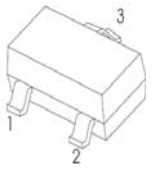
SOT-23 Plastic-Encapsulate MOSFETS

2N7002 MOSFET (N-Channel)

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
60 V	5Ω@10V	115mA
	7Ω@5V	

SOT-23



1. GATE
2. SOURCE
3. DRAIN

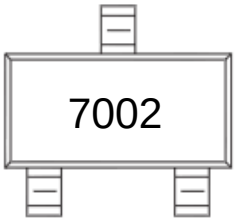
FEATURE

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

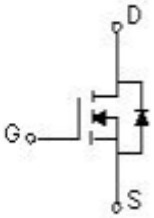
APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

MARKING



Equivalent Circuit



MAXIMUM RATINGS (T_a=25℃ 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	

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T_a=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=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			5	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	

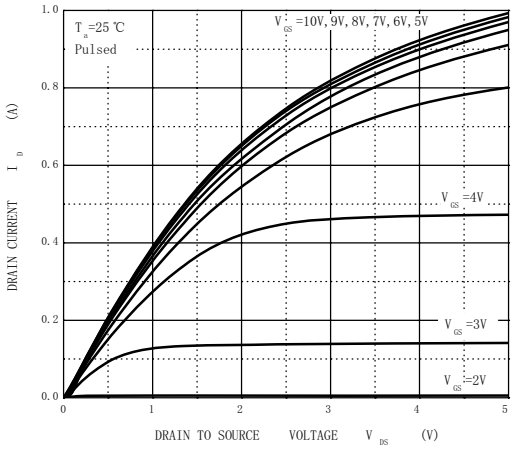
SWITCHING TIME

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	

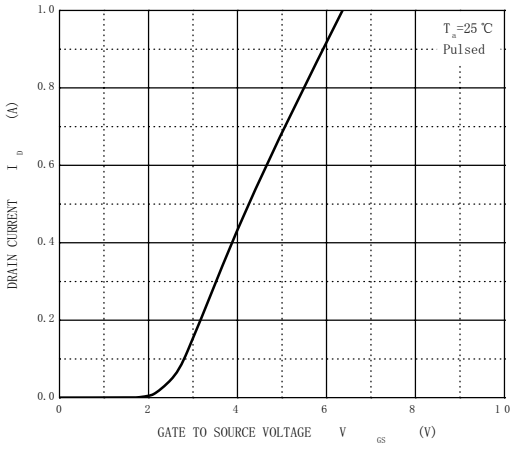
*These parameters have no way to verify.

Typical Characterisitics

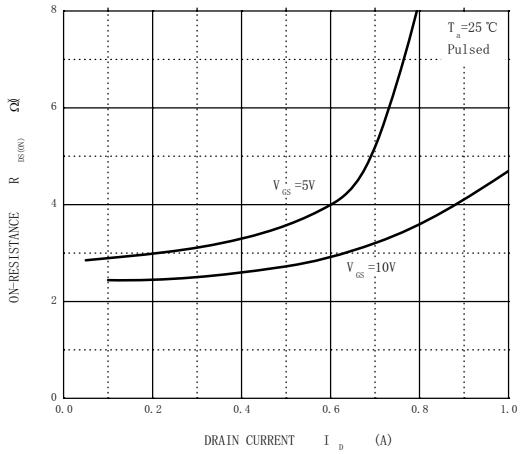
Output Characteristics



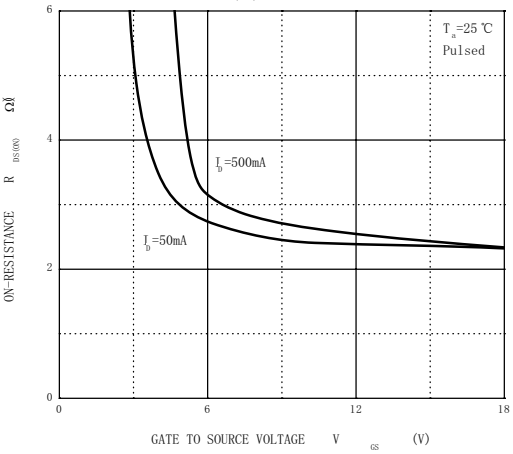
Transfer Characteristics



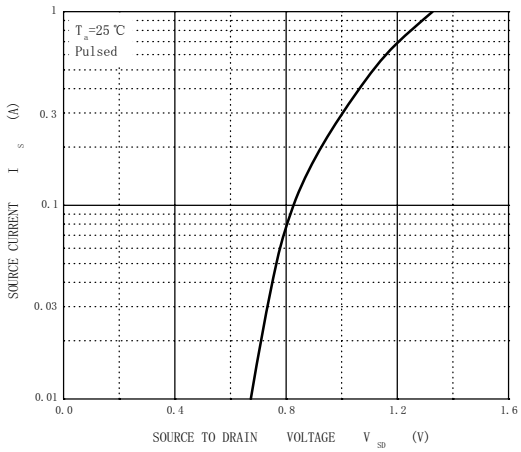
$R_{DS(ON)}$ — I_D



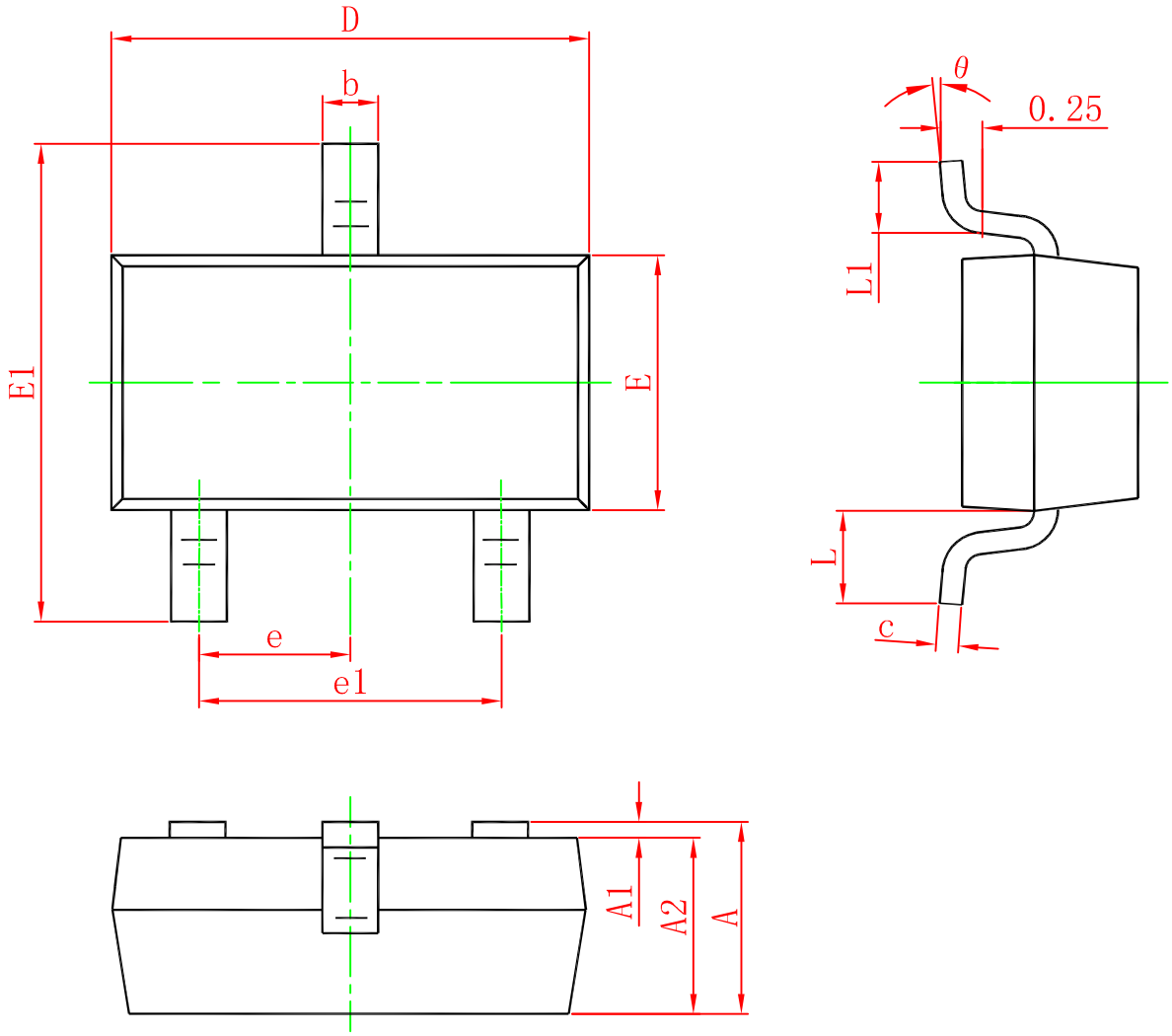
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



SOT-23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°