N-Channel JFET Switch

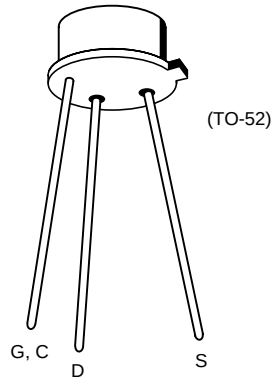
calogic CORPORATION

2N5434

FEATURES

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

PIN CONFIGURATION



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ABSOLUTE MAXIMUM RATINGS

(T_A = 25°C unless otherwise noted)

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

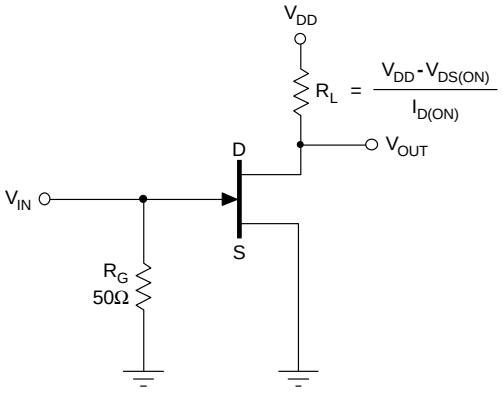
Part	Package	Temperature Range
2N5434	Hermetic TO-52	-55°C to +150°C
X2N5434	Sorted Chips in Carriers	-55°C to +150°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

SYMBOL	PARAMETER	2N5434 MIN	2N5434 MAX	UNITS	TEST CONDITIONS	
I_{GSS}	Gate Reverse Current		-200	pA	V_{GS} = -15V, V_{DS} = 0	
			-200	nA		T_A = 150°C
BV_{GSS}	Gate-Source Breakdown Voltage	-25		V	I_G = -1µA, V_{DS} = 0	
$I_{D(off)}$	Drain Cutoff Current		200	pA	V_{DS} = 5V, V_{GS} = -10V	
			200	nA		T_A = 150°C
$V_{GS(off)}$	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 = 10mA	
$V_{DS(on)}$	Drain-Source ON Voltage		100	mV		
$r_{ds(on)}$	Drain-Source ON Resistance		10	ohm	V_{GS} = 0, I_D = 0	f = 1kHz
C_{iss}	Common-Source Input Capacitance (Note2)		30	pF	V_{DS} = 0, V_{GS} = -10 V	f = 1MHz
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, $I_{D(on)}$ = 10mA	
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 300µs, duty cycle ≤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

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