

N-Channel Silicon Junction Field-Effect Transistor

• Low-Noise, High Gain Amplifier

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

		IF142		Unit	Process NJ14AL	
		Min	Max		Test Conditions	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	- 25		V	$I_G = -1\ \mu\text{A}, V_{DS} = \emptyset\text{V}$	
Gate Reverse Current	I_{GSS}		- 0.1	nA	$V_{GS} = -15\text{V}, V_{DS} = \emptyset\text{V}$	
			- 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	V	$V_{DS} = 15\text{V}, I_D = 5\ \text{nA}$	
Gate Source Voltage	V_{GS}		- 5	V	$V_{DS} = 15\text{V}, I_D = 50\ \mu\text{A}$	
Gate Source Forward Voltage	$V_{GS(F)}$		1	V	$V_{DS} = \emptyset, I_G = 1\ \text{mA}$	
Drain Saturation Current (Pulsed)	I_{DSS}	5	15	mA	$V_{DS} = 15\text{V}, V_{GS} = \emptyset\text{V}$	

Dynamic Electrical Characteristics

Common Source Forward Transmittance	Y_{fs}	3.5		mS	$V_{DS} = 15\text{V}, V_{GS} = \emptyset\text{V}$	$f = 1\ \text{kHz}$
Common Source Output Conductance	Y_{os}		0.05	μS	$V_{DS} = 15\text{V}, V_{GS} = \emptyset\text{V}$	$f = 1\ \text{kHz}$
Common Source Input Capacitance	C_{iss}		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	pF	$V_{DS} = 15\text{V}, V_{GS} = \emptyset\text{V}$	$f = 1\ \text{MHz}$

Typ

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

TO-236AB Package
Dimensions in Inches (mm)

Pin Configuration
1 Drain, 2 Source, 3 Gate