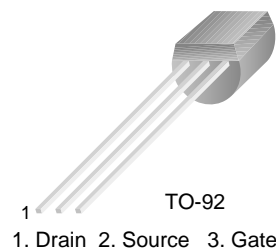


PF5102

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 Derate above 25°C | 625 5.0 | mW mW/ $^\circ\text{C}$ |
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case | 125 | $^\circ\text{C}/\text{W}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 357 | $^\circ\text{C}/\text{W}$ |

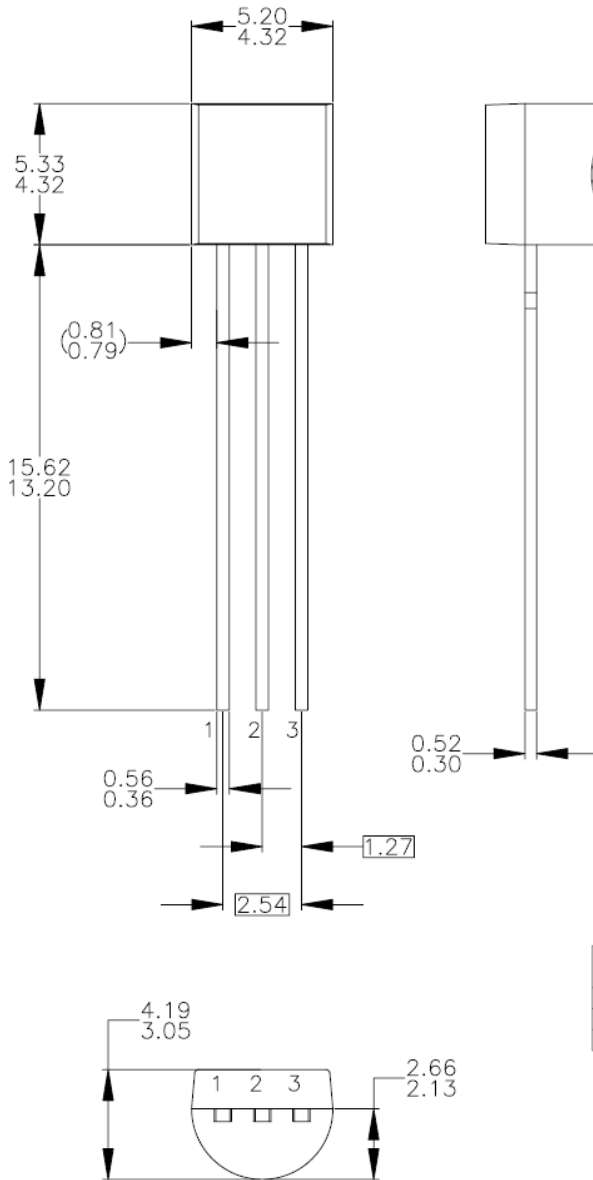
Electrical Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Max. | Units |
|-------------------------------------|-----------------------------------|---|--------|--------------|---------------------|
| Off Characteristics | | | | | |
| $V_{(BR)GSS}$ | Gate-Source Breakdown Voltage | $I_G = -1.0\mu\text{A}, V_{DS} = 0$ | -40 | | V |
| I_{GSS} | Gate Reverse Current | $V_{GS} = -15\text{V}, V_{DS} = 0$ $V_{GS} = -15\text{V}, V_{DS} = 0, T_A = 125^\circ\text{C}$ | | -1.0 -0.2 | nA μA |
| $V_{GS(off)}$ | 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 |
| On Characteristics | | | | | |
| I_{DSS} | Zero-Gate Voltage Drain Current * | $V_{DS} = 15\text{V}, V_{GS} = 0$ | 4.0 | 20 | mA |
| Small Signal Characteristics | | | | | |
| g_{fs} | Forward Transfer Conductance | $V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{KHz}$ | 11,000 | | μmhos |
| g_{oss} | Output Conductance | $V_{DS} = 15\text{V}, I_D = 500\mu\text{A}, f = 1.0\text{KHz}$ | | 25 | μmhos |
| 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
- F - JFET
- M - DMOS
- E - EMITTER
- B - BASE
- C - COLLECTOR
- D - DRAIN
- S - SOURCE
- 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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| FAST® | OptoHiT™ | SyncFET™ | XS™ |
| FastvCore™ | OPTOLOGIC® | Sync-Lock™ | |
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| Datasheet Identification | Product Status | Definition |
|--------------------------|-----------------------|---|
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