

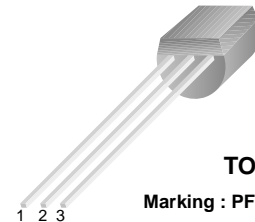


PF5103

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.



TO-92
Marking : PF5103
1. Drain 2. Source 3. Gate

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	$V_{GS} = -15\text{V}, V_{DS} = 0$ $V_{GS} = -15\text{V}, V_{DS} = 0, T_a = 125^\circ\text{C}$		-200	pA
				-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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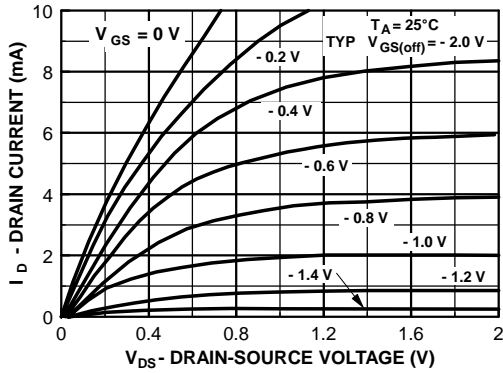
Small Signal Characteristics

g_{fs}	Forward Transfer conductance	$V_{DG} = 15\text{V}, I_D = 500\mu\text{A}, f = 1.0\text{KHz}$	3500		μhos
		$V_{DG} = 15\text{V}, I_D = 2.0\text{mA}, f = 1.0\text{KHz}$	7500		μhos
g_{oss}	Output Conductance	$V_{DG} = 15\text{V}, I_D = 500\mu\text{A}, f = 1.0\text{KHz}$		25	μhos
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

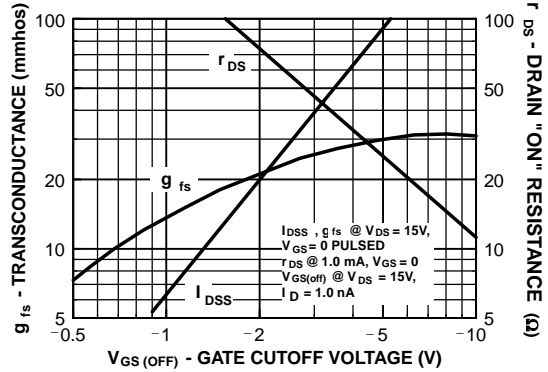
* Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$

Typical Characteristics

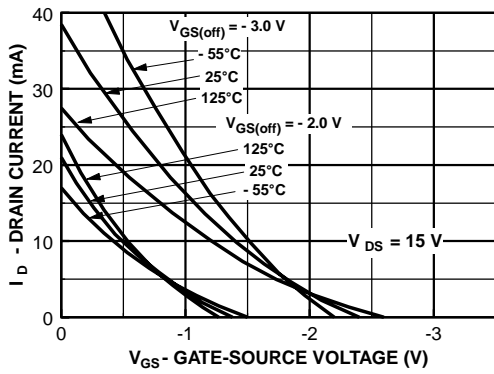
Common Drain-Source



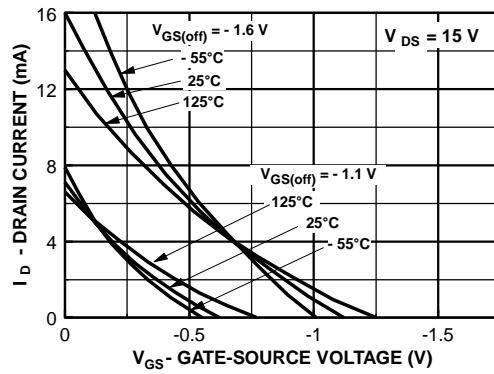
Parameter Interactions



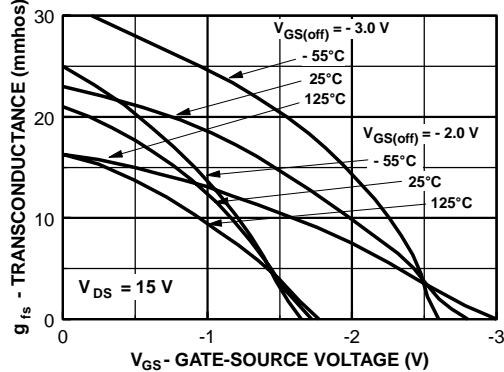
Transfer Characteristics



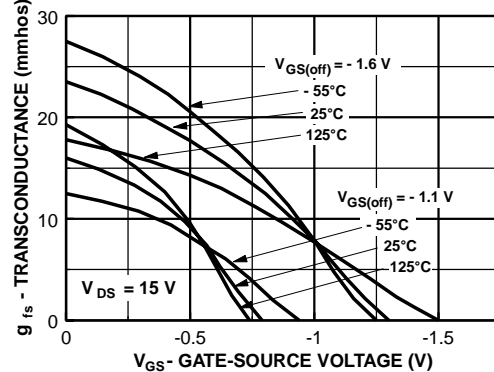
Transfer Characteristics



Transfer Characteristics

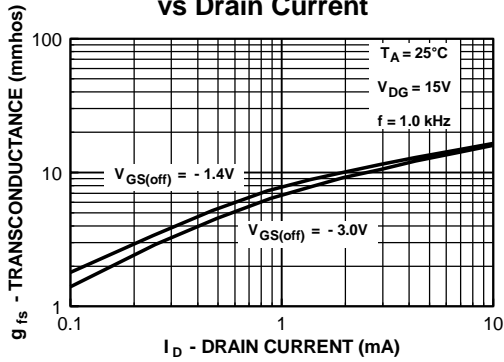


Transfer Characteristics

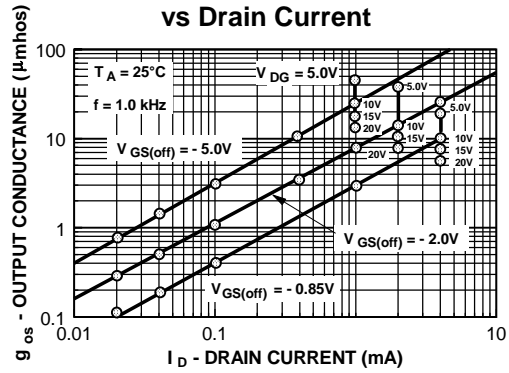


Typical Characteristics(continued)

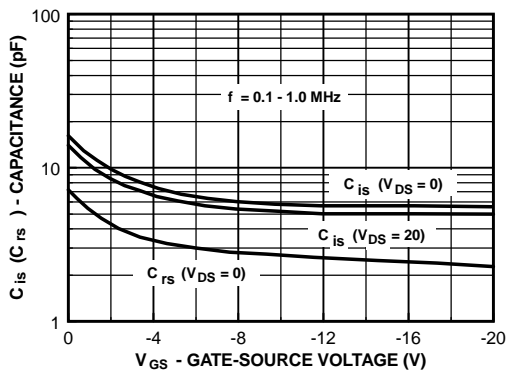
Transconductance vs Drain Current



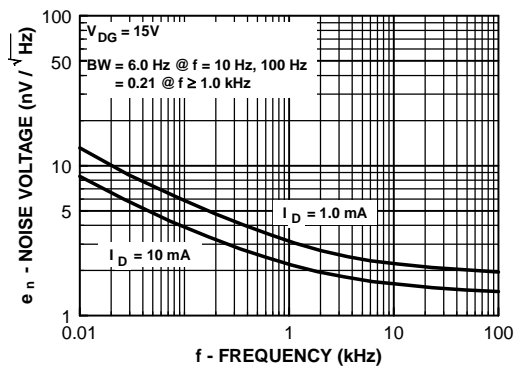
Output Conductance vs Drain Current



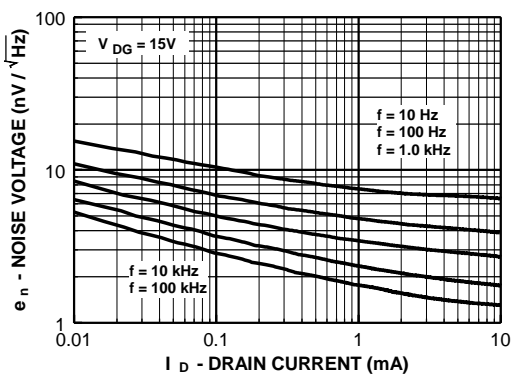
Capacitance vs Voltage



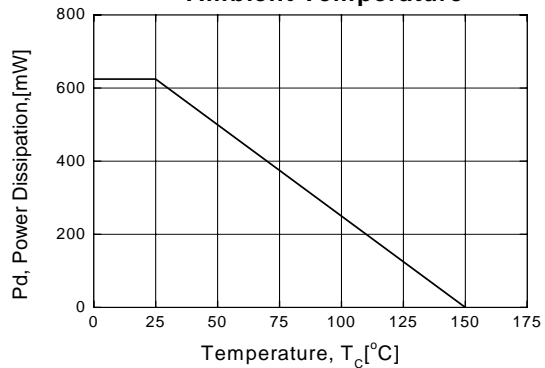
Noise Voltage vs Frequency



Noise Voltage vs Current

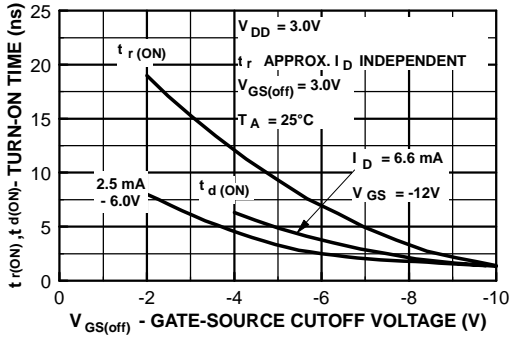


Power Dissipation vs Ambient Temperature

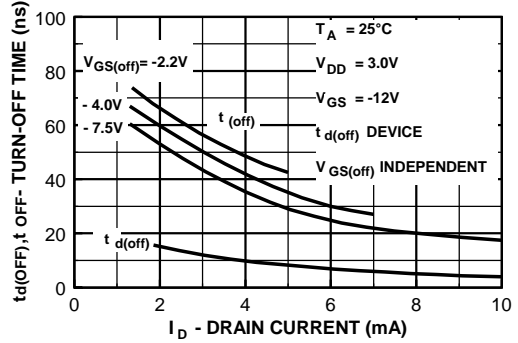


Typical Characteristics(continued)

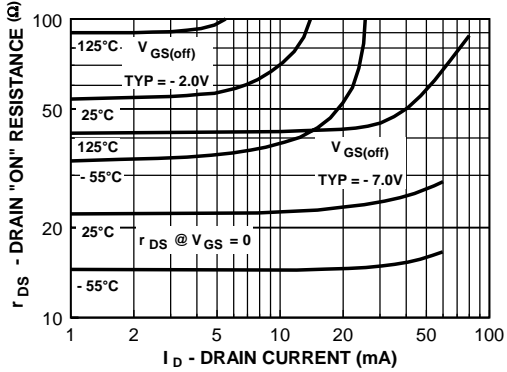
Switching Turn-On Time vs Gate-Source Voltage



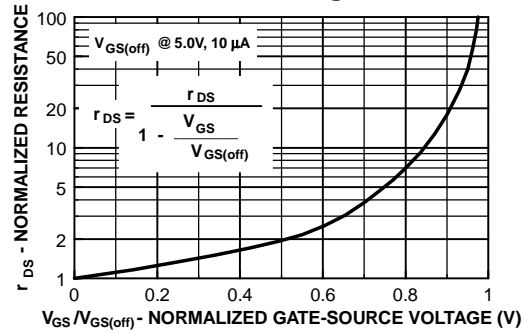
Switching Turn-Off Time vs Drain Current



On Resistance vs Drain Current

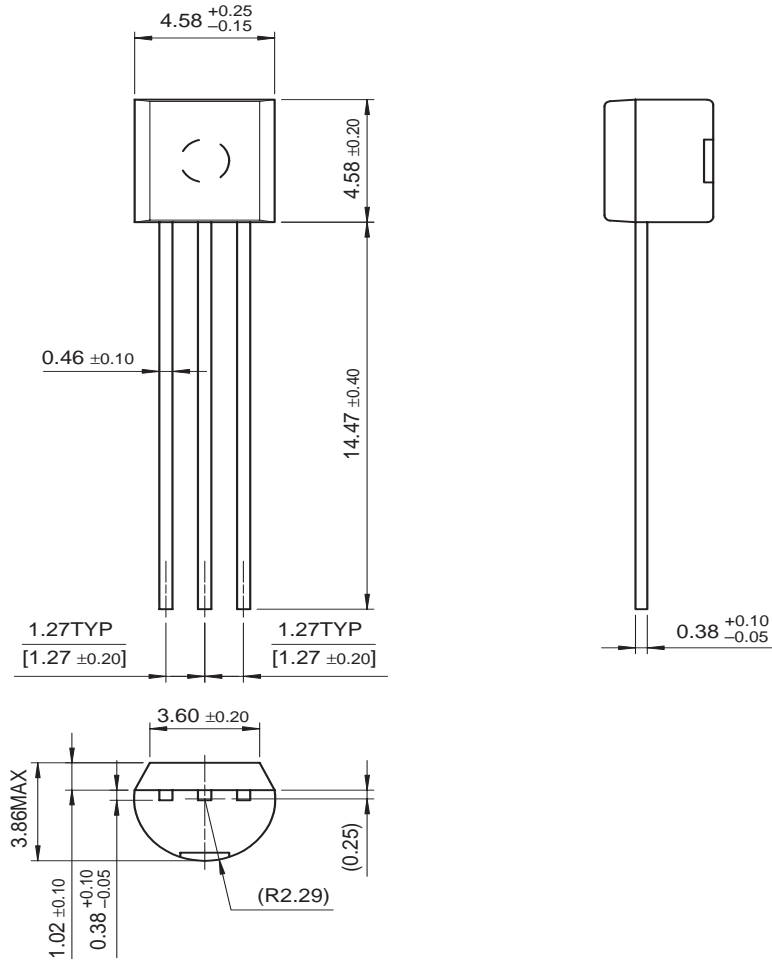


Normalized Drain Resistance vs Bias Voltage



Package Dimensions

TO-92



Dimensions in Millimeters

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FAST®	MicroFET™	QS™	TinyBuck™	
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