

Linear Systems replaces discontinued Siliconix 2N5019

The LS5019 is a single P-Channel JFET switch

This p-channel analog switch is designed to provide low on-resistance and fast switching.

The SOT-23 package provides ease of manufacturing, and a lower cost assembly option.

(See Packaging Information).

LS5019 Benefits:

- Low Insertion Loss
- No offset or error voltage generated by closed switch
- Purely resistive

LS5019 Applications:

- Analog Switches
- Commutators
- Choppers

FEATURES

DIRECT REPLACEMENT FOR SILICONIX 2N5019	
ZERO OFFSET VOLTAGE	
LOW ON RESISTANCE	$r_{DS(on)} \leq 150\Omega$
ABSOLUTE MAXIMUM RATINGS @ 25°C (unless otherwise noted)	
Maximum Temperatures	
Storage Temperature	-55°C to +200°C
Operating Junction Temperature	-55°C to +200°C
Maximum Power Dissipation	
Continuous Power Dissipation	500mW
MAXIMUM CURRENT	
Gate Current (Note 1)	$I_G = -50\text{mA}$
MAXIMUM VOLTAGES	
Gate to Drain Voltage	$V_{GDS} = 30\text{V}$
Gate to Source Voltage	$V_{GSS} = 30\text{V}$

LS5019 ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTIC	MIN	TYP.	MAX	UNITS	CONDITIONS
BV_{GSS}	Gate to Source Breakdown Voltage	30	--	--	V	$I_G = 1\mu\text{A}, V_{DS} = 0\text{V}$
$V_{GS(off)}$	Gate to Source Cutoff Voltage	--	--	5		$V_{DS} = -15\text{V}, I_D = -1\mu\text{A}$
$V_{DS(on)}$	Drain to Source On Voltage	--	--	-0.5		$V_{GS} = 0\text{V}, I_D = -3\text{mA}$
I_{DSS}	Drain to Source Saturation Current (Note 2)	-5	--	--	mA	$V_{DS} = -20\text{V}, V_{GS} = 0\text{V}$
I_{GSS}	Gate Reverse Current	--	--	2	nA	$V_{GS} = 15\text{V}, V_{DS} = 0\text{V}$
$I_{D(off)}$	Drain Cutoff Current	--	--	-10	μA	$V_{DS} = -15\text{V}, V_{GS} = 12\text{V}$
I_{DGO}	Drain Reverse Current	--	--	-2		$V_{DG} = -15\text{V}, I_S = 0\text{A}$
$r_{DS(on)}$	Drain to Source On Resistance	--	--	150	Ω	$I_D = -1\text{mA}, V_{GS} = 0\text{V}$

LS5019 DYNAMIC ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTIC	MIN	TYP.	MAX	UNITS	CONDITIONS
$r_{DS(on)}$	Drain to Source On Resistance	--	--	150	Ω	$I_D = 0\text{A}, V_{GS} = 0\text{V}, f = 1\text{kHz}$
C_{iss}	Input Capacitance	--	--	45	pF	$V_{DS} = -15\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$
C_{rss}	Reverse Transfer Capacitance	--	--	10		$V_{DS} = 0\text{V}, V_{GS} = 7\text{V}, f = 1\text{MHz}$

LS5019 SWITCHING CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTIC	UNITS	CONDITIONS
$t_{d(on)}$	Turn On Time	15	$V_{GS(L)} = 7\text{V}$ $V_{GS(H)} = 0\text{V}$ See Switching Circuit
t_r	Turn On Rise Time	75	
$t_{d(off)}$	Turn Off Time	25	
t_f	Turn Off Fall Time	100	

Note 1 - Absolute maximum ratings are limiting values above which LS5019 serviceability may be impaired.

Note 2 - Pulse test: $PW \leq 300 \mu\text{s}$, Duty Cycle $\leq 3\%$

LS5019 SWITCHING CIRCUIT PARAMETERS

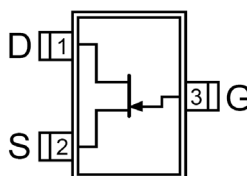
V_{DD}	-6V
V_{GG}	8V
R_L	1.8k Ω
R_G	390 Ω
$I_{D(on)}$	-3mA

Available Packages:

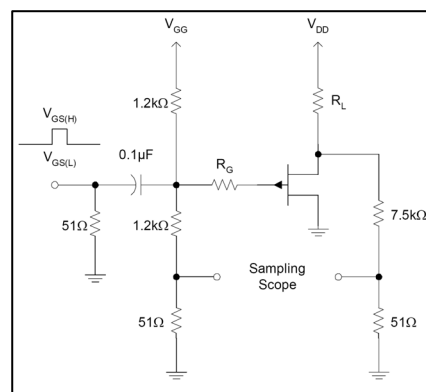
LS5019 in SOT-23
LS5019 in bare die.

Please contact Micross for full package and die dimensions

SOT-23 (Top View)



SWITCHING TEST CIRCUIT



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