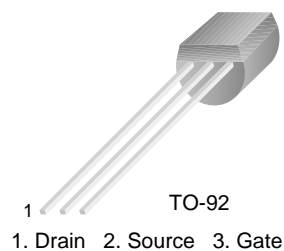**FAIRCHILD**

SEMICONDUCTOR®

April 2008

U1897
N-Channel JFET Switch

Features

• This device is designed for low level analog switching, sample and hold circuits and chopper stabalized amplifiers.
• Sourced from Process 51.
• See J111 for characteristics.

TO-92

1. Drain 2. Source 3. Gate

Absolute Maximum Ratings * T_a=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{DG}	Drain-Gate Voltage	40	V
V_{GS}	Gate-Source Voltage	-40	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°C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics* T_a=25°C unless otherwise noted

Symbol	Parameter	Value	Units
P_D	Total Device Dissipation Derate above 25°C	625 5.0	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

* Device mounted on FR-4 PCB 1.6" × 1.6" × 0.06"

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Electrical Characteristics * $T_C = 25°C$ unless otherwise noted

Symbol	Parameter	Conditions	Min.	Max	Units
Off Characteristics					
$V_{(BR)GS}$	Gate-Source Breakdown Voltage	$I_G = -1.0\ \mu A$, $V_{DS} = 0$	-40		V
$V_{GS(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = 20$ V, $I_D = 1.0$ nA	-5.0	-10	V
I_{DGO}	Drain-Gate Leakage Current	$V_{DG} = 20$ V, $I_S = 0$		-200	pA
On Characteristics					
I_{DSS}	Zero-Gate Voltage Drain Current *	$V_{DS} = 20$ V, $V_{GS} = 0$	30		mA
$r_{DS(on)}$	Static Drain-Source On Resistance	$I_D = 1.0$ mA, $V_{GS} = 0$		30	Ω
Small Signal Characteristics					
$r_{ds(on)}$	Drain-Source On Resistance	$V_{DS} = V_{GS} = 0$, f= 1.0 kHz		30	Ω
C_{iss}	Input Capacitance	$V_{DS} = 20$, $V_{GS} = 0$, f = 1.0 MHz		16	pF
C_{rss}	Reverse Transfer Capacitance	$V_{GS} = -20$ V, f = 1.0 MHz		3.5	pF
Switching Characteristics					
t_{on}	Turn-On Time	$I_{D(on)} = 6.6$ mA		25	ns
t_{off}	Turn-Off Time	$V_{GS(off)} = 12.0$ V		40	ns

* Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2.0\%$

NOTES:
1. These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
3. These ratings are based on a maximum junction temperature of 150degrees C.

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