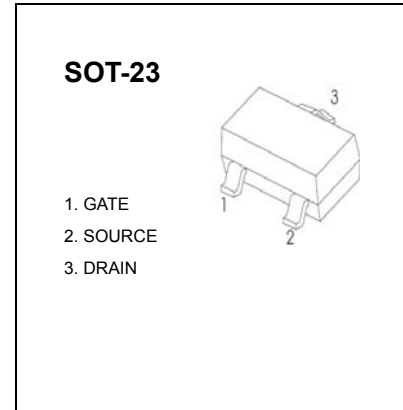


**SOT-23 Plastic-Encapsulate MOSFETS**

**2N7002B** MOSFET (N-Channel)

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



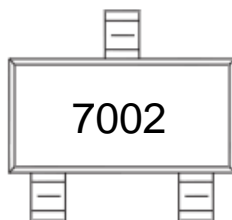
**FEATURE**

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

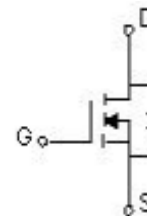
**APPLICATION**

- Load Switch for Portable Devices
- DC/DC Converter

**MARKING**



**Equivalent Circuit**



**MAXIMUM RATINGS ( $T_a=25^{\circ}C$  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	$^{\circ}C/W$
Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{stg}$	-50 ~+150	

**SOT-23 Plastic-Encapsulate MOSFETS**

T<sub>a</sub>=25 °C unless otherwise specified

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0 V, I <sub>D</sub> =250 μA	60			V
Gate-Threshold Voltage	V <sub>th(GS)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μA	1		2.5	
Gate-body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> =0 V, V <sub>GS</sub> =±20 V			±80	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =60 V, V <sub>GS</sub> =0 V			80	nA
On-state Drain Current	I <sub>D(ON)</sub>	V <sub>GS</sub> =10 V, V <sub>DS</sub> =7 V	500			mA
Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10 V, I <sub>D</sub> =500mA			5	Ω
		V <sub>GS</sub> =5 V, I <sub>D</sub> =50mA			7	
Forward Trans conductance	g <sub>fs</sub>	V <sub>DS</sub> =10 V, I <sub>D</sub> =200mA	80			ms
Drain-source on-voltage	V <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =500mA			3.75	V
		V <sub>GS</sub> =5V, I <sub>D</sub> =50mA			0.375	V
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =115mA, V <sub>GS</sub> =0 V	0.55		1.2	V
Input Capacitance *	C <sub>iss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f=1MHz			50	pF
Output Capacitance *	C <sub>oss</sub>				25	
Reverse Transfer Capacitance *	C <sub>rss</sub>				5	

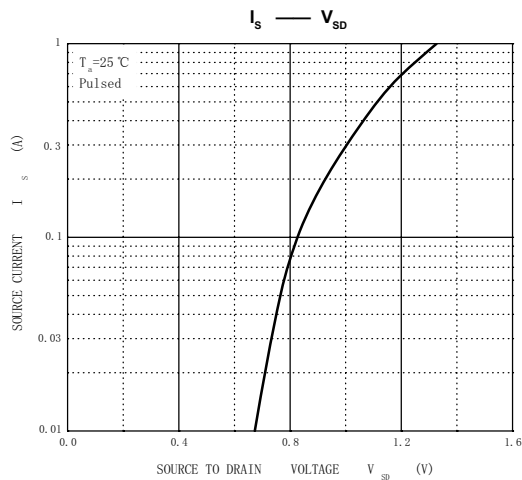
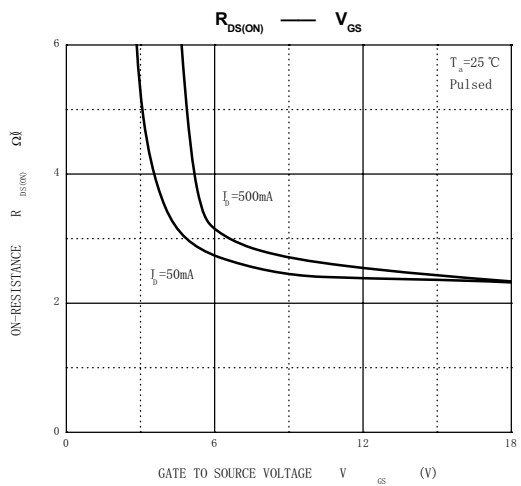
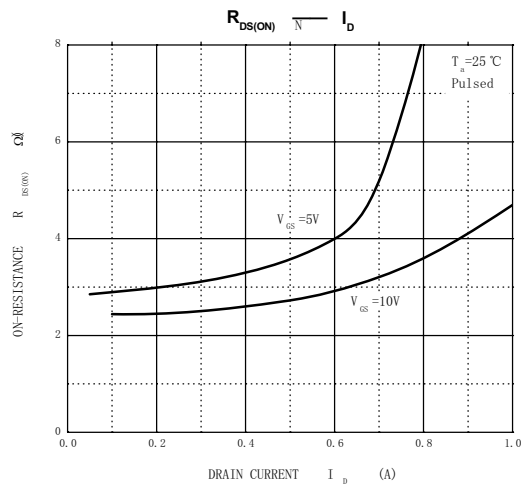
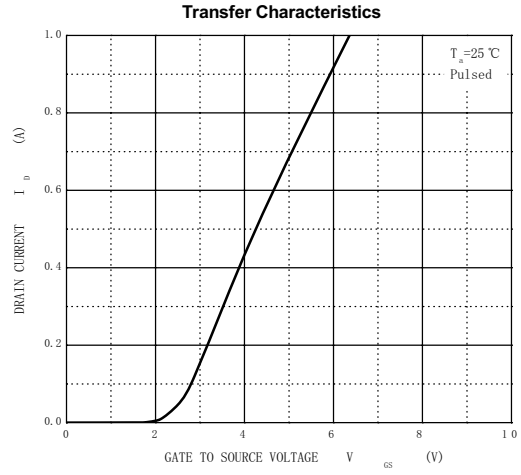
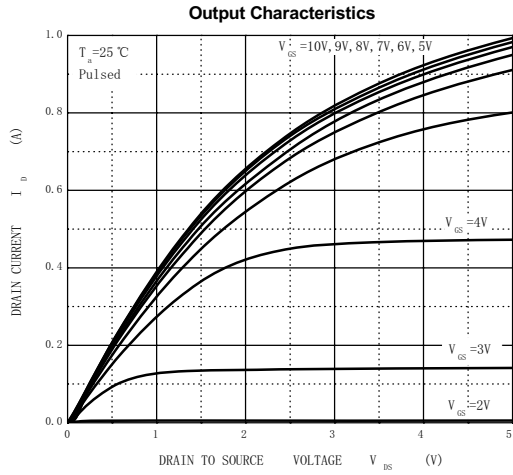
**SWITCHING TIME**

Turn-on Time *	t <sub>d(on)</sub>	V <sub>DD</sub> =25 V, R <sub>L</sub> =50Ω, I <sub>D</sub> =500mA, V <sub>GEN</sub> =10 V			20	ns
Turn-off Time *	t <sub>d(off)</sub>	R <sub>G</sub> =25Ω			40	

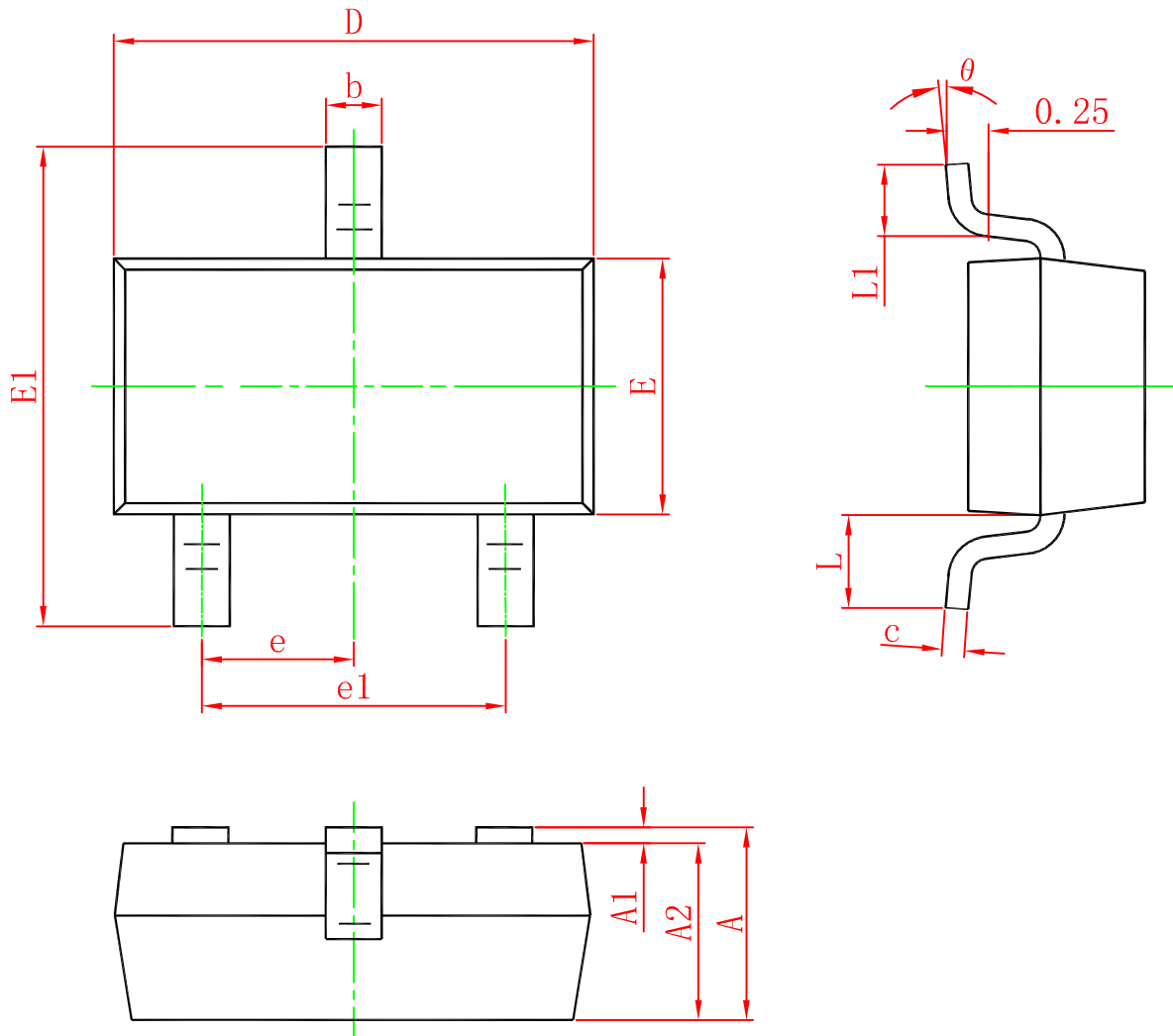
\*These parameters have no way to verify.

**SOT-23 Plastic-Encapsulate MOSFETS**

**Typical Characteristics**



**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
theta	0°	8°	0°	8°