

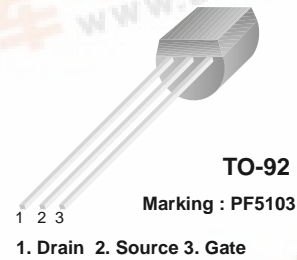


October 2006

PF5103 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.



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 ~ 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°C .
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics*

Symbol	Parameter	Value	Units
P_D	Total Device Dissipation	625	mW
	Derate above 25°C	5.0	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	$^\circ\text{C}/\text{W}$

* Minimum land pad.

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

Symbol	Parameter	Test Condition	MIN	MAX	Units
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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	$V_{GS} = -15\text{V}, V_{DS} = 0$		-200	pA
		$V_{GS} = -15\text{V}, V_{DS} = 0, T_a = 125^\circ\text{C}$		-500	nA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = 15\text{V}, I_D = 1.0\text{nA}$	-1.2	-2.7	V
$V_{GS(f)}$	Gate-Source Forward Voltage	$V_{DS} = 0\text{V}, I_G = 10\text{mA}$		1.0	V

On Characteristics

I_{DSS}	Zero-Gate Voltage Drain Current *	$V_{DS} = 15\text{V}, V_{GS} = 0$	10	40	mA
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Small Signal Characteristics

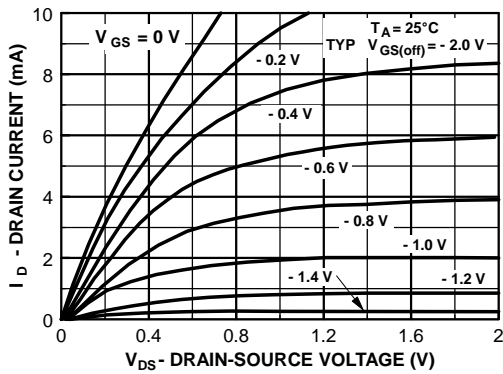
g_{fs}	Forward Transfer conductance	$V_{DG} = 15\text{V}, I_D = 500\mu\text{A}, f = 1.0\text{KHz}$	3500		μmhos
		$V_{DG} = 15\text{V}, I_D = 2.0\text{mA}, f = 1.0\text{KHz}$	7500		μmhos
g_{oss}	Output Conductance	$V_{DG} = 15\text{V}, I_D = 500\mu\text{A}, f = 1.0\text{KHz}$		25	μmhos
C_{iss}	Input Capacitance	$V_{DG} = 15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$		16	pF
C_{rss}	Reverse Transfer Capacitance	$V_{DG} = 15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$		6	pF

* Pulse Test; Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$

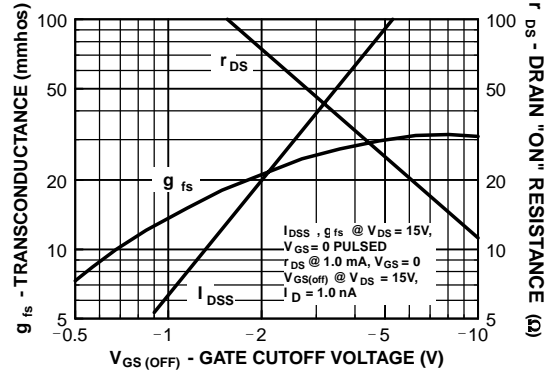


Typical Characteristics

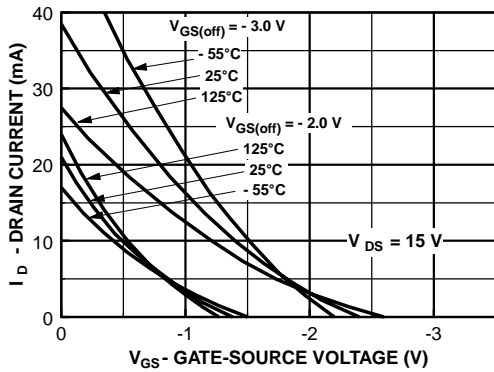
Common Drain-Source



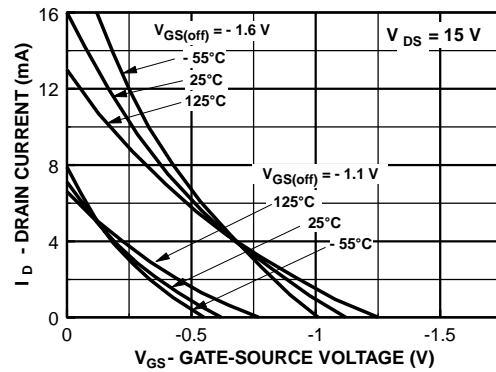
Parameter Interactions



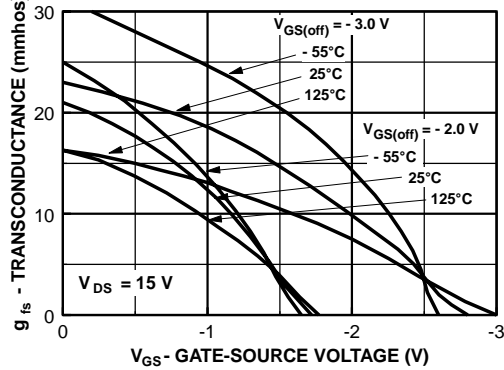
Transfer Characteristics



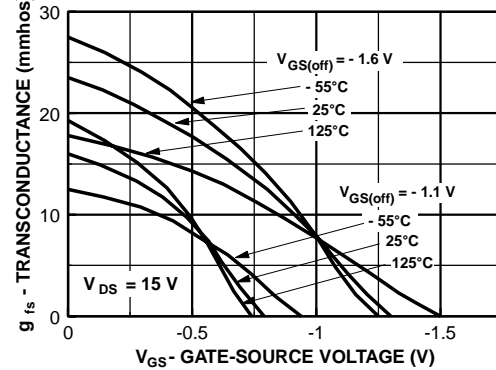
Transfer Characteristics



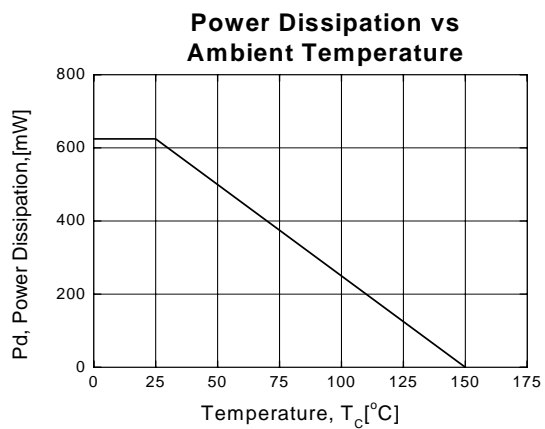
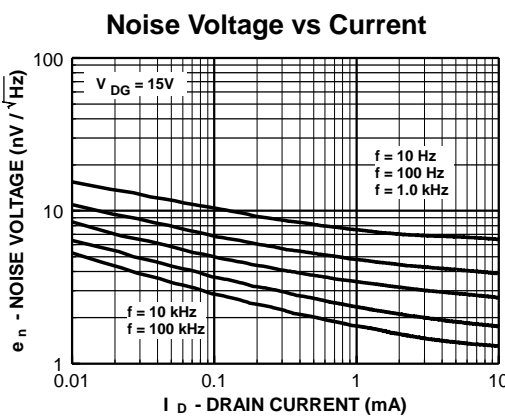
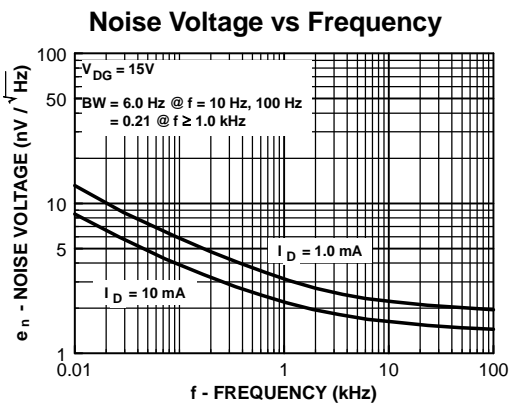
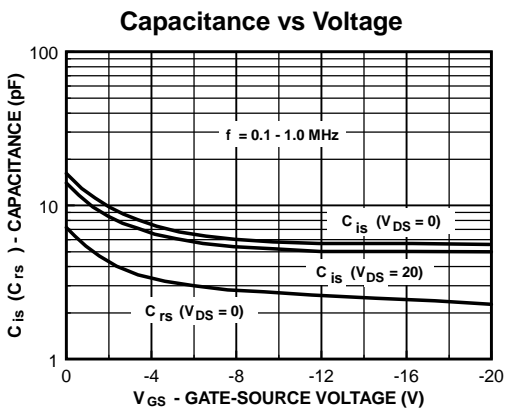
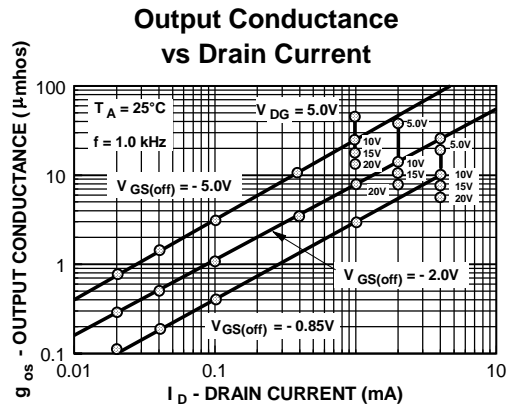
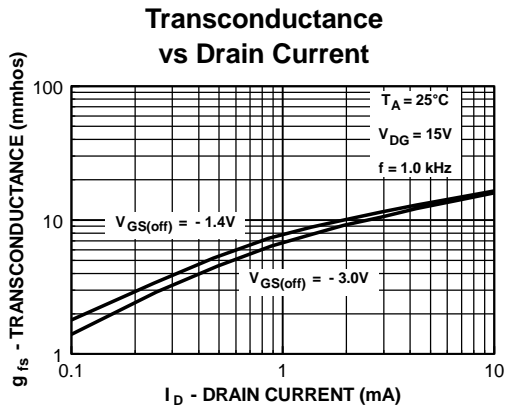
Transfer Characteristics



Transfer Characteristics

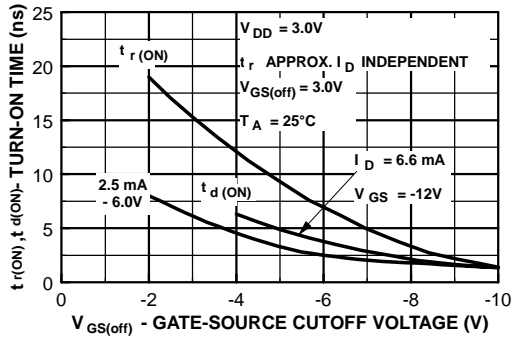


Typical Characteristics(continued)

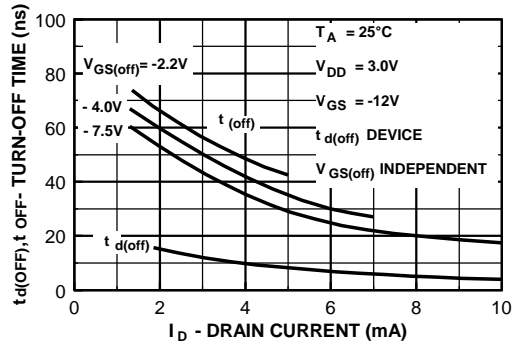


Typical Characteristics(continued)

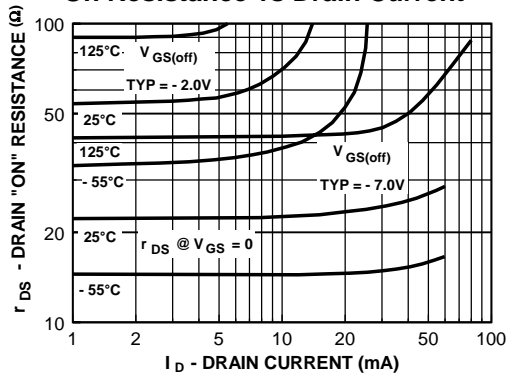
Switching Turn-On Time vs Gate-Source Voltage



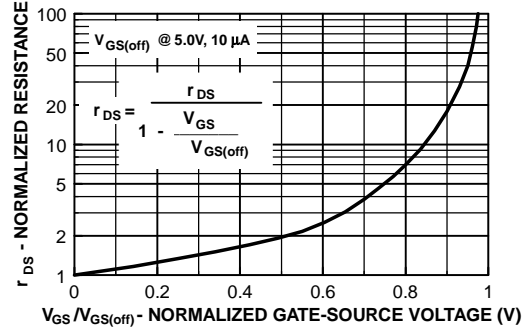
Switching Turn-Off Time vs Drain Current



On Resistance vs Drain Current

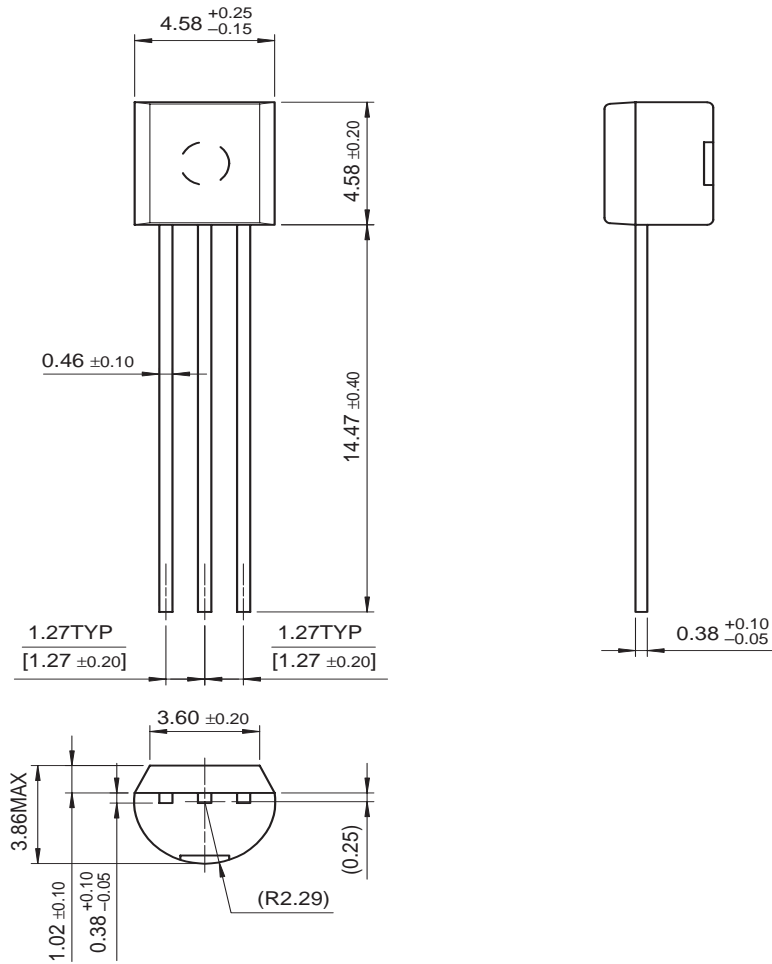


Normalized Drain Resistance vs Bias Voltage



Package Dimensions

TO-92



Dimensions in Millimeters

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