

2N4338, 2N4339

N-Channel Silicon Junction Field-Effect Transistor

- Audio Amplifiers
- Small Signal Amplifiers
- Voltage-Controlled Resistors
- Current Limiters & Regulators

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

Reverse Gate Source & Reverse Gate Drain Voltage	- 50 V
Continuous Forward Gate Current	50 mA
Continuous Device Power Dissipation	300 mW
Power Derating (to 175°C)	2mW/°C

At 25°C free air temperature:

Static Electrical Characteristics

		2N4338		2N4339		Process NJ16	
		Min	Max	Min	Max	Unit	Test Conditions
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	- 50		- 50		V	$I_G = -1 \mu\text{A}$, $V_{DS} = 0\text{V}$
Gate Reverse Current	I_{GSS}		- 100		- 100	pA	$V_{GS} = -30\text{V}$, $V_{DS} = 0\text{V}$
			- 100		- 100	nA	$V_{GS} = -30\text{V}$, $V_{DS} = 0\text{V}$ $T_A = 150^\circ\text{C}$
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	- 0.3	- 1	- 0.6	- 1.8	V	$V_{DS} = 15\text{V}$, $I_D = 0.1 \mu\text{A}$
Drain Saturation Current (Pulsed)	I_{DSS}	0.2	0.6	0.5	1.5	mA	$V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$
Drain Cutoff Current	$I_{D(OFF)}$		0.05 (- 5)		0.05 (- 5)	nA V	$V_{DS} = 15\text{V}$, $V_{GS} = ()$

Dynamic Electrical Characteristics

Drain Source ON Resistance	$r_{ds(on)}$		2500		1700	Ω	$V_{GS} = 0\text{V}$, $I_D = 0\text{A}$	$f = 1 \text{ kHz}$
Common Source Forward Transconductance	g_{fs}	600	1800	800	2400	μS	$V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$	$f = 1 \text{ kHz}$
Common Source Output Conductance	g_{os}		5		15	μS	$V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$	$f = 1 \text{ kHz}$
Common Source Input Capacitance	C_{iss}		7		7	pF	$V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$	$f = 1 \text{ MHz}$
Common Source Reverse Transfer Capacitance	C_{rss}		3		3	pF	$V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$	$f = 1 \text{ MHz}$
Noise Figure	NF		1		1	dB	$V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$ $R_G = 1 \text{ M}\Omega$, $\text{BW} = 200 \text{ Hz}$	$f = 1 \text{ kHz}$

TO-18 Package

Dimensions in Inches (mm)

Pin Configuration

1 Source, 2 Drain, 3 Gate & Case

