

2N3971, 2N3972

N-Channel Silicon Junction Field-Effect Transistor

- Low $r_{DS(on)}$
- $I_{D(off)} < 250$ 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 $^\circ\text{C}$ free air temperature		2N3971		2N3972		Process NJ132	
		Min	Max	Min	Max	Unit	Test Conditions
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	-40		-40		V	$I_G = -1$ uA, $V_{DS} = 0$ V
Gate Reverse Current	I_{GSS}		250		250	pA	$V_{GS} = -10$ V, $V_{DS} = 0$ V
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	-2	-5	-0.5	-3	V	$V_{DS} = 10$ V, $V_{GS} = 0$ V
Drain Saturation Current (pulsed)	I_{DSS}	25	75	5	30	mA	$V_{DS} = 10$ V, $V_{GS} = 0$ V

Dynamic Electrical Characteristics

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

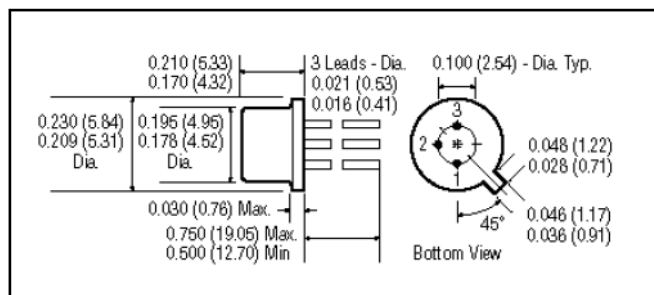
TO-18 Package

Dimensions in Inches (mm)

Pin Configuration

1 Source 1, 2 Gate & Case, 3 Drain

Surface Mount - SMP3971, SMP3972



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