LINEAR SYSTEMS

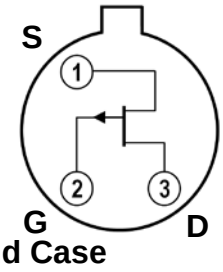
*Improved Standard Products®*

# 2N5018 SERIES

## SINGLE P-CHANNEL JFET SWITCH

| FEATURES | |
|---|---|
| DIRECT REPLACEMENT FOR SILICONIX 2N5018 | |
| ZERO OFFSET VOLTAGE | |
| LOW ON RESISTANCE | 75Ω |
| **ABSOLUTE MAXIMUM RATINGS[1]** @ 25 °C (unless otherwise stated) | |
| **Maximum Temperatures** | |
| Storage Temperature | -55 to 150°C |
| Junction Operating Temperature | -55 to 150°C |
| **Maximum Power Dissipation** | |
| Continuous Power Dissipation[3] | 500mW |
| **Maximum Currents** | |
| Gate Current | -10mA |
| **Maximum Voltages** | |
| Gate to Drain | 30V |
| Gate to Source | 30V |

**TO-18**
**TOP VIEW**




**STATIC ELECTRICAL CHARACERISTICS @25ºC (unless otherwise stated)**

| SYM. | CHARACTERISTIC | TYP | 2N5018 | | 2N5019 | | UNITS | CONDITIONS |
|---|---|---|---|---|---|---|---|---|
| | | | MIN | MAX | MIN | MAX | | |
| $BV_{GSS}$ | Gate to Source Breakdown Voltage | | 30 | | 30 | | V | $I_G$ = 1µA, $V_{DS}$ = 0V |
| $V_{GS(off)}$ | Gate to Source Cutoff Voltage | | | 10 | | 5 | | $V_{DS}$ = -15V, $I_D$ = -1µA |
| $V_{DS(on)}$ | Drain to Source On Voltage | | | -0.5 | | | | $V_{GS}$ = 0V, $I_D$ = -6mA |
| | | | | | | -0.5 | | $V_{GS}$ = 0V, $I_D$ = -3mA |
| $I_{DSS}$ | Drain to Source Saturation Current[2] | | -10 | | -5 | | mA | $V_{DS}$ = -20V, $V_{GS}$ = 0V |
| $I_{GSS}$ | Gate Leakage Current | | | 2 | | 2 | nA | $V_{GS}$ = 15V, $V_{DS}$ = 0V |
| $I_{D(off)}$ | Drain Cutoff Current | | | -10 | | -10 | | $V_{DS}$ = -15V, $V_{GS}$ = 12V |
| | | | | | | -10 | µA | $V_{DS}$ = -15V, $V_{GS}$ = 7V |
| $I_{DGO}$ | Drain Reverse Current | | | -2 | | -2 | nA | $V_{DG}$ = -15V, $I_S$ = 0A |
| $r_{DS(on)}$ | Drain to Source On Resistance | | | 75 | | 150 | Ω | $I_D$ = -1mA, $V_{GS}$ = 0V |

**DYNAMIC ELECTRICAL CHARACTERISTICS @25ºC (unless otherwise stated)**

| SYM. | CHARACTERISTIC | TYP | 2N5018 | | 2N5019 | | UNITS | CONDITIONS |
|---|---|---|---|---|---|---|---|---|
| | | | MIN | MAX | MIN | MAX | | |
| $r_{ds(on)}$ | Drain to Source On Resistance | | | 75 | | 150 | Ω | $I_D$ = -100µA,$V_{GS}$ = 0V<br>*f* = 1kHz |
| $C_{iss}$ | Input Capacitance | | | 45 | | 45 | pF | $V_{DS}$ = -15V, $V_{GS}$ = 0V<br>*f* = 1MHz |
| $C_{rss}$ | Reverse Transfer Capacitance | | | 10 | | | | $V_{DS}$ = 0V, $V_{GS}$ = 12V<br>*f* = 1MHz |
| | | | | | | 10 | | $V_{DS}$ = 0V, $V_{GS}$ = 7V<br>*f* = 1MHz |

**SWITCHING CHARACTERISTICS (max)**

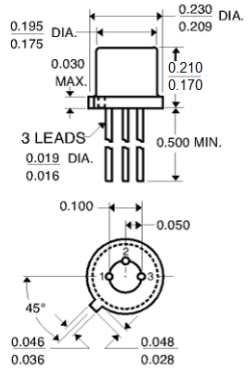
| SYM. | CHARACTERISTIC | 2N5018 | 2N5019 | UNITS |
|---|---|---|---|---|
| $t_{d(on)}$ | Turn On Time | 15 | 15 | ns |
| $t_r$ | | 20 | 75 | |
| $t_{d(off)}$ | Turn Off Time | 15 | 25 | |
| $t_f$ | | 50 | 100 | |

**SWITCHING CIRCUIT CHARACTERISTICS**

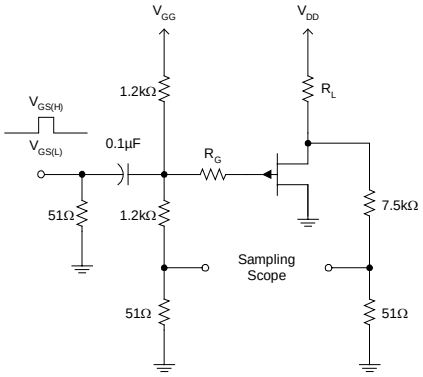
| SYM. | 2N5018 | 2N5019 |
|---|---|---|
| $V_{DD}$ | -6V | -6V |
| $V_{GG}$ | 12V | 8V |
| $R_L$ | 910Ω | 1.8KΩ |
| $R_G$ | 220Ω | 390Ω |
| $I_{D(on)}$ | -6mA | -3mA |
| $V_{GS(H)}$ | 0V | 0V |
| $V_{GS(L)}$ | 12V | 7V |

SS

**TO-18**
Three Lead




**SWITCHING TEST CIRCUIT**




Note: All Dimensions in inches

## NOTES

1. Absolute maximum ratings are limiting values above which serviceability may be impaired.
2. Pulse test: PW ≤ 300µs, Duty Cycle ≤ 3%
3. Derate 3mW/°C above 25°C.



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