

Linear Systems replaces discontinued Siliconix PN5019

The PN5019 is a single P-Channel JFET switch

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

The TO-92 provides a low cost option and ease of manufacturing.

(See Packaging Information).

PN5019 Benefits:

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

PN5019 Applications:

- Analog Switches
- Commutators
- Choppers

FEATURES

DIRECT REPLACEMENT FOR SILICONIX PN5019

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 $V_{GSS} = 30\text{V}$

PN5019 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	$V_{DS} = -15\text{V}$, $I_D = -1\mu\text{A}$
$V_{DS(on)}$	Drain to Source On Voltage	--	--	-0.5	V	$V_{GS} = 0\text{V}$, $I_D = -3\text{mA}$
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	nA	$V_{DG} = -15\text{V}$, $I_S = 0\text{A}$
$r_{DS(on)}$	Drain to Source On Resistance	--	--	150	Ω	$I_D = -1\text{mA}$, $V_{GS} = 0\text{V}$

PN5019 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	pF	$V_{DS} = 0\text{V}$, $V_{GS} = 7\text{V}$, $f = 1\text{MHz}$

PN5019 SWITCHING CHARACTERISTICS @ 25°C (unless otherwise noted)

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

Note 1 - Absolute maximum ratings are limiting values above which PN5019 serviceability may be impaired.

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

PN5019 SWITCHING CIRCUIT PARAMETERS

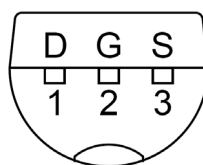
V_{DD}	-6V
V_{GG}	8V
R_L	1.8k Ω
R_G	390 Ω
$I_{D(on)}$	-3mA

Available Packages:

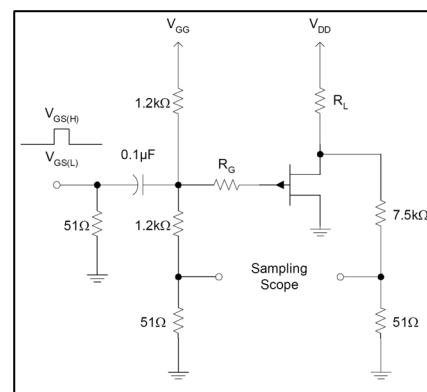
PN5019 in TO-92
PN5019 in bare die.

Please contact Micross for full package and die dimensions

TO-92 (Bottom View)



SWITCHING TEST CIRCUIT



Micross Components Europe