

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 | | $V_{DS} = -15\text{V}, I_D = -1\mu\text{A}$ |
| $V_{DS(on)}$ | 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 | | $V_{DS} = -15\text{V}, V_{GS} = 7\text{V}$ |
| $r_{DS(on)}$ | 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 | | $V_{DS} = 0\text{V}, V_{GS} = 7\text{V}, f = 1\text{MHz}$ |

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

| SYMBOL | CHARACTERISTIC | UNITS | CONDITIONS |
|--------------|--------------------|-------|-----------------------|
| $t_{d(on)}$ | Turn On Time | 15 | ns |
| t_r | Turn On Rise Time | 75 | |
| $t_{d(off)}$ | Turn Off Time | 25 | |
| t_f | Turn Off Fall Time | 100 | |
| | | | See Switching Circuit |

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 $\leq 3\%$

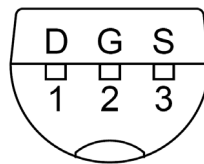
PN5019 SWITCHING CIRCUIT PARAMETERS

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

Available Packages:

TO-92 (Bottom View)

PN5019 in TO-92
PN5019 in bare die.



Please contact Micross for full package and die dimensions

Micross Components Europe

SWITCHING TEST CIRCUIT

