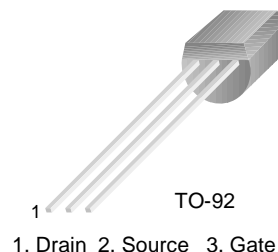


N-Channel Switch

- This device is designed for low level analog switching, sample and hold circuits and chopper stabilized amplifiers.
- Sourced from process 51.



Absolute Maximum Ratings * $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{DG}	Drain-Gate Voltage	30	V
V_{GS}	Gate-Source Voltage	-30	V
I_{GF}	Forward Gate Current	50	mA
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 ~ +150	$^\circ\text{C}$

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

1. These ratings are based on a maximum junction temperature of 150 degrees C.
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristics						
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	$V_{DS} = 0, I_G = -10\mu\text{A}$	-30			V
I_{GSS}	Gate Reverse Current	$V_{GS} = -15\text{V}, V_{DS} = 0$			-1.0	nA
$I_{D(off)}$	Drain Cutoff Leakage Current	$V_{DS} = 12\text{V}, V_{GS} = 15\text{V}$			1.0	nA
On Characteristics						
I_{DSS}	Zero-Gate Voltage Drain Current *	$V_{DS} = 20\text{V}, I_{GS} = 0$	25			mA
$r_{DS(on)}$	Drain-Source On Resistance	$V_{GS} = 0\text{V}, I_D = 1.0\text{mA}$			60	Ω
Small Signal Characteristics						
$r_{ds(on)}$	Drain-Source On Resistance	$V_{DS} = V_{GS} = 0, f = 1.0\text{kHz}$			60	Ω
C_{iss}	Input Capacitance	$V_{DS} = 0, V_{GS} = 12\text{V}, f = 1.0\text{MHz}$			10	pF
C_{rss}	Reverse Transfer Capacitance	$V_{DS} = 0\text{V}, V_{GS} = 12\text{V}, f = 1.0\text{MHz}$			4.0	pF
Switching Characteristics						
$t_{d(on)}$	Trun On Delay Time	$V_{DD} = 10\text{V}, V_{GS(on)} = 0$ $V_{GS(off)} = -12, I_{D(on)} = 12\text{mA}$ $R_G = 50\Omega$			6.0	ns
t_r	Rise Time				8.0	ns
$t_{d(off)}$	Trun Off Delay Time				10	ns
t_f	Fall Time				20	ns

* Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 1.0\%$

Thermal Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Max.	Units
P_D	Total Device Dissipation Derate above 25°C	350 2.8	mW mW/ $^\circ\text{C}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	$^\circ\text{C}/\text{W}$

Package Dimensions

2N5639

TO-92



Dimensions in Millimeters

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