to Source Breakdown Voltage	V_{DS} = 0V, I_G = -1µA	-40		-40		-40		V
I_{GSS}	Gate to Source Reverse Current	V_{GS} = -20V, V_{DS} = 0V		-10		-10		-10	pA
$V_{GS(OFF)}$	Gate to Source Cutoff Voltage	V_{DS} = 20V, I_D = 10nA	-0.5	-1.0	-0.3	-1.5	-0.8	-4.0	V
I_{DSS}	Drain to Source Saturation Current	V_{GS} = 0V, V_{DS} = 20V (Pulsed)	0.2	0.8	0.2	1	0.9	4.5	mA

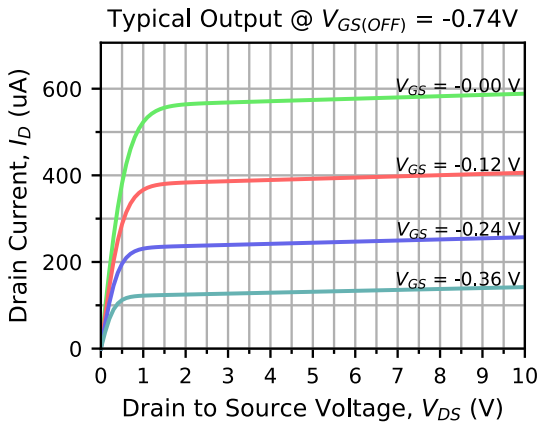
Dynamic Characteristics (@ TA = 25°C, Unless otherwise specified)

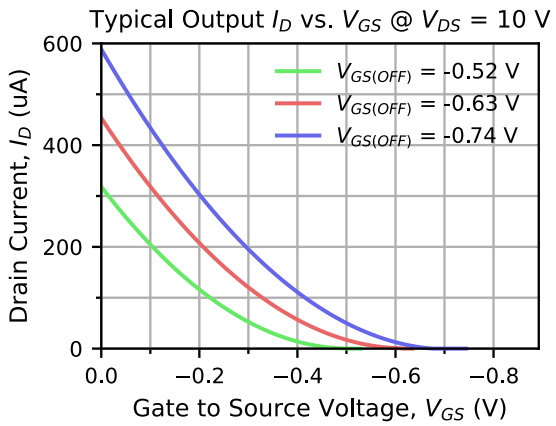
	Parameters	Conditions	IFN201A		IFN201		IFN202		Unit
			Min	Typ	Min	Typ	Min	Typ	
G_{FS}	Forward Transconductance	V_{DS} = 20V, V_{GS} = 0V, f = 1kHz	500		500		1000		uS
G_{OS}	Output Conductance	V_{DS} = 20V, V_{GS} = 0V, f = 1kHz		1		1		3.5	uS
C_{iss}	Input Capacitance	V_{DS} = 20V, V_{GS} = 0V, f = 1MHz		4		4		4	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 20V, V_{GS} = 0V, f = 1MHz		1		1		1	pF
e_n	Noise Voltage	V_{DS} = 10V, V_{GS} = 0V, f = 1kHz		3		3		3	nV/√Hz

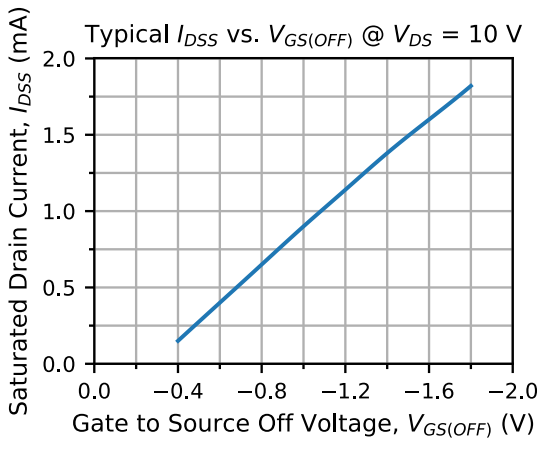
Typical IFN201, IFN201A, IFN202 Characteristics

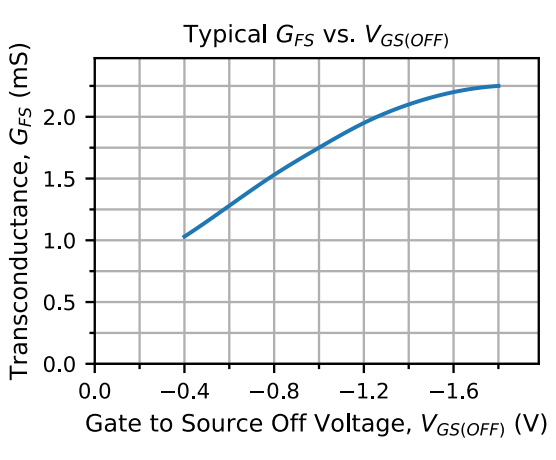




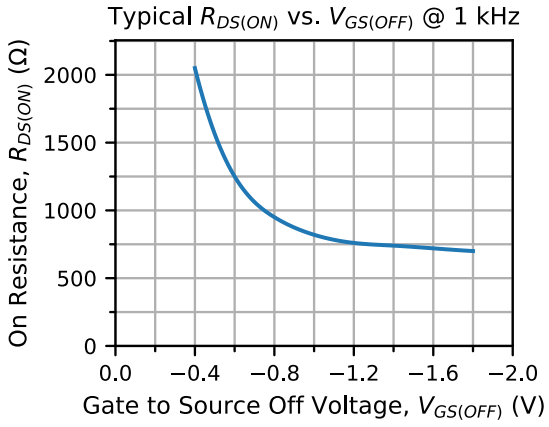


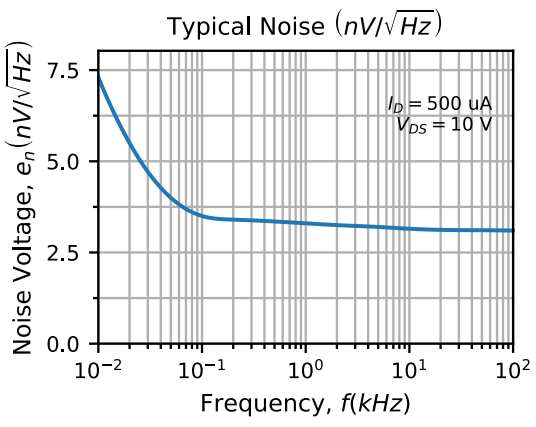


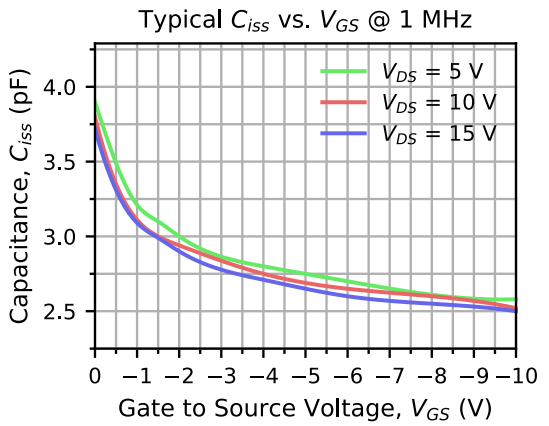


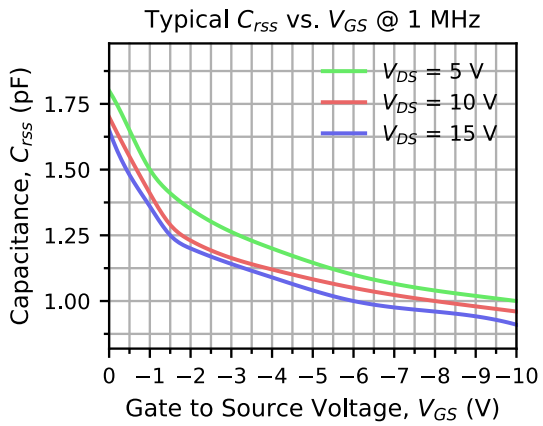


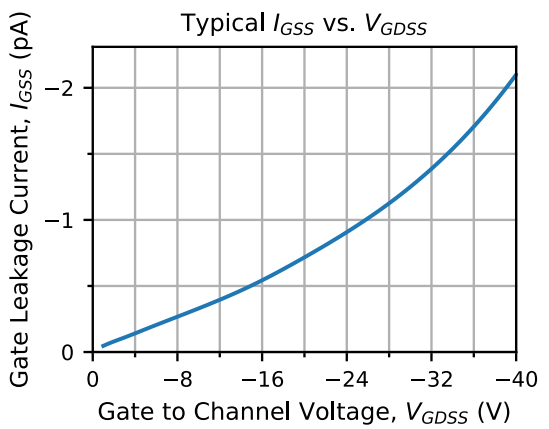
Typical IFN201, IFN201A, IFN202 Characteristics (Continued)





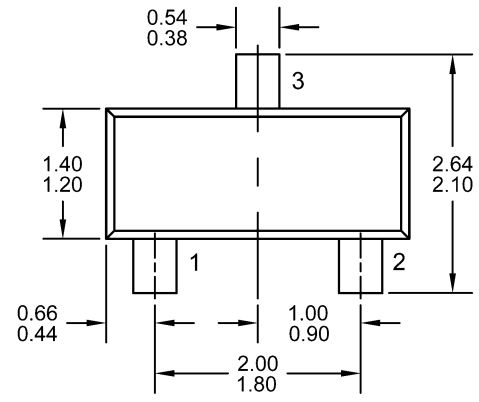


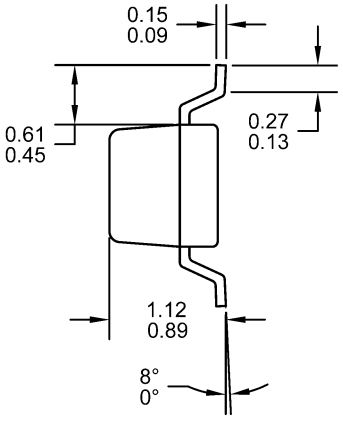


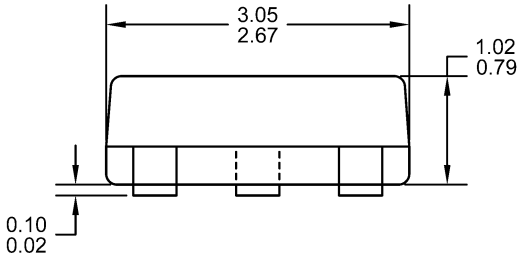


SOT23 (TO-236AB) Mechanical and Layout Data

Package Outline Data

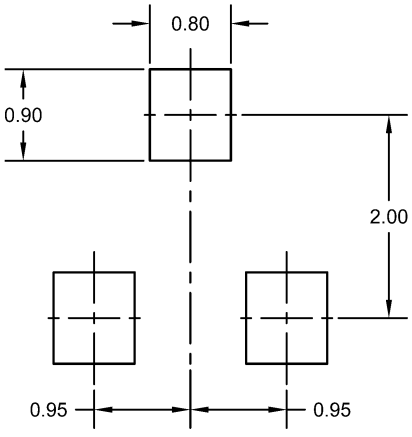






1. All linear dimensions are in millimeters.
2. Package weight approximately 0.12 grams
3. Molded plastic case UL 94V-0 rated
4. For Tape and Reel specifications refer to InterFET CTC-021 Tape and Reel Specification, Document number: IF39002
5. Bulk product is shipped in standard ESD shipping material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

Compliance and Legal

Environment

InterFET parts follow the latest RoHS Compliance, REACH Compliance, Proposition 65 Statement, TSCA Statement, and Chemical Disposal and Waste Mitigation requirement and guidelines. For more on InterFET's Environmental Commitment please visit www.InterFET.com/environmental/.

Package materials

Parameters	SOT23	SOIC8	TO-92	Metal Case
Alloy	CDA194	C194 1/2H	C194 1/2H	Kovar
Cu	Balance	97% min	97% min	
Fe	2.1 – 2.6%	2.1 – 2.6%	2.1 – 2.6%	53%
Zn	0.05 – 0.2%	0.05 – 0.2%	0.05 – 0.15%	
P	0.015 – 0.15%	0.015 – 0.15%	0.015 – 0.15%	
Pb	0.03% max	0.03% max	0.03% max	
Ni				29%
Co				17%
Mn				0.3%
Si				0.2%
C				<0.01%
Au				Plating

Package tests

Parameters	SOT23	SOIC8	TO-92	Metal Case
MSL	Level 1	Level 1	N/A	N/A
ESD	Class M4 Machine Model Class 3A HBM	Class M4 Machine Model Class 3A HBM	Class M4 Machine Model Class 3A HBM	Class M4 Machine Model Class 3A HBM

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