# 2N7002

SOT-23 Plastic-Encapsulate MOSFETS

FEATURES

- ●High density cell design for low RDS(ON)
- ●Voltage controlled small signal switch
- ●Rugged and reliable
- ●High saturation current capability
- ●MOSFET (N-Channel)

MECHANICAL DATA

- ●Case style:SOT-23molded plastic
- ●Mounting position:any

SOT-23 Unit: mm

1.Gate
2.Soruce
3.Drain

MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	20	V
Continuous Drain Current	I_D	0.115	A
Power Dissipation	P_D	0.225	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	556	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{stg}	-50 ~+150	℃

Mosfet Electrical Characteristics T_A=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0 V, I_D=250 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}=±20 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	$R_{DS(on)}$	V_{GS}=10 V, I_D=500mA			7	Ω
		V_{GS}=5 V, I_D=50mA			7	
Forward Trans conductance	g_{fs}	V_{DS}=10 V, I_D=200mA	80			ms
Drain-source on-voltage	$V_{DS(on)}$	V_{GS}=10V, I_D=500mA			3.75	V
		V_{GS}=5V, I_D=50mA			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

Parameter	Symbol	Test conditions			Max	Unit
Turn-on Time *	$t_{d(on)}$	V_{DD}=25 V, R_L=50Ω, I_D=500mA,V_{GEN}=10 V R_G=25Ω			20	ns
Turn-off Time*	$t_{d(off)}$				40	
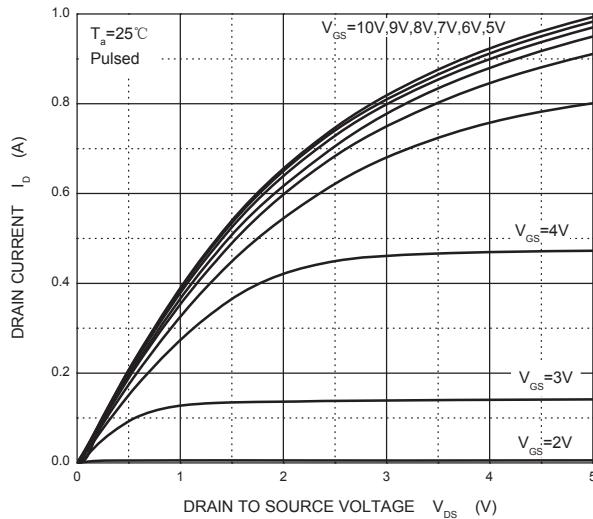
*These parameters have no way to verify.

Marking: 702
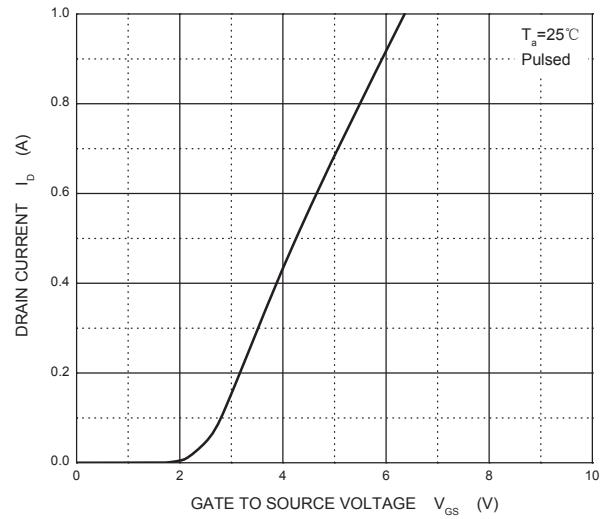
RATINGS AND CHARACTERISTIC CURVES

■ Typical Characteristics
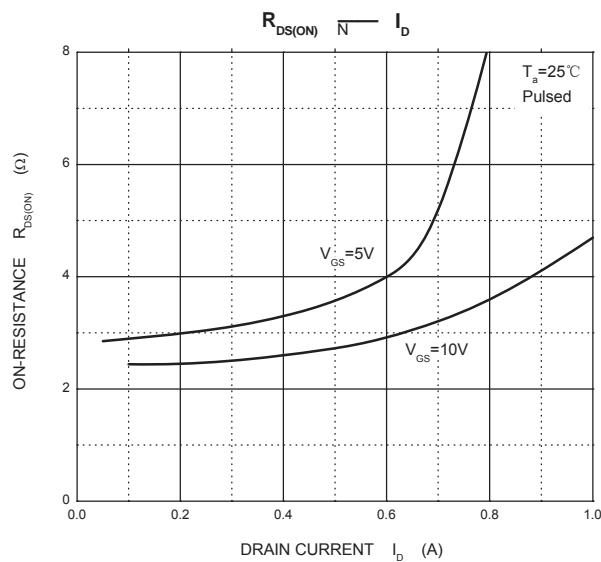
Output Characteristics

$T_a=25℃$
Pulsed

$V_{GS}=10V,9V,8V,7V,6V,5V$

$V_{GS}=4V$

$V_{GS}=3V$

$V_{GS}=2V$

DRAIN CURRENT I_D (A)

DRAIN TO SOURCE VOLTAGE V_{DS} (V)
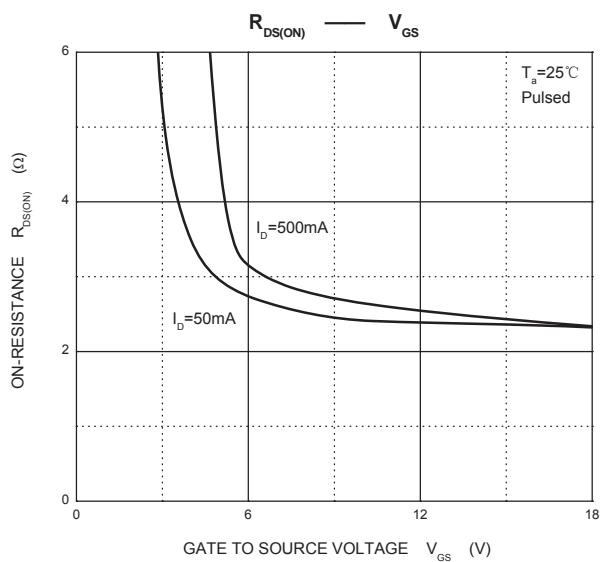
Transfer Characteristics

$T_a=25℃$
Pulsed

DRAIN CURRENT I_D (A)

GATE TO SOURCE VOLTAGE V_{GS} (V)

$R_{DS(ON)}$ — I_D

$T_a=25℃$
Pulsed

$V_{GS}=5V$

$V_{GS}=10V$

ON-RESISTANCE $R_{DS(ON)}$ (Ω)

DRAIN CURRENT I_D (A)

$R_{DS(ON)}$ — V_{GS}

$T_a=25℃$
Pulsed

$I_D=500mA$

$I_D=50mA$

ON-RESISTANCE $R_{DS(ON)}$ (Ω)

GATE TO SOURCE VOLTAGE V_{GS} (V)

I_S — V_{SD}

$T_a=25℃$
Pulsed

SOURCE CURRENT I_S (A)

SOURCE TO DRAIN VOLTAGE V_{SD} (V)