

2N3971, 2N3972**N-Channel Silicon Junction Field-Effect Transistor**

- Low $r_{DS(on)}$
- $I_{D(off)} < 250 \text{ pA}$
- Fast Switching

Absolute maximum ratings at $T_A = 25^\circ\text{C}$	
Reverse Gate Source & Gate Drain Voltage	-40V
Continuous Forward Gate Current	50 mA
Continuous Device Power Dissipation	300 mW
Power Derating	1.7 mW/ $^\circ\text{C}$
Storage Temperature Range	-65 $^\circ\text{C}$ to +150 $^\circ\text{C}$

At 25°C free air temperature

Static Electrical Characteristics

		2N3971		2N3972		Process NJ132	
		Min	Max	Min	Max	Unit	Test Conditions
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	-40		-40		V	$I_G = -1 \mu\text{A}, V_{DS} = 0 \text{ V}$
Gate Reverse Current	I_{GSS}		250		250	pA	$V_{GS} = -10 \text{ V}, V_{DS} = 0 \text{ V}$
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	-2	-5	-0.5	-3	V	$V_{DS} = 10 \text{ V}, V_{GS} = 0 \text{ V}$
Drain Saturation Current (pulsed)	I_{DSS}	25	75	5	30	mA	$V_{DS} = 10 \text{ V}, V_{GS} = 0 \text{ V}$

Dynamic Electrical Characteristics

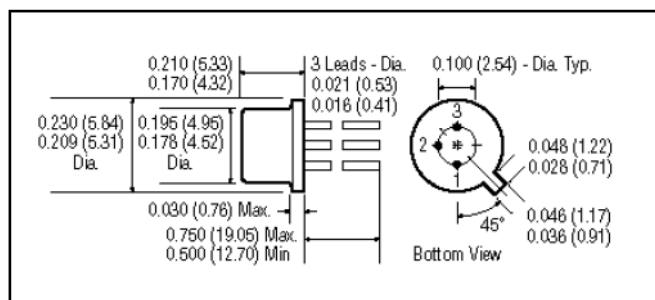
Drain -Source On Resistance	$r_{ds(on)}$		60		100	Ω	$V_{GS} = 0 \text{ V}, I_D = 0 \text{ V}$	$f = 1 \text{ kHz}$
Common-Source Input Capacitance	C_{iss}		25		25	pF	$V_{DS} = -10 \text{ V}, V_{GS} = 1 \text{ V}$	$f = 1 \text{ MHz}$
Common-Source Reverse Transfer Capacitance	C_{rss}		6		6	pF	$V_{DS} = 10 \text{ V}, I_D = 5 \text{ mA}$	$f = 1 \text{ MHz}$
Turn-On Delay Time	t_d		15		40	nS	$V_{DD} = 10 \text{ V}, V_{GS(on)} = 0 \text{ V}$	
Rise Time	t_r		15		40	nS	$V_{DD} = 10 \text{ V}, V_{GS(on)} = 0 \text{ V}$	
Turn-Off Time	t_{off}		60		100	nS	$V_{DD} = 10 \text{ V}, V_{GS(on)} = 0 \text{ V}$	

TO-18 Package

Dimensions in Inches (mm)

Pin Configuration

1 Source 1, 2 Gate & Case, 3 Drain

Surface Mount - SMP3971, SMP3972

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