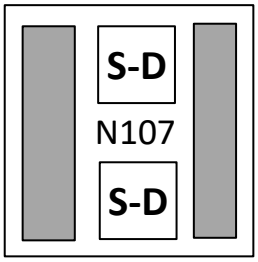
N107A Process Geometry

Features

- Cost effective die shrink geometry
- Low gate leakage: 4.0pA typical
- Low Ciss: 3.8pF typical
- Minimum BV_{GSS}: -75V
- High input impedance
- High radiation tolerance
- RoHS, REACH, CMR compliant
- Small die: 322um X 334um X 203um
- Bond pads: 90um X 90um
- Substrate connected to gate
- Au back-side finish

Geometry Top View



Standard Parts

- IFN160A, IFN160B, IFN160C

InterFET Similar Geometries

- N0014AL, N0016SH, N0016SS, N0026SL, N0026SS, N0030SL

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 N017A die is 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. Available in waffle pack, matched pair waffle pack, unsawn wafer, and sawn wafer options.

Ordering Information Custom Part and Binning Options Available

Part Number	Description	Case	Packaging
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

Electrical Characteristics

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

Parameters		Min	Max	Unit
V_{RGS}	Reverse Gate to Source or Drain Voltage	-75		V
I_{FG}	Continuous Forward Gate Current		10	mA
T_J	Operating Junction Temperature	-55	150	°C
T_{STG}	Storage Temperature	-65	175	°C

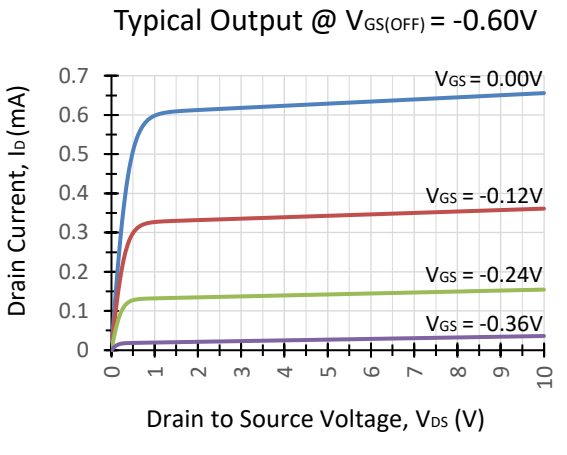
Static Characteristics (@ TA = 25°C, Unless otherwise specified)

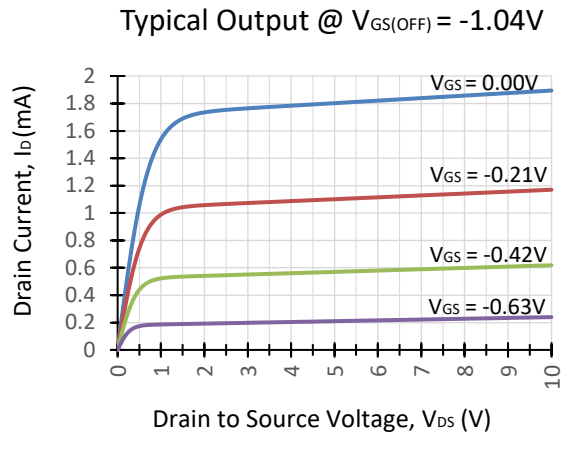
Parameters		Conditions	Min	Typ	Max	Unit
BV_{GSS}	Gate to Source Breakdown Voltage	I_G = -1µA, V_{DS} = 0V	-75	-80		V
I_{GSS}	Gate to Source Reverse Current	V_{GS} = -40V, V_{DS} = 0V		-4	-100	pA
$V_{GS(OFF)}$	Gate to Source Cutoff Voltage	V_{DS} = 10V, I_D = 1nA	-0.4		-2	V
I_{DSS}	Drain to Source Saturation Current	V_{DS} = 10V, V_{GS} = 0V	0.2		4	mA

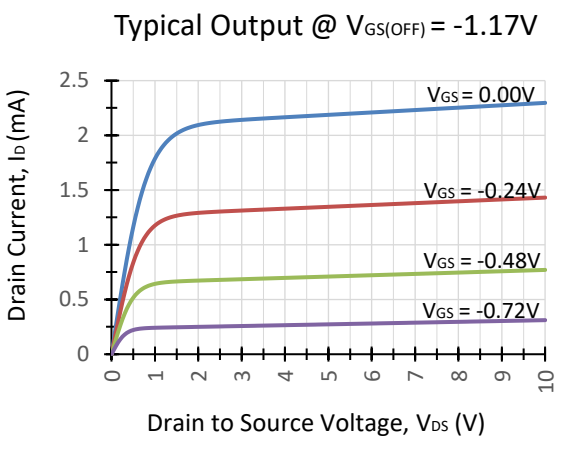
Dynamic Characteristics (@ TA = 25°C, Unless otherwise specified)

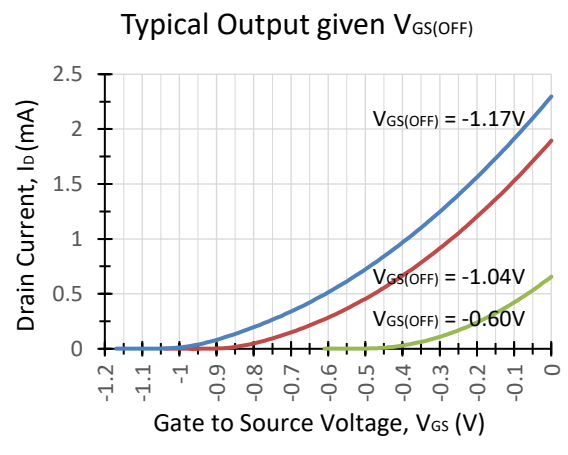
Parameters		Conditions	Min	Typ	Max	Unit
G_{FS}	Forward Transconductance	V_{DS} = 10V, V_{GS} = 0 V, f = 1kHz		3.5		mS
C_{iss}	Input Capacitance	V_{DS} = 10V, V_{GS} = 0 V, f = 1MHz		3.8		pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 0V, V_{GS} = -10 V, f = 1MHz		1.8		pF
e_n	Noise Voltage	V_{DS} = 4V, I_D = 5mA, f = 1kHz		2.3		nV/√Hz

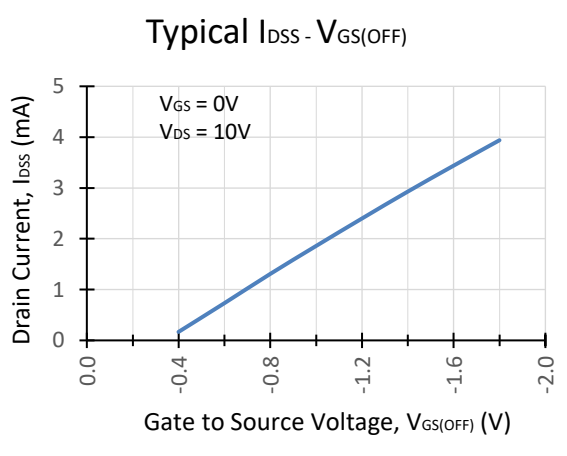
Typical Characteristics

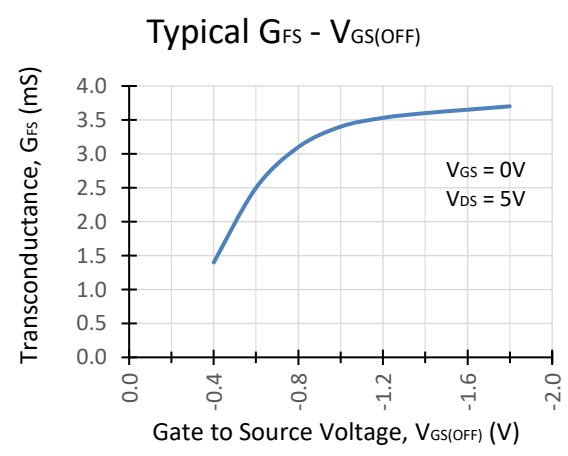




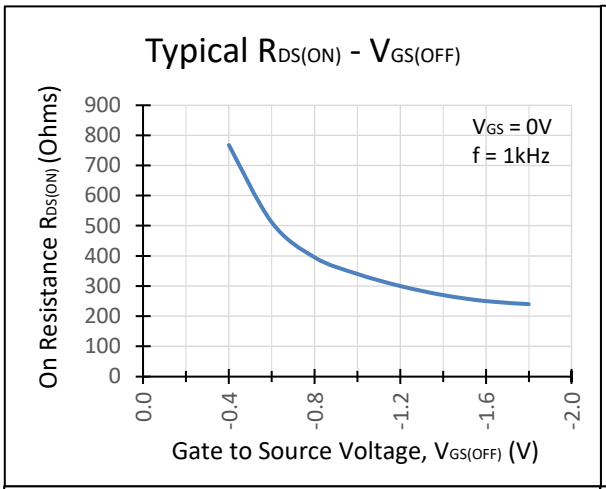


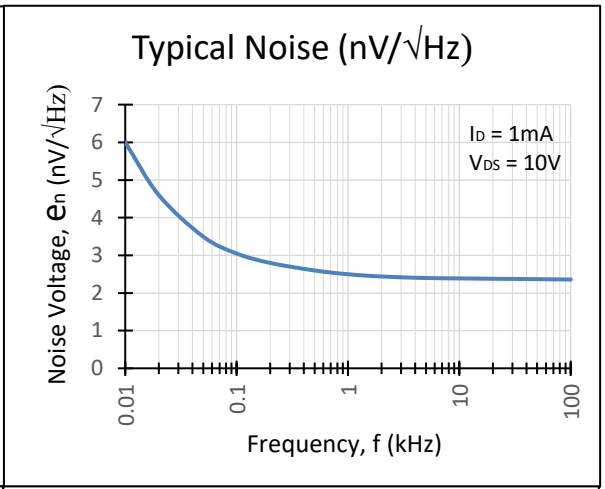


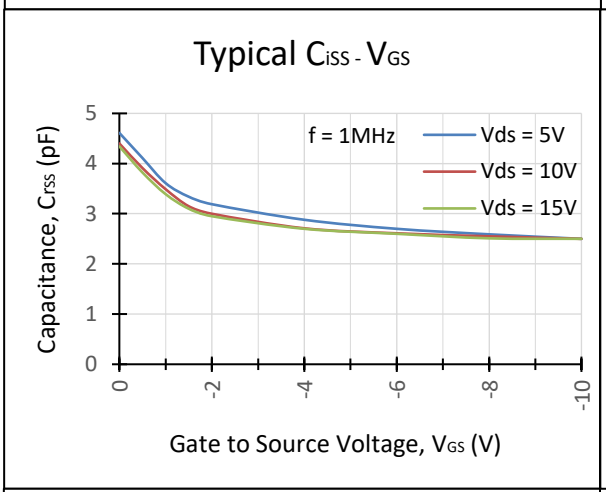


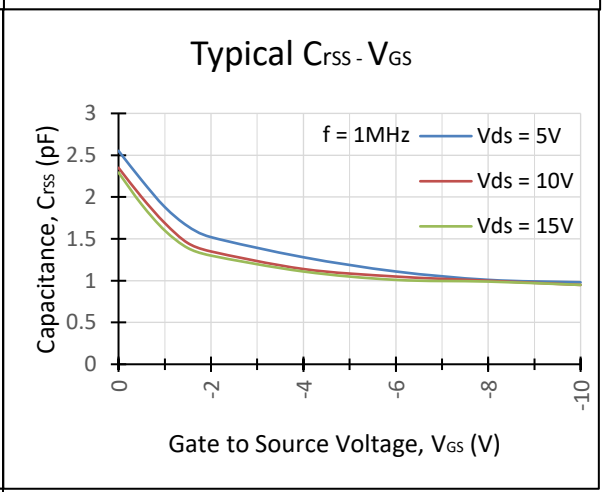


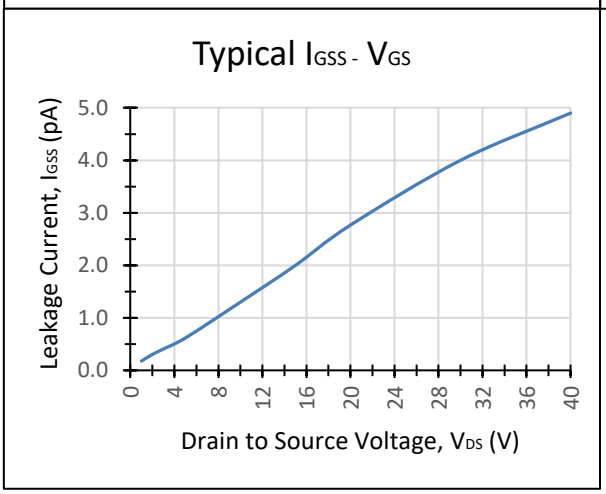
Typical Characteristics (Continued)





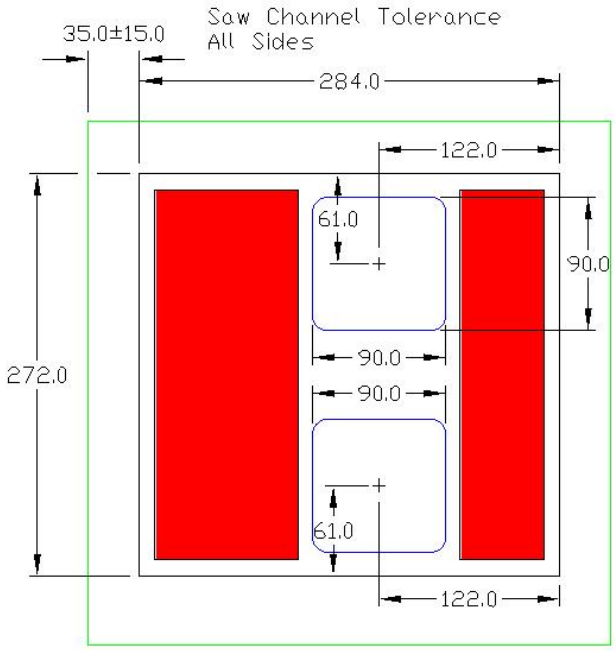


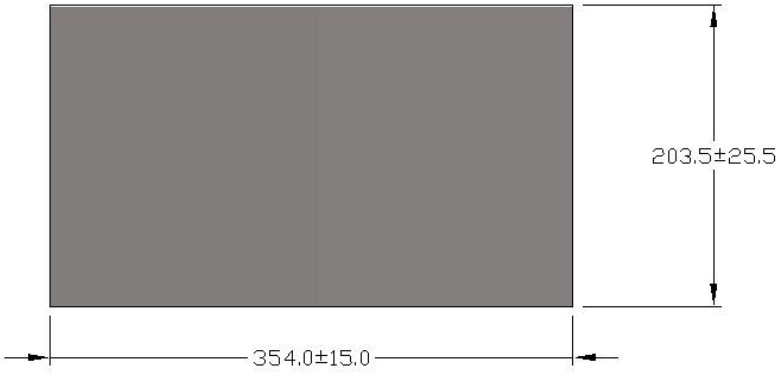




N107A Die Geometry Mechanical

Raw Die Dimensions





1. All linear dimensions are in microns (um).

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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