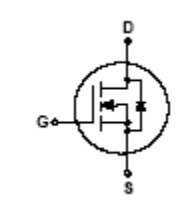
2N7002

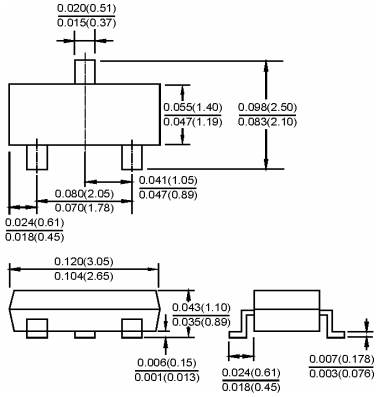
Mosfet (N-Channel)

RoHS COMPLIANT



1. GATE
2. SOURCE
3. DRAIN

SOT-23



Dimensions in inches and (millimeters)

Features

- ✧ High density cell design for low $R_{DS(ON)}$
- ✧ Voltage controlled small signal switch
- ✧ Rugged and reliable
- ✧ High saturation current capability

MAXIMUM RATINGS (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source voltage	60	V
I_D	Drain Current	115	mA
P_D	Power Dissipation	225	mW
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55-150	℃

ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0 V, I_D=10 μA	60			V
Gate-Threshold Voltage	$V_{th(GS)}$	V_{DS}=V_{GS}, I_D=250 μA	1		2.5	
Gate-body Leakage	I_{GSS}	V_{DS}=0 V, V_{GS}=±25 V			±80	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60 V, V_{GS}=0 V			80	nA
On-state Drain Current	$I_{D(ON)}$	V_{GS}=10 V, V_{DS}=7 V	500			mA
Drain-Source On-Resistance	$r_{DS(0n)}$	V_{GS}=10 V, I_D=500㎃	1		7.5	Ω
		V_{GS}=5 V, I_D=50㎃	1		7.5	
Forward Trans conductance	g_{fs}	V_{DS}=10 V, I_D=200㎃	80		500	ms
Drain-source on-voltage	$V_{DS(on)}$	V_{GS}=10V, I_D=500㎃	0.5		3.75	V
		V_{GS}=5V, I_D=50㎃	0.05		0.375	V
Diode Forward Voltage	V_{SD}	I_S=115mA, V_{GS}=0 V	0.55		1.2	V
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz			50	pF
Output Capacitance	C_{OSS}				25	
Reverse Transfer Capacitance	C_{rSS}				5	

SWITCHING TIME

Turn-on Time	$t_{d(on)}$	V_{DD}=25 V, R_L=50Ω I_D=500mA,V_{GEN}=10 V R_G=25 Ω			20	ns
Turn-off Time	$t_{d(off)}$				40	

Typical characteristics

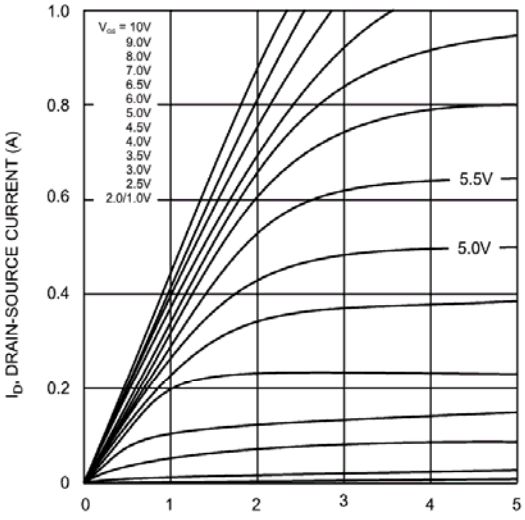


Fig. 1 On-Region Characteristics

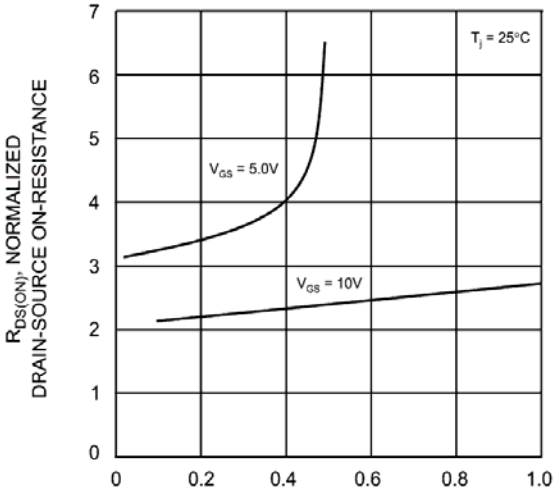


Fig. 2 On-Resistance vs Drain Current

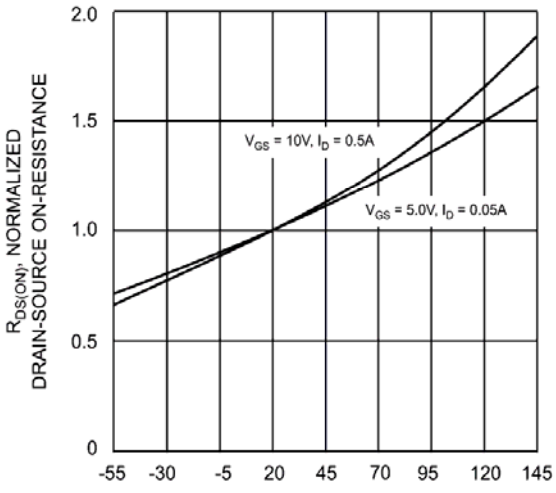


Fig. 3 On-Resistance vs Junction Temperature

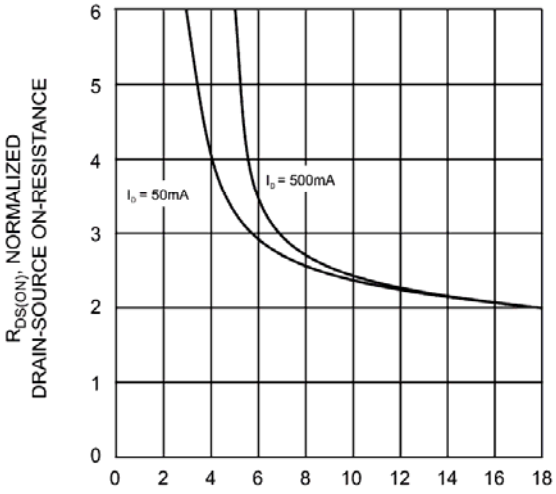


Fig. 4 On-Resistance vs. Gate-Source Voltage

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