

2N6451, 2N6452

N-Channel Silicon Junction Field-Effect Transistor

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

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

	2N6451	2N6452
Reverse Gate Source Voltage	– 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		Process NJ132L	
		Min	Max	Min	Max	Unit	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	$V_{GS} = -10\text{V}$, $V_{DS} = \emptyset\text{V}$, $T_A = 125^\circ\text{C}$
					– 1	μA	$V_{GS} = -15\text{V}$, $V_{DS} = \emptyset\text{V}$, $T_A = 125^\circ\text{C}$
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/ $\sqrt{\text{Hz}}$	$V_{DS} = 10\text{V}$, $I_D = 5\ \text{mA}$	$f = 10\ \text{kHz}$
			3		8	nV/ $\sqrt{\text{Hz}}$	$V_{DS} = 10\text{V}$, $I_D = 5\ \text{mA}$	$f = 1\ \text{kHz}$
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

