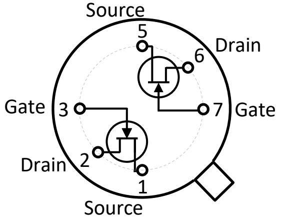
IF3602 Dual Matched N-Channel JFET

Features

- InterFET N3600L Geometry
- Ultra Low Noise: 0.5 nV/√Hz Typical
- High Gain: 750mS Typical
- Low Rds(on): 2.0 Ohms Typical
- RoHS Compliant
- SMT, TH, and Bare Die Package options.

TO-78 Bottom View



Applications

- Low-Noise, High Gain Amplifiers
- Differential Amplifiers

Description

The -20V InterFET IF3602 JFET is targeted for ultra low noise high gain differential amplifier designs. The IF3602 has a cutoff voltage of less than 2.0V ideal for low voltage applications. The TO-78 package is hermetically sealed and suitable for military applications. Custom specifications, matching, and packaging options are available.

Product Summary

Parameters		IF3602 Min	Unit
BV_{GSS}	Gate to Source Breakdown Voltage	-20	V
I_{DSS}	Drain to Source Saturation Current	30	mA
$V_{GS(off)}$	Gate to Source Cutoff Voltage	-0.35	V
G_{FS}	Forward Transconductance	750 Typical	mS

Ordering Information

Custom Part and Binning Options Available

Part Number	Description	Case	Packaging
IF3602T78	Through-Hole	TO-78	Bulk
IF3602COT *	Chip Orientated Tray (COT Waffle Pack)	COT	30/Waffle Pack
IF3602CFT *	Chip Face-up Tray (CFT Waffle Pack)	CFT	30/Waffle Pack

* Bare die packaged options are designed for matched specifications but not 100% tested

Electrical Characteristics

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

Parameters		Value	Unit
V_{RGS}	Reverse Gate Source and Gate Drain Voltage	-20	V
I_{FG}	Continuous Forward Gate Current	10	mA
P_D	Continuous Device Power Dissipation	300	mW
P	Power Derating	4	mW/°C
T_J	Operating Junction Temperature	-55 to 125	°C
T_{STG}	Storage Temperature	-65 to 200	°C

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

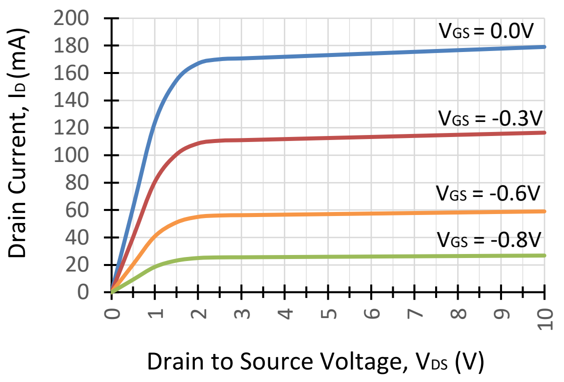
Parameters		Conditions	Min	Typ	Max	Unit
$V_{(BR)GSS}$	Gate to Source Breakdown Voltage	V_{DS} = 0V, I_G = -1µA	-20			V
I_{GSS}	Gate to Source Reverse Current	V_{GS} = -10V, V_{DS} = 0V			-0.1	nA
$V_{GS(OFF)}$	Gate to Source Cutoff Voltage	V_{DS} = 10V, I_D = 0.5nA	-0.35		-2.0	V
I_{DSS}	Drain to Source Saturation Current	V_{GS} = 0V, V_{DS} = 10V (Pulsed)	30	300		mA

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

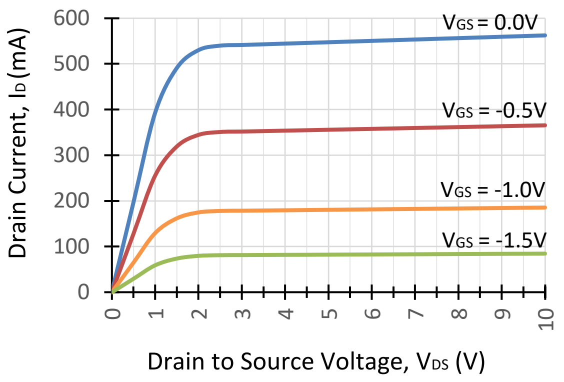
Parameters		Conditions	Min	Typ	Max	Unit
G_{FS}	Forward Transconductance	V_{DS} = 10V, V_{GS} = 0V, f = 1kHz		750		mS
C_{iss}	Input Capacitance	V_{DS} = 0V, V_{GS} = -4V, f = 1MHz		300		pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 0V, V_{GS} = -4V, f = 1MHz		200		pF
e_n	Equivalent Circuit Input Noise Voltage	V_{DS} = 3V, I_D = 5mA, f = 100Hz		0.5		nV/√Hz
$\lvert V_{GS1} - V_{GS2} \rvert$	Differential Gate Source Voltage	V_{DS} = 10V, I_D = 500pA			100	mV

Typical IF3602 Characteristics

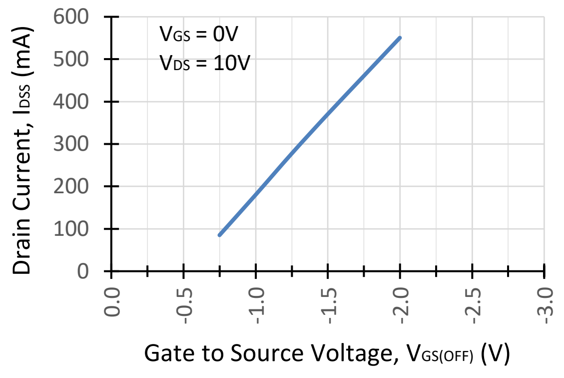
Typical Output @ $V_{GS(OFF)}$ = -1.0V



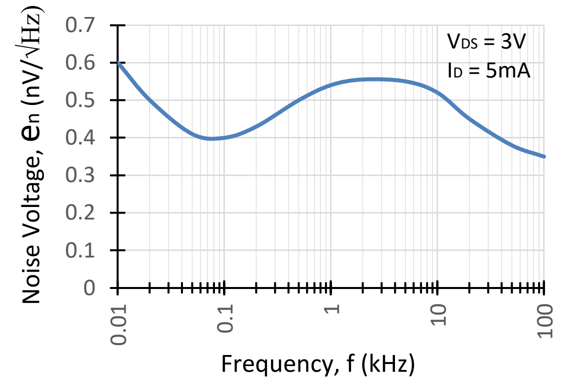
Typical Output @ $V_{GS(OFF)}$ = -2.0V



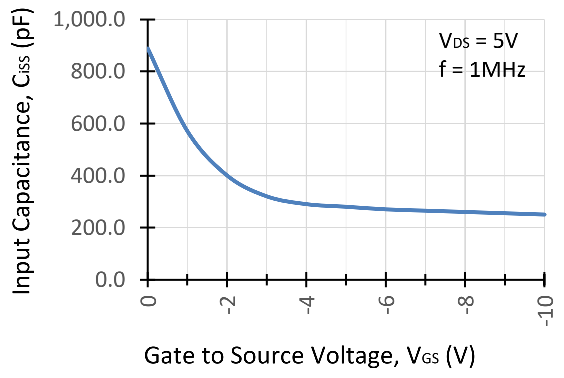
Typical I_{DSS} - $V_{GS(OFF)}$



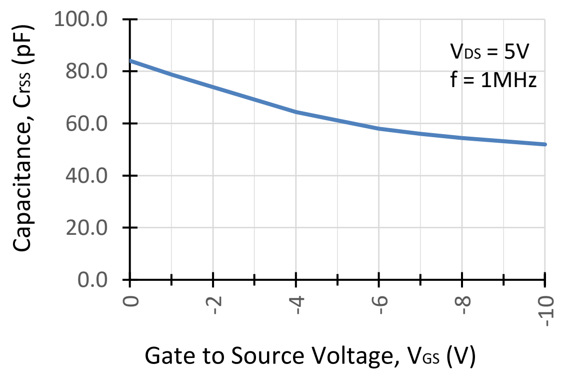
Typical Noise (nV/√Hz)



Typical C_{iss} - V_{GS}

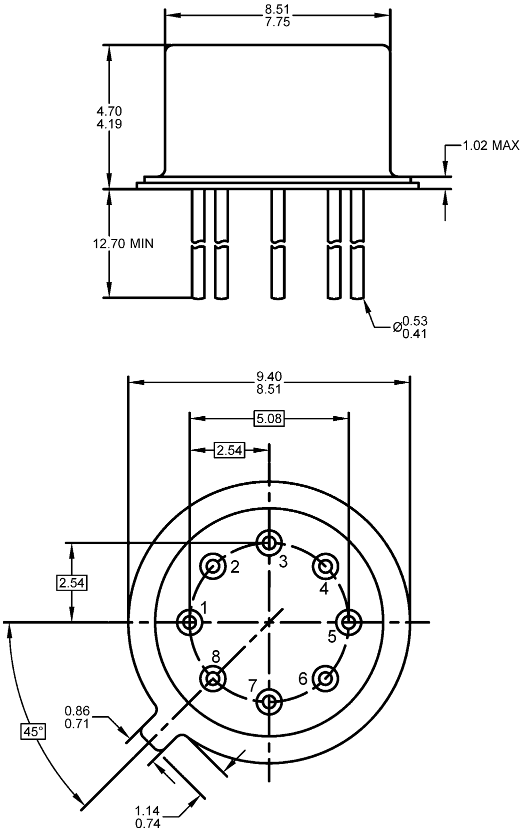


Typical C_{rss} - V_{GS}



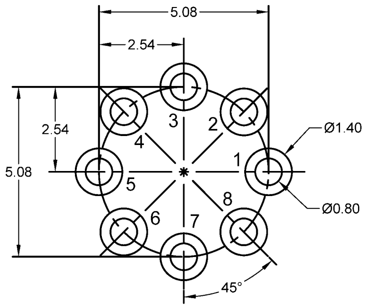
TO-78 Mechanical and Layout Data

Package Outline Data



1. All linear dimensions are in millimeters.
2. Eight leaded device. Not all leads are shown in drawing views.
3. Some package configurations will not populate pin 8 and/or pin 7.
4. Package weight approximately 0.44 grams
5. Bulk product is shipped in standard ESD shipping material
6. 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.