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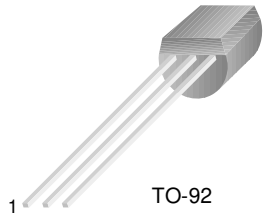
FAIRCHILD
SEMICONDUCTOR®

2N5638

N-Channel Switch

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



TO-92

1. Drain 2. Source 3. Gate

Absolute Maximum Ratings * T_C=25°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	°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°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 = -10μA	-30			V
I_{GSS}	Gate Reverse Current	V_{GS} = -15V, V_{DS} = 0			-1.0	nA
$I_{D(off)}$	Drain Cutoff Leakage Current	V_{DS} = 12V, V_{GS} = 15V			1.0	nA
On Characteristics						
I_{DSS}	Zero-Gate Voltage Drain Current *	V_{DS} = 20V, I_{GS} = 0	50			mA
$r_{DS(on)}$	Drain-Source On Resistance	V_{GS} = 0V, I_D = 1.0mA			30	Ω
Small Signal Characteristics						
$r_{ds(on)}$	Drain-Source On Resistance	V_{DS} = V_{GS} = 0, f = 1.0kHz			30	Ω
C_{iss}	Input Capacitance	V_{DS} = 0, V_{GS} = 12V, f = 1.0MHz			10	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 0V, V_{GS} = 12V, f = 1.0MHz			4.0	pF
Switching Characteristics						
$t_{d(on)}$	Trun On Delay Time	V_{DD} = 10V, $V_{GS(on)}$ = 0 $V_{GS(off)}$ = -12, $I_{D(on)}$ = 12mA R_G = 50Ω			4.0	ns
t_r	Rise Time				5.0	ns
$t_{d(off)}$	Trun Off Delay Time				5.0	ns
t_f	Fall Time				10	ns

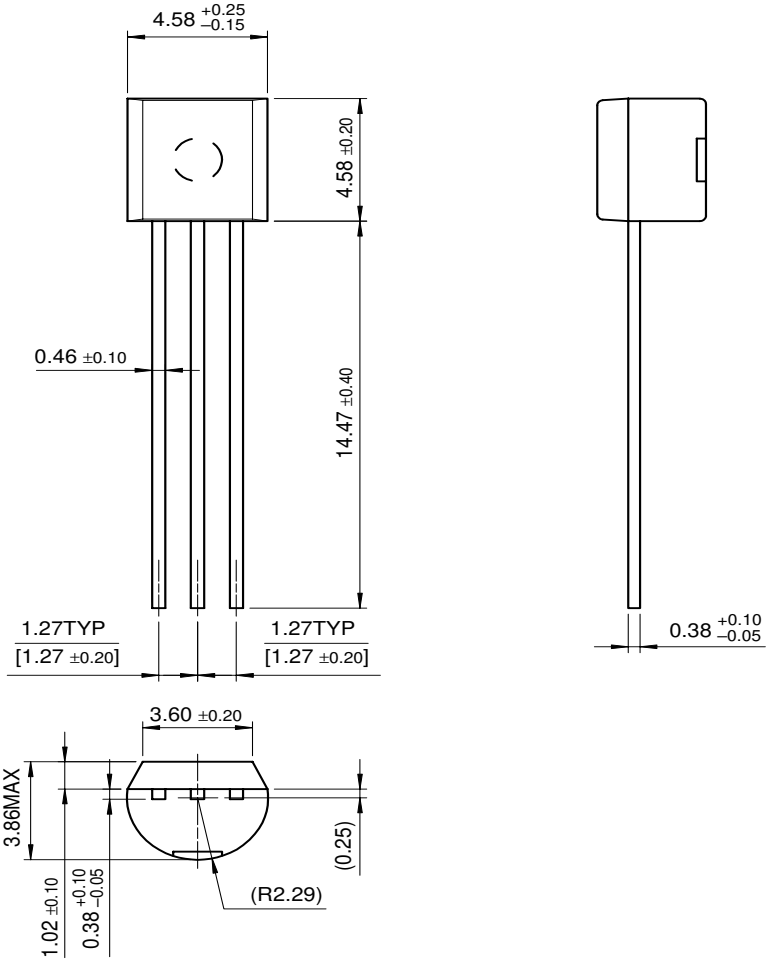
* Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 1.0%

Thermal Characteristics T_A=25°C unless otherwise noted

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

Package Dimensions

TO-92



Dimensions in Millimeters

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PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
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No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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