

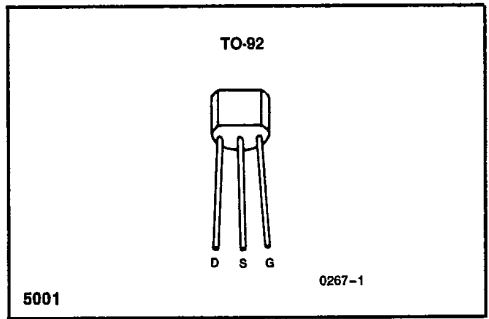
# U1897-U1899 N-Channel JFET Switch



## FEATURES

- Low Insertion Loss
- No Error or Offset Voltage Generated By Closed Switch

## PIN CONFIGURATION



## APPLICATIONS

- Analog Switches, Choppers

## ABSOLUTE MAXIMUM RATINGS

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Gate-Drain or Gate-Source Voltage	-40V
Forward Gate Current	10mA
Storage Temperature Range	-55°C to +150°C
Operating Temperature Range	-55°C to +135°C
Lead Temperature (Soldering, 10sec)	+300°C
Power Dissipation	350mW
Derate above 25°C	3.2mW/°C

**NOTE:** Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

## ORDERING INFORMATION

TO-92	TO-92-18
U1897	U1897-18
U1898	U1898-18
U1899	U1899-18

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	U1897		U1898		U1899		Units
			Min	Max	Min	Max	Min	Max	
$BV_{GSS}$	Gate-Source Breakdown Voltage	$I_G = -1\mu\text{A}, V_{DS} = 0$	-40		-40		-40		V
$I_{GSS}$	Gate Reverse Current	$V_{GS} = -20\text{V}, V_{DS} = 0$		-400		-400		-400	pA
$I_{DGO}$	Drain-Gate Leakage Current	$V_{DG} = 20\text{V}, I_S = 0$		200		200		200	
$I_{SGO}$	Source-Gate Leakage Current	$V_{SG} = 20\text{V}, I_D = 0$		200		200		200	
$I_{D(off)}$	Drain Cutoff Current	$V_{DS} = 20\text{V},$ $V_{GS} = -12\text{V}$ (U1897) $V_{GS} = -8\text{V}$ (U1898) $V_{GS} = -6\text{V}$ (U1899) $T_A = 85^\circ\text{C}$		200		200		200	nA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = 20\text{V}, I_D = 1\text{nA}$	-5.0	-10	-2.0	-7.0	-1.0	-5.0	V
$I_{DSS}$	Saturation Drain Current (Note 1)	$V_{DS} = 20\text{V}, V_{GS} = 0$	30		15		8.0		mA
$V_{DS(on)}$	Drain-Source ON Voltage	$V_{GS} = 0, I_D = 6.6\text{mA}$ (U1897) $I_D = 4.0\text{mA}$ (U1898) $I_D = 2.5\text{mA}$ (U1899)		0.2		0.2		0.2	V
$r_{DS(on)}$	Static Drain-Source ON Resistance	$I_D = 1\text{mA}, V_{GS} = 0$		30		50		80	$\Omega$

INTERSil's SOLE AND EXCLUSIVE WARRANTY OBLIGATION WITH RESPECT TO THIS PRODUCT SHALL BE THAT STATED IN THE WARRANTY ARTICLE OF THE CONDITION OF SALE. THE WARRANTY SHALL BE EXCLUSIVE AND SHALL BE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE.

NOTE: All typical values have been characterized but are not tested.

## ELECTRICAL CHARACTERISTICS (Continued) (T<sub>A</sub> = 25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	U1897		U1898		U1899		Units		
			Min	Max	Min	Max	Min	Max			
C <sub>DG</sub>	Drain-Gate Capacitance	V <sub>DG</sub> = 20V, I <sub>S</sub> = 0		5		5		5	pF		
C <sub>SG</sub>	Source-Gate Capacitance	V <sub>SG</sub> = 20V, I <sub>D</sub> = 0		5		5		5			
C <sub>ISS</sub>	Common-Source Input Capacitance	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0 f = 1MHz (Note 2)		16		16		16			
C <sub>RSS</sub>	Common-Source Reverse Transfer Capacitance			3.5		3.5		3.5			
t <sub>d(on)</sub>	Turn ON Delay Time (Note 2)	Switching Time Test Conditions				15		15	20	ns	
t <sub>r</sub>	Rise Time (Note 2)		U1897	U1898	U1899		10		20		40
t <sub>off</sub>	Turn OFF Time (Note 2)	V <sub>DD</sub>	3V	3V	3V						
		V <sub>GS(on)</sub>	0	0	0						
		V <sub>GS(off)</sub>	-12V	-8V	-6V		40		60		80
		R <sub>L</sub>	425Ω	770Ω	1120Ω						
		I <sub>D(on)</sub>	6.6mA	4mA	2.5mA						

- NOTES: 1. Pulse test pulsewidth = 300μs; duty cycle < 3%.  
 2. For design reference only, not 100% tested.

INTERMIL'S SOLE AND EXCLUSIVE WARRANTY OBLIGATION WITH RESPECT TO THIS PRODUCT SHALL BE THAT STATED IN THE WARRANTY ARTICLE OF THE CONDITION OF SALE. THE WARRANTY SHALL BE EXCLUSIVE AND SHALL BE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE.

NOTE: All typical values have been characterized but are not tested.