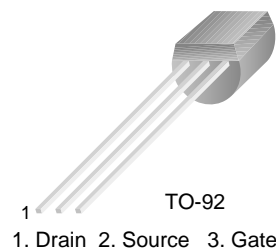


# PF5102

## 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 $25^\circ\text{C}$	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	$^\circ\text{C}/\text{W}$

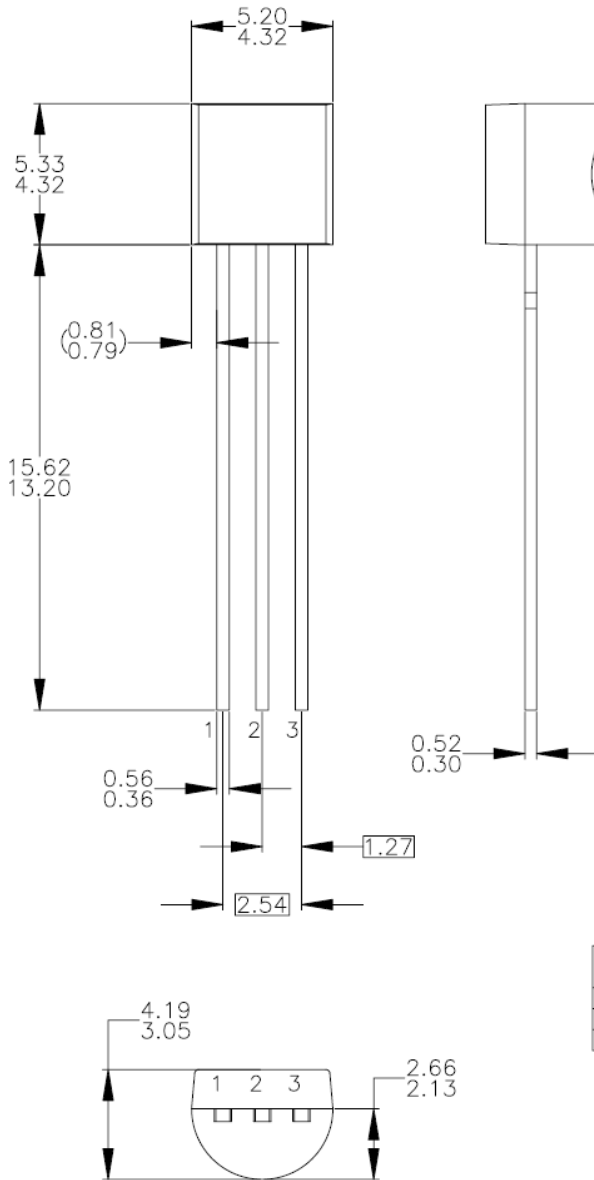
### Electrical Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
<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	$V_{GS} = -15\text{V}, V_{DS} = 0$ $V_{GS} = -15\text{V}, V_{DS} = 0, T_A = 125^\circ\text{C}$		-1.0 -0.2	nA $\mu\text{A}$
$V_{GS(off)}$	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
- 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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No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
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