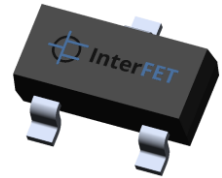
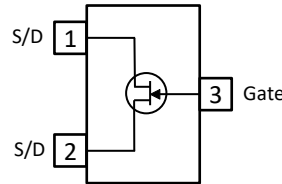


## IFN160A, IFN160B, IFN160C N-Channel JFET

### Features

- InterFET [N107A Geometry](#)
- Low gate leakage: 3.0pA typical @20V
- Low Ciss: 4pF typical
- Low cutoff voltage: -1.0V typical
- Typical BV<sub>GSS</sub>: -80V
- High radiation tolerance
- Custom test and binning options available
- RoHS, REACH, CMR compliant
- 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

- 2SK160, BF510, BF511, J305, MMBFJ202

### InterFET Similar Parts

- 2N4339, 2N4340, 2N4302, J202, 2N5484, IFBF510, IFBF511
- SMP4339, SMP4340, SMP4302, SMPJ202, SMP5484, SMPBF510, SMPBF511

### InterFET Similar Dual Parts

- IFN5911, IFN5912
- SMP5911, SMP5912

### Applications

- General: Amplifiers; High impedance 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 IFN160A, IFN160B, and IFN160C parts are targeted for cost sensitive low noise designs. These parts are ideal for audio mic and preamplifier designs. Gate leakages are typically less than 3pA at room temperatures. Exact cross for 2SK160 JFET.

### Ordering Information Custom Part and Binning Options Available

Part Number	Description	Case	Packaging
IFN160AST3; IFN160BST3; IFN160CST3	Surface Mount	SOT23	Bulk
IFN160AST3TR; IFN160BST3TR; IFN160CST3TR	7" Tape and Reel: Max 3,000 Pieces 13" Tape and Reel: Max 9,000 Pieces	SOT23	Minimum 1,000 Pieces Tape and Reel
IFN160ACOT; IFN160BCOT; IFN160CCOT	Chip Orientated Tray (COT Waffle Pack)	COT	400/Waffle Pack
IFN160ACFT; IFN160BCFT; IFN160CCFT	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 (@ $T_A = 25^\circ\text{C}$ , Unless otherwise specified)

Parameters	SOT-23	Unit
$V_{RGS}$ Reverse Gate Source and Gate Drain Voltage	-75	V
$I_{FG}$ Continuous Forward Gate Current	50	mA
$P_D$ Continuous Device Power Dissipation <sup>1</sup>	350	mW
$P$ Power Derating <sup>1</sup>	2.8	mW/ $^\circ\text{C}$
$T_J$ Operating Junction Temperature	-55 to 150	$^\circ\text{C}$
$T_{STG}$ Storage Temperature	-55 to 150	$^\circ\text{C}$

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

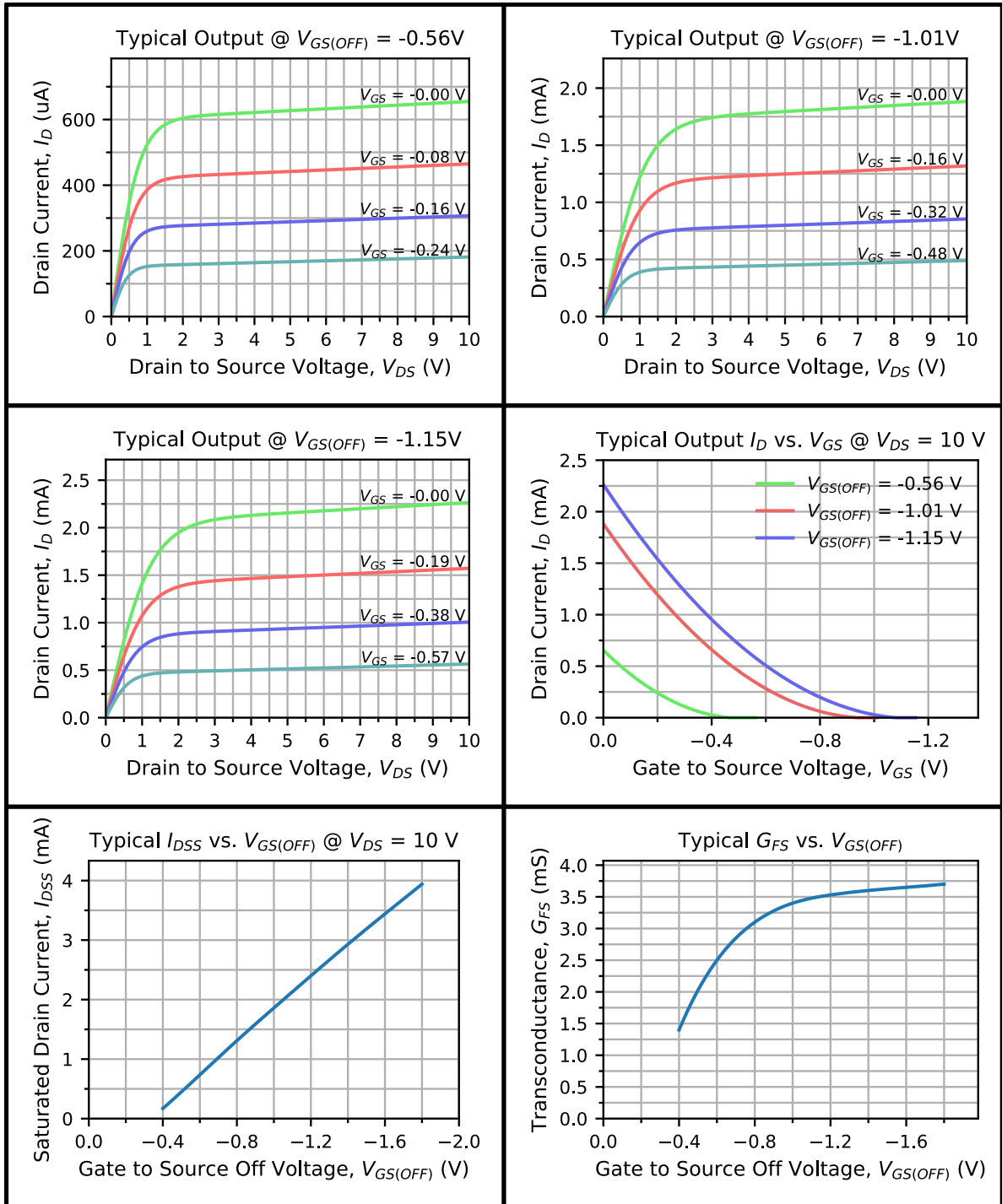
### Static Characteristics (@ $T_A = 25^\circ\text{C}$ , Unless otherwise specified)

Parameters	Conditions	IF160A		IF160B		IF160C		Unit
		Min	Max	Min	Max	Min	Max	
$V_{(BR)GSS}$ Gate to Source Breakdown Voltage	$V_{DS} = 0V, I_G = -1\mu\text{A}$	-75		-75		-75		V
$I_{GSS}$ Gate to Source Reverse Current	$V_{GS} = -30V, V_{DS} = 0V, T_A = 25^\circ\text{C}$		-100		-100		-100	pA
$V_{GS(OFF)}$ Gate to Source Cutoff Voltage	$V_{DS} = 5V, I_D = 10\mu\text{A}$	-0.25	-4.5	-0.25	-4.5	-0.25	-4.5	V
$I_{DSS}$ Drain to Source Saturation Current	$V_{DS} = 5V, V_{GS} = 0V$ (Pulsed)	0.5	1.5	1	3	2	6	mA

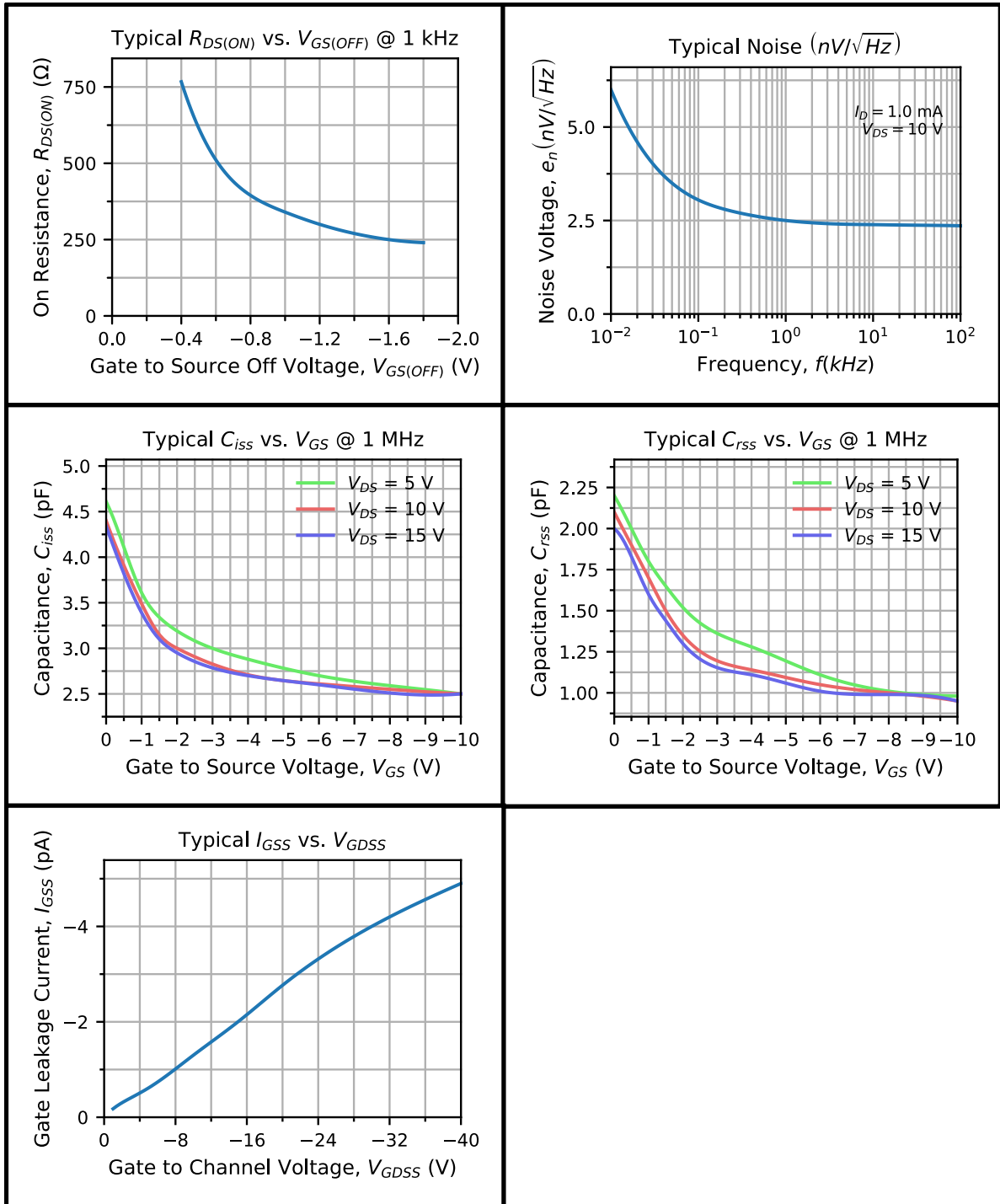
### Dynamic Characteristics (@ $T_A = 25^\circ\text{C}$ , Unless otherwise specified)

Parameters	Conditions	IF160A		IF160B		IF160C		Unit
		Min	Max	Min	Max	Min	Max	
$G_{FS}$ Forward Transconductance	$V_{DS} = 5V, I_G = 0.5\text{mA}, f = 1\text{kHz}$	1500		1500		1500		$\mu\text{S}$
$C_{iss}$ Input Capacitance	$V_{DS} = 10V, V_{GS} = 0V, f = 1\text{MHz}$		4		4		4	pF
$C_{rss}$ Reverse Transfer Capacitance	$V_{DS} = 10V, V_{GS} = 0V, f = 1\text{MHz}$		1		1		1	pF

## Typical IF160A, IF160B, IF160C Characteristics



### Typical IF160A, IF160B, IF160C Characteristics (Continued)



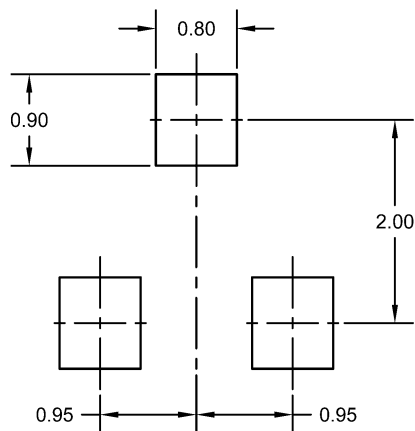
## SOT23 (TO-236AB) Mechanical and Layout Data

### Package Outline Data



1. All linear dimensions are in millimeters.
2. Package weight approximately 0.01 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/](http://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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