

## 2N5019 P-CHANNEL JFET



# Linear Systems replaces discontinued Siliconix 2N5019 The 2N5019 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).

#### 2N5019 Benefits:

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

#### 2N5019 Applications:

- Analog Switches
- Commutators
- Choppers

FEATURES					
DIRECT REPLACEMENT FOR SILICONIX 2N5019					
ZERO OFFSET VOLTAGE					
LOW ON RESISTANCE	r <sub>DS(on)</sub> ≤ 150Ω				
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 <sub>G</sub> = -50mA				
MAXIMUM VOLTAGES					
Gate to Drain Voltage	$V_{GDS} = 30V$				
Gate to Source Voltage	$V_{GSS} = 30V$				

#### 2N5019 ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTIC	MIN	TYP.	MAX	UNITS	CONDITIONS
$BV_{GSS}$	Gate to Source Breakdown Voltage	30				$I_G = 1\mu A$ , $V_{DS} = 0V$
$V_{GS(off)}$	Gate to Source Cutoff Voltage			5	V	$V_{DS} = -15V$ , $I_{D} = -1\mu A$
$V_{DS(on)}$	Drain to Source On Voltage			-0.5		$V_{GS} = 0V, I_{D} = -3mA$
I <sub>DSS</sub>	Drain to Source Saturation Current (Note 2)	-5			mA	$V_{DS} = -20V, V_{GS} = 0V$
I <sub>GSS</sub>	Gate Reverse Current			2	_nA	$V_{GS} = 15V, \ V_{DS} = 0V$
I <sub>D(off)</sub>	Drain Cutoff Current			-10		$V_{DS} = -15V, V_{GS} = 12V$
	' 107			<b>-1</b> 0	μ <mark>A</mark>	$V_{DS} = -15V, V_{GS} = 7V$
I <sub>DGO</sub>	D <mark>ra</mark> in Re <mark>v</mark> erse Current			-2	nA	$V_{DG} = -15V, I_S = 0A$
r <sub>DS(on)</sub>	Drain to Sou <mark>rc</mark> e On Resistance			1 <mark>50</mark>	Ω	$I_D = -1 \text{mA}, V_{GS} = 0 \text{V}$

## 2N5019 DYNAMIC ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

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

## 2N5019 SWITCHING CHARACTERISTICS @ 25°C (unless otherwise noted)

_	213013 SWITCHING CHARACTERISTICS & 25 C (unics otherwise noted)						
	SYMBOL	CHARACTERISTIC		UNITS	CONDITIONS		
	t <sub>d(on)</sub>	Turn On Time	15	- ns	$V_{GS}(L) = 7V$		
	t <sub>r</sub>	Turn On Rise Time	75		nc	$V_{GS}(H) = 0V$	
	$t_{d(off)}$	Turn Off Time	25		See Switching Circuit		
	$t_f$	Turn Off Fall Time	100		-		

Note 1 - Absolute maximum ratings are limiting values above which 2N5019 serviceability may be impaired.

### **2N5019 SWITCHING CIRCUIT PARAMETERS**

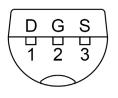
V <sub>DD</sub>	-6V
V <sub>GG</sub>	8V
R <sub>L</sub>	1.8kΩ
$R_{G}$	390Ω
I <sub>D(on)</sub>	-3mA

Available Packages:

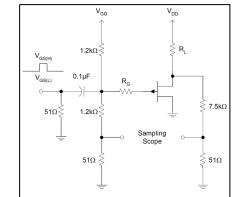
2N5019 in TO-92 2N5019 in bare die.

Please contact Micross for full package and die dimensions

TO-92 (Bottom View)







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Note 2 – Pulse test: PW≤ 300 µs, Duty Cycle ≤ 3%