

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/°C
Storage Temperature Range	– 65°C to 200°C

At 25°C free air temperature:

Static Electrical Characteristics

		IF140		IF140A		Process NJ14AL	
		Min	Max	Min	Max	Unit	Test Conditions
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	– 20		– 20		V	$I_G = -1\ \mu\text{A}$, $V_{DS} = 0\text{V}$
Gate Reverse Current	I_{GSS}		– 0.1		– 0.1	nA	$V_{GS} = -15\text{V}$, $V_{DS} = 0\text{V}$
			– 0.2		– 0.2	nA	$V_{GS} = -15\text{V}$, $V_{DS} = 0\text{V}$ $T_A = 150^\circ\text{C}$
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	$V_{DS} = 0$, $I_G = 1\text{ mA}$
Drain Saturation Current (Pulsed)	I_{DSS}	5	15	5	15	mA	$V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$

Dynamic Electrical Characteristics

Common Source Forward Transmittance	Y_{fs}	4.5		4.5		mS	$V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$	$f = 1\text{ kHz}$
Common Source Output Conductance	Y_{os}		0.05		0.05	μS	$V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$	$f = 1\text{ kHz}$
Common Source Input Capacitance	C_{iss}		3		3	pF	$V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$	$f = 1\text{ MHz}$
Common Source Reverse Transfer Capacitance	C_{rss}		0.6		0.6	pF	$V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$	$f = 1\text{ MHz}$

Typ

Typ

Equivalent Short Circuit Input Noise Voltage	$\bar{e}_N$	4	4	nV/ $\sqrt{\text{Hz}}$	$V_{DS} = 12\text{V}$, $V_{GS} = 0\text{V}$	$f = 10\text{ Hz}$
--	-------------	---	---	------------------------	--	--------------------

TO-72 Package

Dimensions in Inches (mm)

Pin Configuration

1 Source, 2 Drain, 3 Gate, 4 Case