

IF9034, IF9035 Dual N-Channel JFET

Features

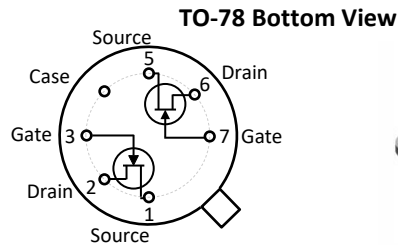
- InterFET [N0903L Geometry](#)
- Low Noise: 0.7 nV/√Hz Typical
- High Gain: 150mS Typical
- Low $R_{ds(on)}$: 6.0 Ohms Typical
- RoHS Compliant
- TH, and Bare Die Package options.

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



Disclaimer: It is the Buyers responsibility for designing, validating and testing the end application under all field use cases and extreme use conditions. Guaranteeing the application meets required standards, regulatory compliance, and all safety and security requirements is the responsibility of the Buyer. These resources are subject to change without notice.

Electrical Characteristics

Maximum Ratings (@ $T_A = 25^\circ\text{C}$, 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/ $^\circ\text{C}$
T_J Operating Junction Temperature	-55 to 125	$^\circ\text{C}$
T_{STG} Storage Temperature	-65 to 200	$^\circ\text{C}$

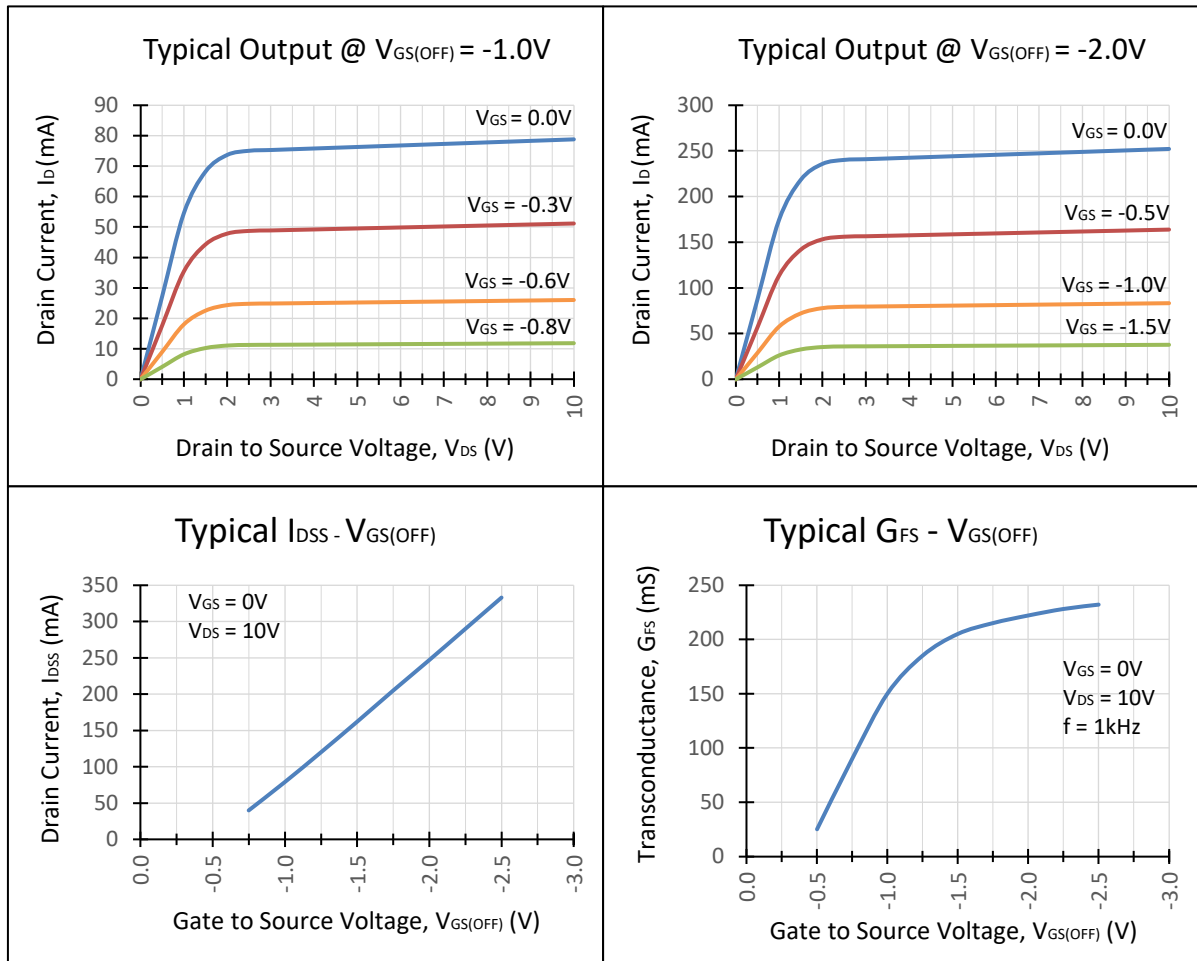
Static Characteristics (@ $T_A = 25^\circ\text{C}$, Unless otherwise specified)

Parameters	Conditions	Min	Typ	Max	Unit
$V_{(BR)GSS}$ Gate to Source Breakdown Voltage	$V_{DS} = 0V, I_G = -1\mu A$	-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

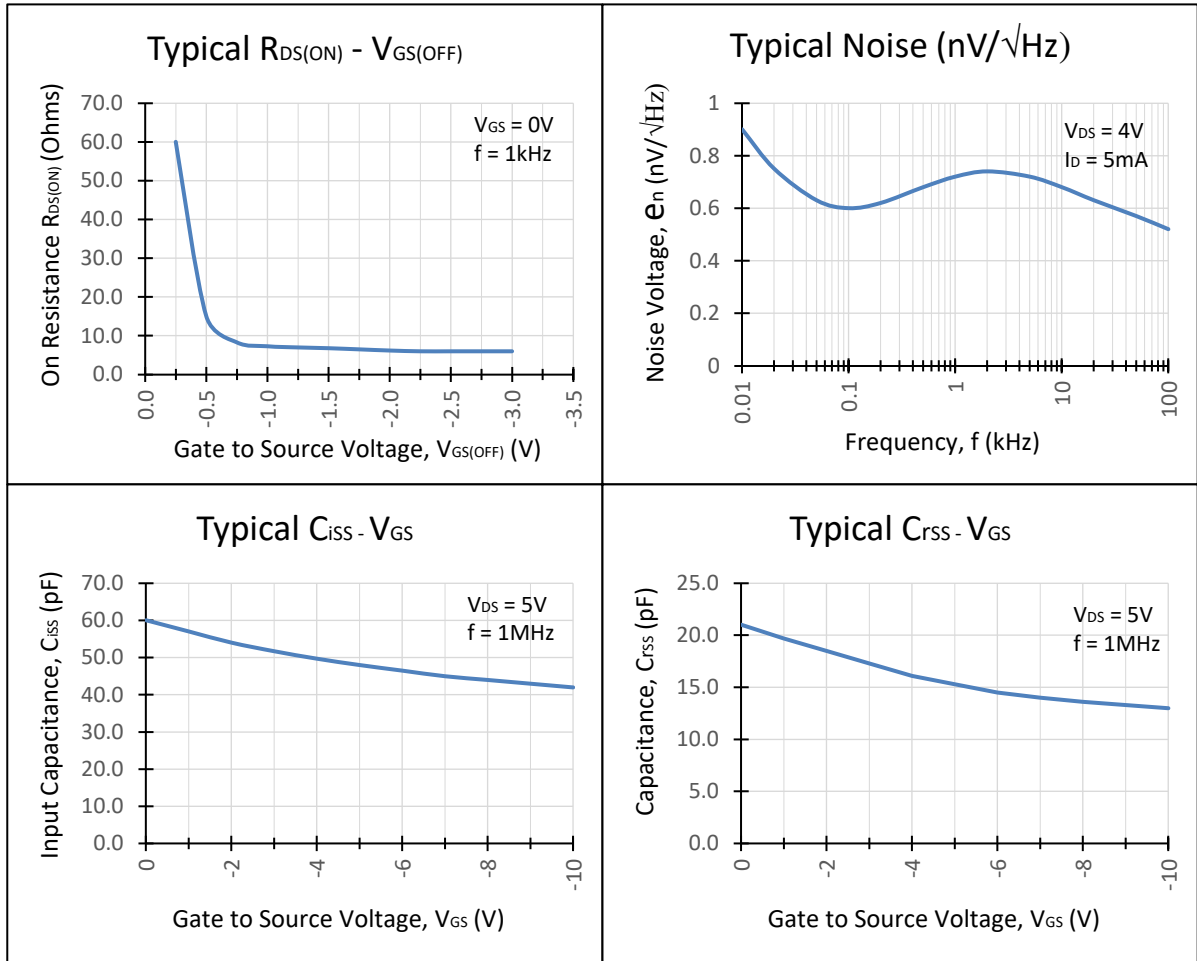
Dynamic Characteristics (@ $T_A = 25^\circ\text{C}$, Unless otherwise specified)

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/ $\sqrt{\text{Hz}}$
$ V_{GS1} - V_{GS2} $ Differential Gate Source Voltage	$V_{DS} = 10V$ $I_D = 500pA$			50 100	mV
	IF9034 IF9035				

Typical IF9034, IF9035 Characteristics

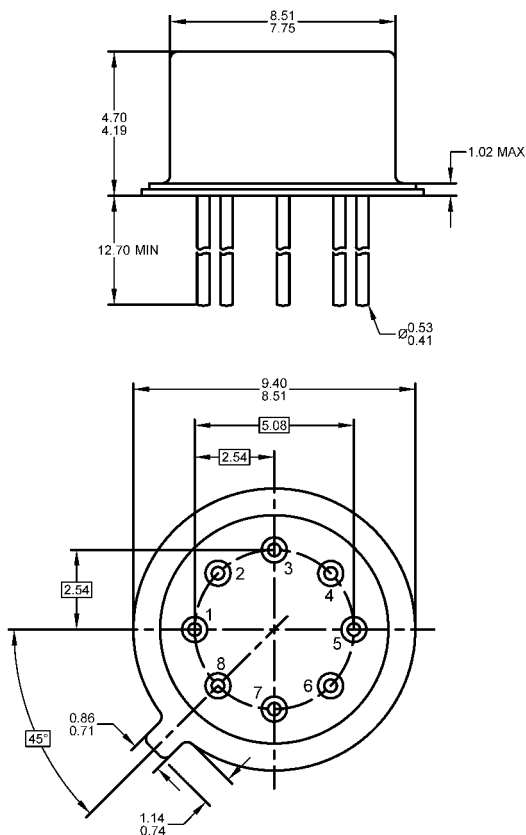


Typical IF9034, IF9035 Characteristics (Continued)



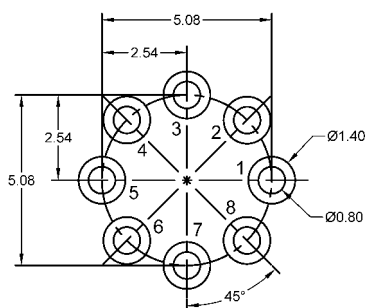
TO-78 Mechanical and Layout Data

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.