

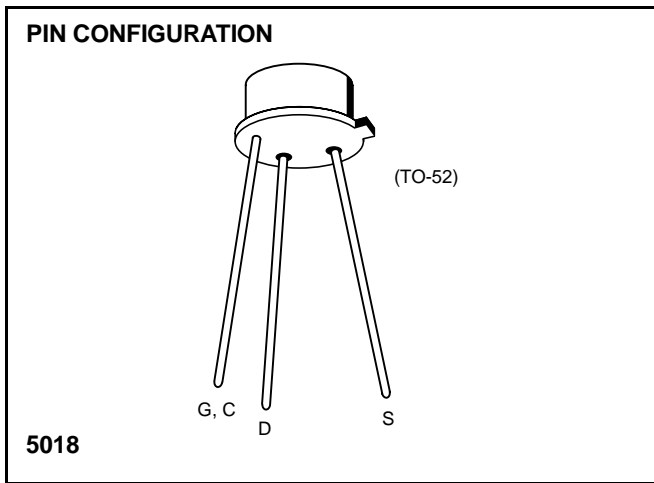
# N-Channel JFET Switch



## 2N5434

### FEATURES

- Low  $r_{ds(on)}$
- Excellent Switching
- Low Cutoff Current



### ABSOLUTE MAXIMUM RATINGS

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

Gate-Source Voltage	-25V
Gate-Drain Voltage	-25V
Gate Current	100mA
Drain Current	400mA
Storage Temperature Range	$-65^\circ\text{C}$ to $+200^\circ\text{C}$
Operating Temperature Range	$-55^\circ\text{C}$ to $+150^\circ\text{C}$
Lead Temperature (Soldering, 10sec)	$+300^\circ\text{C}$
Power Dissipation	300mW
Derate above $25^\circ\text{C}$	$2.3\text{mW}/^\circ\text{C}$

**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

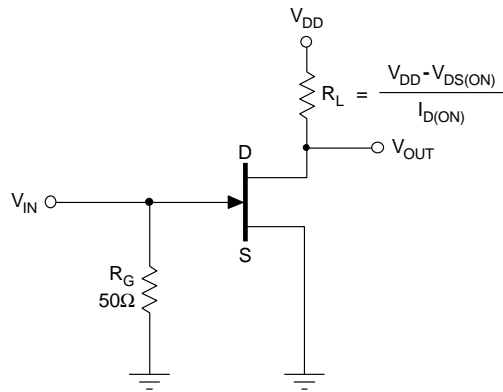
Part	Package	Temperature Range
2N5434	Hermetic TO-52	$-55^\circ\text{C}$ to $+150^\circ\text{C}$
X2N5434	Sorted Chips in Carriers	$-55^\circ\text{C}$ to $+150^\circ\text{C}$

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

SYMBOL	PARAMETER	2N5434		UNITS	TEST CONDITIONS
		MIN	MAX		
$I_{GSS}$	Gate Reverse Current		-200	pA	$V_{GS} = -15V, V_{DS} = 0$ $T_A = 150^\circ\text{C}$
			-200	nA	
$BV_{GSS}$	Gate-Source Breakdown Voltage	-25		V	$I_G = -1\mu\text{A}, V_{DS} = 0$
$I_{D(off)}$	Drain Cutoff Current		200	pA	$V_{DS} = 5V, V_{GS} = -10V$ $T_A = 150^\circ\text{C}$
			200	nA	
$V_{GS(off)}$	Gate-Source Cutoff Voltage	-1	-4	V	$V_{DS} = 5V, I_D = 3nA$
$I_{DSS}$	Saturation Drain Current (Note 1)	30		mA	$V_{DS} = 15V, V_{GS} = 0$
$r_{DS(on)}$	Static Drain-Source ON Resistance		10	ohm	$V_{GS} = 0, I_D = 10\text{mA}$
$V_{DS(on)}$	Drain-Source ON Voltage		100	mV	
$r_{ds(on)}$	Drain-Source ON Resistance		10	ohm	$V_{GS} = 0, I_D = 0, f = 1\text{kHz}$
$C_{iss}$	Common-Source Input Capacitance (Note 2)		30	pF	$V_{DS} = 0, V_{GS} = -10V, f = 1\text{MHz}$
$C_{rss}$	Common-Source Reverse Transfer Capacitance (Note 2)		15		
$t_d$	Turn-ON Delay Time (Note 2)		4	ns	$V_{DD} = 1.5V, V_{GS(on)} = 0, V_{GS(off)} = -12V, I_{D(on)} = 10\text{mA}$
$t_r$	Rise Time (Note 2)		1		
$t_{off}$	Turn-OFF Delay Time (Note 2)		6		
$t_f$	Fall Time (Note 2)		30		

- NOTES:** 1. Pulse test required, pulsewidth  $300\mu\text{s}$ , duty cycle  $\leq 3\%$ .  
2. For design reference only, not 100% tested.

**SWITCHING TIME, TEST CIRCUIT**



**INPUT PULSE**

RISE TIME 0.25ns  
FALL TIME 0.75ns  
PULSE WIDTH 200ns  
PULSE RATE 550pps

**SAMPLING SCOPE**

RISE TIME 0.4ns  
INPUT RESISTANCE 10MΩ  
INPUT CAPACITANCE 1.5pF