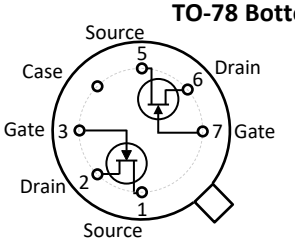
IF9034, IF9035 Dual N-Channel JFET

Features

- InterFET N0903L Geometry
- Low Noise: 0.7 nV/√Hz Typical
- High Gain: 150mS Typical
- Low Rds(on): 6.0 Ohms Typical
- RoHS Compliant
- TH, and Bare Die Package options.

TO-78 Bottom View



Applications

- Low-Noise, High Gain Amplifiers
- Differential Amplifiers
- Instrumentation Amplifiers
- Acoustic and Vibration Sensors
- Automotive Sensor Gain Stage

Description

The -20V InterFET IF9034 and IF9035 JFET is targeted for ultra low noise high gain differential amplifier designs. The IF903x 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		IF9034,5 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	80	mS

Ordering Information Custom Part and Binning Options Available

Part Number	Description	Case	Packaging
IF9034T78, IF9035T78	Through-Hole	TO-78	Bulk
IF9034COT; IF9035COT *	Chip Orientated Tray (COT Waffle Pack)	COT	70/Waffle Pack
IF9034CFT; IF9035CFT *	Chip Face-up Tray (CFT Waffle Pack)	CFT	70/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	2.4	mW/°C
T_J	Operating Junction Temperature	-55 to 125	°C
T_{STG}	Storage Temperature	-65 to 200	°C

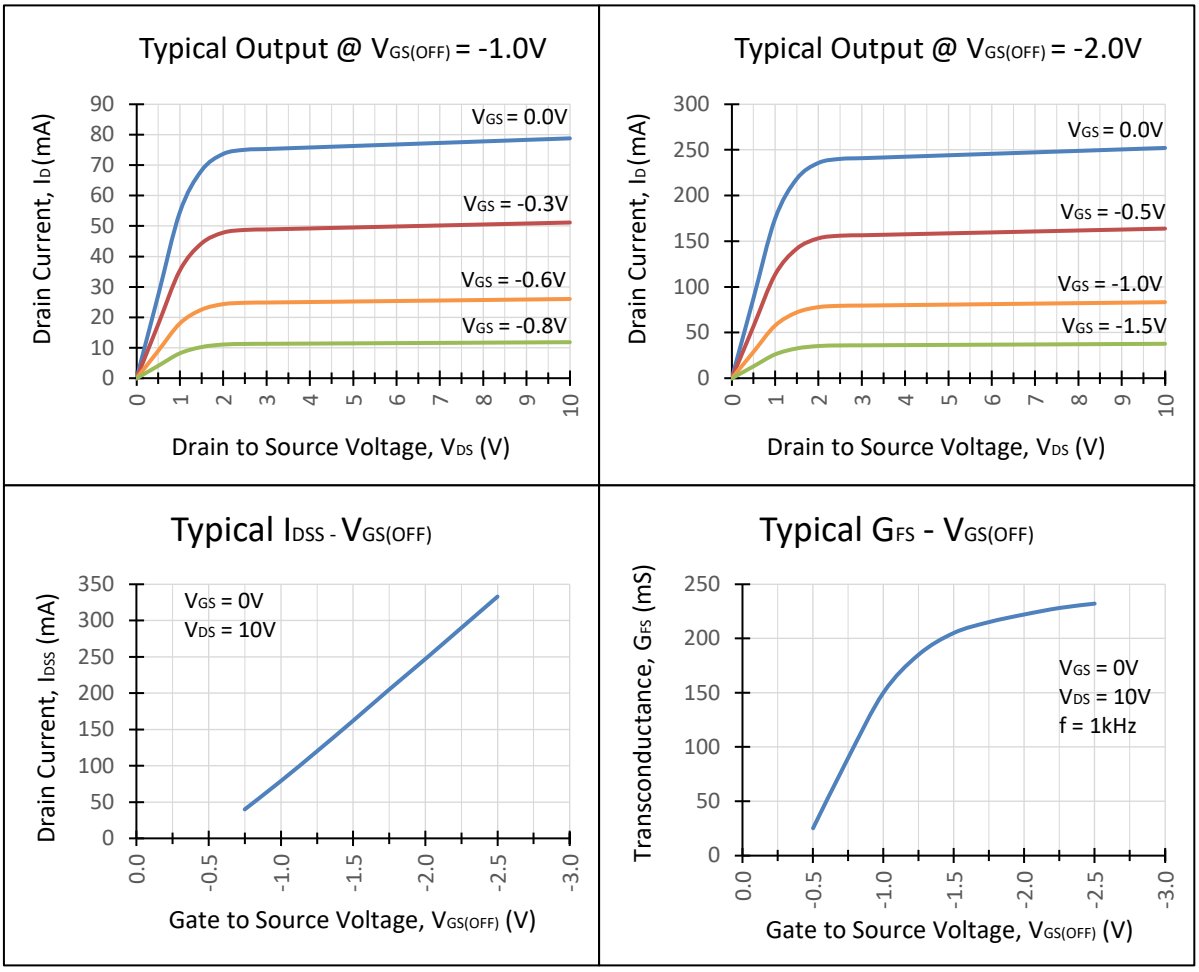
Static Characteristics (@ TA = 25°C, Unless otherwise specified)

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	100	300	mA

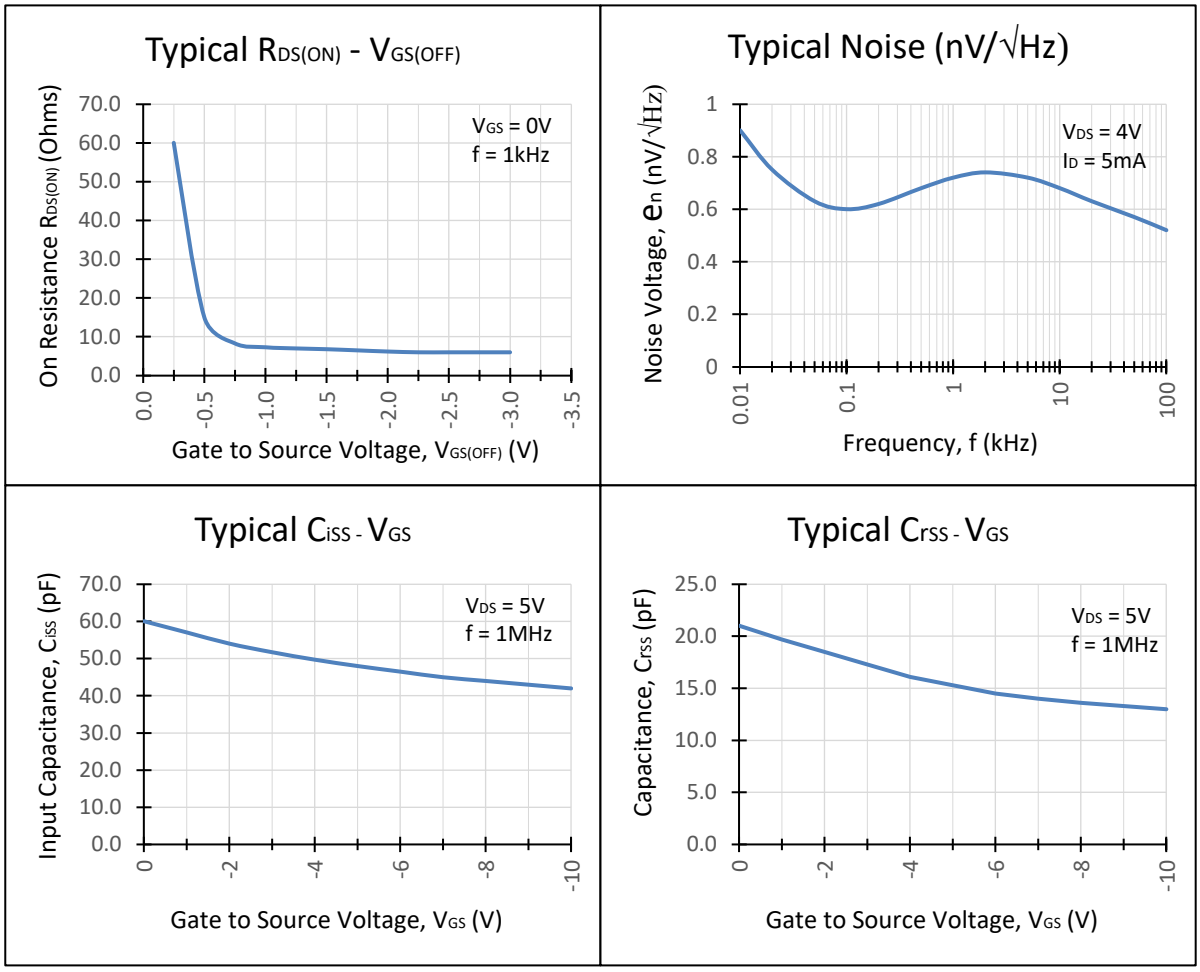
Dynamic Characteristics (@ TA = 25°C, Unless otherwise specified)

Parameters		Conditions	Min	Typ	Max	Unit
G_{FS}	Forward Transconductance	V_{DS} = 10V, V_{GS} = 0V, f = 1kHz	80	150		mS
C_{iss}	Input Capacitance	V_{DS} = 10V, I_D = 5mA, f = 1MHz			60	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 10V, I_D = 5mA, f = 1MHz			20	pF
e_n	Equivalent Circuit Input Noise Voltage	V_{DS} = 4V, I_D = 5mA, f = 1kHz		0.7		nV/√Hz
$\lvert V_{GS1} - V_{GS2} \rvert$	Differential Gate Source Voltage	V_{DS} = 10V, I_D = 500pA IF9034 IF9035			50 100	mV

Typical IF9034, IF9035 Characteristics

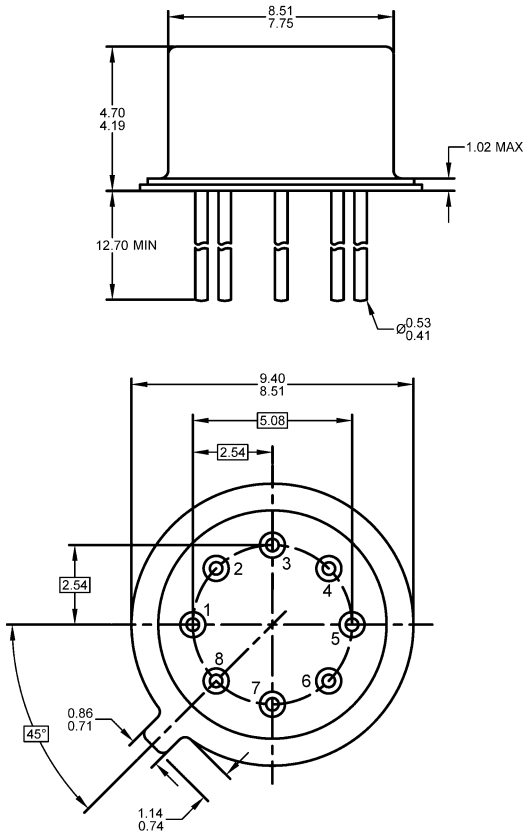


Typical IF9034, IF9035 Characteristics (Continued)



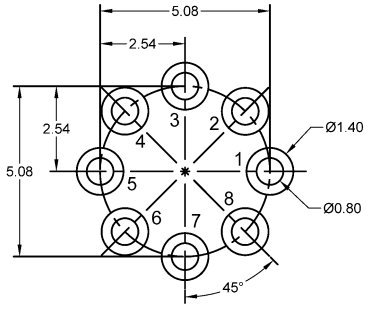
TO-78 Mechanical and Layout Data

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.