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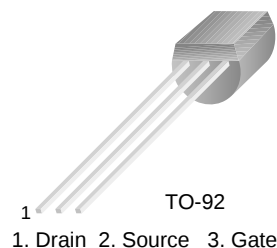
December 2011

# PF5102

## N-Channel Switch

### Features

- This device is designed for low level analog switching, sample and hold circuits and chopper stabilized amplifiers.
- Sourced from process 51.
- See J111 for characteristics.



### Absolute Maximum Ratings\* $T_a = 25^\circ\text{C}$ unless otherwise noted

| Symbol         | Parameter                                        | Value       | Units            |
|----------------|--------------------------------------------------|-------------|------------------|
| $V_{DG}$       | Drain-Gate Voltage                               | 40          | V                |
| $V_{GS}$       | Gate-Source Voltage                              | -40         | V                |
| $I_{GF}$       | Forward Gate Current                             | 50          | mA               |
| $T_J, T_{STG}$ | Operating and Storage Junction Temperature Range | -55 to +150 | $^\circ\text{C}$ |

\* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

### NOTES:

1. These ratings are based on a maximum junction temperature of 150 degrees C.
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

### Thermal Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

| Symbol          | Parameter                                                   | Max.       | Units                      |
|-----------------|-------------------------------------------------------------|------------|----------------------------|
| $P_D$           | Total Device Dissipation<br>Derate above $25^\circ\text{C}$ | 625<br>5.0 | mW<br>mW/ $^\circ\text{C}$ |
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case                        | 125        | $^\circ\text{C/W}$         |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient                     | 357        | $^\circ\text{C/W}$         |

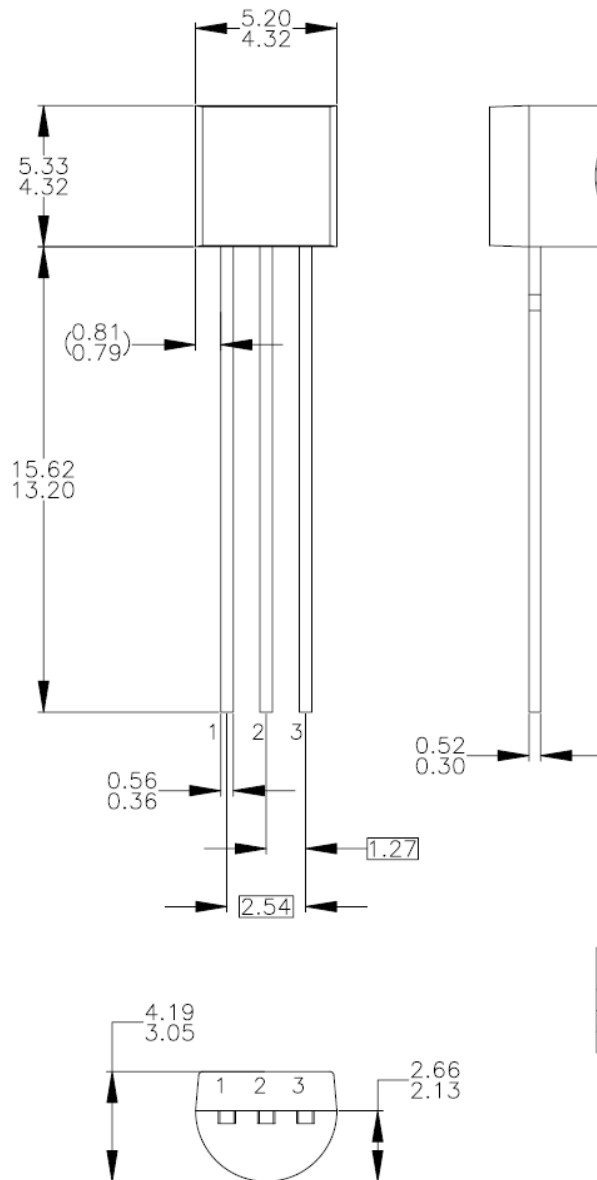
### Electrical Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

| Symbol                              | Parameter                         | Test Condition                                                                                    | Min.   | Max.         | Units               |
|-------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------|--------|--------------|---------------------|
| <b>Off Characteristics</b>          |                                   |                                                                                                   |        |              |                     |
| $V_{(BR)GSS}$                       | Gate-Source Breakdown Voltage     | $I_G = -1.0\mu\text{A}, V_{DS} = 0$                                                               | -40    |              | V                   |
| $I_{GSS}$                           | Gate Reverse Current              | $V_{GS} = -15\text{V}, V_{DS} = 0$<br>$V_{GS} = -15\text{V}, V_{DS} = 0, T_A = 125^\circ\text{C}$ |        | -1.0<br>-0.2 | nA<br>$\mu\text{A}$ |
| $V_{GS(off)}$                       | Gate-Source Cutoff Voltage        | $V_{DS} = 15\text{V}, I_D = 1.0\text{nA}$                                                         | -0.7   | -1.6         | V                   |
| $V_{GS(f)}$                         | Gate-Source Forward Voltage       | $I_G = 1.0\text{mA}, V_{DS} = 0$                                                                  |        | 1.0          | V                   |
| <b>On Characteristics</b>           |                                   |                                                                                                   |        |              |                     |
| $I_{DSS}$                           | Zero-Gate Voltage Drain Current * | $V_{DS} = 15\text{V}, V_{GS} = 0$                                                                 | 4.0    | 20           | mA                  |
| <b>Small Signal Characteristics</b> |                                   |                                                                                                   |        |              |                     |
| $g_{fs}$                            | Forward Transfer Conductance      | $V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{KHz}$                                              | 11,000 |              | $\mu\text{mhos}$    |
| $g_{OSS}$                           | Output Conductance                | $V_{DS} = 15\text{V}, I_D = 500\mu\text{A}, f = 1.0\text{KHz}$                                    |        | 25           | $\mu\text{mhos}$    |
| $C_{iss}$                           | Input Capacitance                 | $V_{DG} = 15\text{V}, V_{GS} = 0, f = 1.0\text{MHz}$                                              |        | 16           | pF                  |
| $C_{rss}$                           | Reverse Transfer Capacitance      | $V_{DG} = 15\text{V}, V_{GS} = 0, f = 1.0\text{MHz}$                                              |        | 6            | pF                  |

\* Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 1.0\%$

# Physical Dimension

## TO-92



NOTES: UNLESS OTHERWISE SPECIFIED

- A) DRAWING WITH REFERENCE TO JEDEC TO-92 RECOMMENDATIONS.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DRAWING CONFORMS TO ASME Y14.5M-1994.
- D) TO-92 (92,94,96,97,98) PIN CONFIGURATION:

| PIN | 92 |   |   | 94 |   |   | 96 |   |   | 97 |   |   | 98 |   |   |
|-----|----|---|---|----|---|---|----|---|---|----|---|---|----|---|---|
|     | P  | F | M | P  | F | M | P  | F | M | P  | F | M | P  | F | M |
| 1   | E  | S | S | E  | S | S | B  | D | G | C  | G | D | C  | G | D |
| 2   | B  | D | G | C  | G | D | E  | S | S | B  | D | G | E  | S | S |
| 3   | C  | G | D | B  | D | G | C  | G | D | E  | S | S | B  | D | G |

LEGEND:

P — BIPOLAR      E — EMITTER      D — DRAIN  
F — JFET          B — BASE          S — SOURCE  
M — DMOS        C — COLLECTOR      G — GATE

- E) FOR PACKAGE 92, 94, 96, 97 AND 98:  
PIN CONFIGURATION DRAIN "D" AND SOURCE "S"  
ARE INTERCHANGEABLE AT JFET "F" OPTION.
- F) DRAWING FILENAME: MKT-ZA03DREV3.

Dimensions in Millimeters

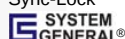


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