

IF140, IF140A

N-Channel Silicon Junction Field-Effect Transistor

- Low-Noise, High Gain Amplifiers

Absolute maximum ratings at $T_A = 25^\circ\text{C}$

Reverse Gate Source & Reverse Gate Drain Voltage	- 20 V
Continuous Forward Gate Current	10 mA
Continuous Device Power Dissipation	375 mW
Power Derating	3 mW/ $^\circ\text{C}$
Storage Temperature Range	- 65 $^\circ\text{C}$ to 200 $^\circ\text{C}$

At 25 $^\circ\text{C}$ free air temperature:

Static Electrical Characteristics

		IF140		IF140A		Unit	Process NJ14AL	
		Min	Max	Min	Max		Test Conditions	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	- 20		- 20		V	$I_G = - 1 \mu\text{A}, V_{DS} = \emptyset\text{V}$	
Gate Reverse Current	I_{GSS}		- 0.1		- 0.1	nA	$V_{GS} = - 15\text{V}, V_{DS} = \emptyset\text{V}$	
			- 0.2		- 0.2	nA	$V_{GS} = - 15\text{V}, V_{DS} = \emptyset\text{V}$ $T_A = 150^\circ\text{C}$	
Gate Source Cutoff Voltage	$V_{GS(OFF)}$		- 6		- 6	V	$V_{DS} = 15\text{V}, I_D = 5 \text{ nA}$	
Gate Source Voltage	V_{GS}		- 5	- 2.5	- 6	V	$V_{DS} = 15\text{V}, I_D = 50 \mu\text{A}$	
Gate Source Forward Voltage	$V_{GS(F)}$		1		1	V	$V_{DS} = \emptyset, I_G = 1 \text{ mA}$	
Drain Saturation Current (Pulsed)	I_{DSS}	5	15	5	15	mA	$V_{DS} = 15\text{V}, V_{GS} = \emptyset\text{V}$	

Dynamic Electrical Characteristics

Common Source Forward Transmittance	Y_{fs}	4.5		4.5		mS	$V_{DS} = 15\text{V}, V_{GS} = \emptyset\text{V}$	$f = 1 \text{ kHz}$
Common Source Output Conductance	Y_{os}		0.05		0.05	μS	$V_{DS} = 15\text{V}, V_{GS} = \emptyset\text{V}$	$f = 1 \text{ kHz}$
Common Source Input Capacitance	C_{iss}		3		3	pF	$V_{DS} = 15\text{V}, V_{GS} = \emptyset\text{V}$	$f = 1 \text{ MHz}$
Common Source Reverse Transfer Capacitance	C_{rss}		0.6		0.6	pF	$V_{DS} = 15\text{V}, V_{GS} = \emptyset\text{V}$	$f = 1 \text{ MHz}$

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Equivalent Short Circuit Input Noise Voltage	\bar{e}_N	4		4		nV/ $\sqrt{\text{Hz}}$	$V_{DS} = 12\text{V}, V_{GS} = \emptyset\text{V}$	$f = 10 \text{ Hz}$
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TO-72 Package

Dimensions in Inches (mm)

Pin Configuration

1 Source, 2 Drain, 3 Gate, 4 Case



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