

2N6451, 2N6452

N-Channel Silicon Junction Field-Effect Transistor

- Audio Amplifiers
- Low-Noise, High Gain Amplifiers
- Low-Noise Preamplifiers

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

Reverse Gate Source Voltage	2N6451	2N6452
	- 20 V	- 25 V
Reverse Gate Drain Voltage	- 20 V	- 25 V
Continuous Forward Gate Current	10 mA	10 mA
Continuous Device Power Dissipation	360 mW	360 mW
Power Derating	2.88 mW/°C	2.88 mW/°C

At 25°C free air temperature:

Static Electrical Characteristics

		2N6451		2N6452		Unit	Process NJ132L	
		Min	Max	Min	Max		Test Conditions	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	- 20		- 25		V	$I_G = - 1 \mu\text{A}, V_{DS} = \emptyset\text{V}$	
Gate Reverse Current	I_{GSS}		- 0.1			nA	$V_{GS} = - 10\text{V}, V_{DS} = \emptyset\text{V}$	
				- 0.5		nA	$V_{GS} = - 15\text{V}, V_{DS} = \emptyset\text{V}$	
			- 0.2			μA	$V_{GS} = - 10\text{V}, V_{DS} = \emptyset\text{V}$	
				- 1		μA	$V_{GS} = - 15\text{V}, V_{DS} = \emptyset\text{V}$	
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	- 0.5	- 3.5	- 0.5	- 3.5	V	$V_{DS} = 10\text{V}, I_D = 0.5 \text{ nA}$	
Drain Saturation Current (Pulsed)	I_{DSS}	5	20	5	20	mA	$V_{DS} = 10\text{V}, V_{GS} = \emptyset\text{V}$	

Dynamic Electrical Characteristics

Common Source Forward Transmittance	$ Y_{fs} $	15	30	15	30	mS	$V_{DS} = 10\text{V}, I_D = 5 \text{ mA}$	$f = 1 \text{ kHz}$
						mS	$V_{DS} = 10\text{V}, I_D = 15 \text{ mA}$	$f = 1 \text{ kHz}$
Common Source Output Conductance	$ Y_{os} $		50		50	μS	$V_{DS} = 10\text{V}, I_D = 5 \text{ mA}$	$f = 1 \text{ kHz}$
						μS	$V_{DS} = 10\text{V}, I_D = 15 \text{ mA}$	$f = 1 \text{ kHz}$
Common Source Input Capacitance	C_{iss}		25		25	pF	$V_{DS} = 10\text{V}, I_D = 5 \text{ mA}$	$f = 1 \text{ kHz}$
						pF	$V_{DS} = 10\text{V}, I_D = 15 \text{ mA}$	$f = 1 \text{ kHz}$
Common Source Reverse Transfer Capacitance	C_{rss}		5		5	pF	$V_{DS} = 10\text{V}, I_D = 5 \text{ mA}$	$f = 1 \text{ kHz}$
						pF	$V_{DS} = 10\text{V}, I_D = 15 \text{ mA}$	$f = 1 \text{ kHz}$
Equivalent Short Circuit Input Noise Voltage	\bar{e}_N		5		10	nV/√Hz	$V_{DS} = 10\text{V}, I_D = 5 \text{ mA}$	$f = 10 \text{ kHz}$
			3		8	nV/√Hz	$V_{DS} = 10\text{V}, I_D = 5 \text{ mA}$	$f = 1 \text{ kHz}$
Noise Figure	NF		1.5		2.5	dB	$V_{DS} = 10\text{V}, I_D = 5 \text{ mA}$ $R_G = 10 \text{ k}\Omega$	$f = 10 \text{ Hz}$

TO-72 Package

Dimensions in Inches (mm)

Pin Configuration

1 Source, 2 Drain, 3 Gate, 4 Case

