

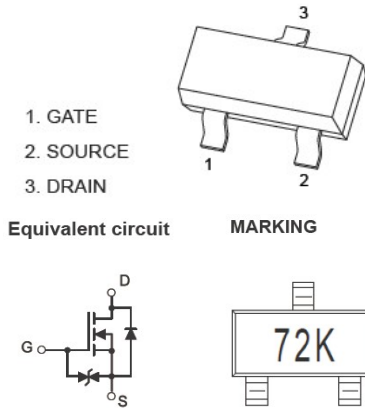


2N7002K

MOSFET(N-Channel)

V(BR)DSS	RDS(ON)MAX	ID
60V	5Ω@10V	340mA
	5.3Ω@4.5V	

SOT-23



特征 Features

- High density cell design for low $R_{DS(ON)}$.
- Voltage controlled small signal switch.
- Rugged and reliable.
- High saturation current capability.
- ESD protected
- Load Switch for Portable Devices.
- DC/DC Converter.

机械数据 Mechanical Data

- 封装: SOT-23 封装 SOT-23 Small Outline Plastic Package.
- 环氧树脂 UL 易燃等级 Epoxy UL: 94V-0.
- 安装位置: 任意 Mounting Position: Any.

极限值和温度特性($T_A = 25^\circ\text{C}$ 除非另有规定)

Maximum Ratings & Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified.)

参数 Parameters	符号 Symbol	数值 Value	单位 Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	340	mA
Power Dissipation	P_D	350	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-50-+150	$^\circ\text{C}$
Thermal Resistance From Junction to Ambient	$R_{\theta JA}$	357	$^\circ\text{C/W}$

电特性 ($T_A = 25^\circ\text{C}$ 除非另有规定)

Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified).

参数 Parameter	符号 Symbols	测试条件 Test Condition	界限 Limits			单位 Unit
			Min	Typ	Max	
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS}=0V, I_D=250\mu A$	60			V
Gate-Threshold voltage*	$V_{th(GS)}$	$V_{DS}=V_{GS}, I_D=1mA$	1	1.3	2.5	V
Gate-body Leakage	I_{GSS1}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 10	μA
	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 10V$			± 200	nA
	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 5V$			± 100	nA
Zero Gate Voltage Drain current	I_{DSS}	$V_{DS}=48V, V_{GS}=0V$			1	μA
Drain-Source On-Resistance*	$R_{DS(ON)}$	$V_{GS}=10V, I_D=500mA$		0.9	5	Ω
		$V_{GS}=4.5V, I_C=200mA$		1.1	5.3	
Diode Forward voltage	V_{SD}	$I_S=300mA, V_{GS}=0V$			1.50	V
Input capacitance**	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1MHz$			40	pF
Output capacitance**	C_{oss}				30	
Reverse Transfer capacitance**	C_{rss}				10	
SWITCHING TIME						
Turn-on Time**	$t_d(on)$	$V_{DD}=50V, R_L=250\Omega, V_{GS}=10V, R_{GS}=50\Omega, R_G=50\Omega$			10	ns
Turn-off Time**	$t_d(off)$				15	
Reverse recovery Time	t_{rr}	$V_{GS}=0V, I_S=300mA, V_R=25V, Dis/dt=-100a/\mu S$		30		ns
GATE-SOURCE ZENER DIODE						
Gate-Source Breakdown Voltage	BV_{GSO}	$I_{GS}=\pm 1mA$ (Open Drain)	± 21.5		± 30	V

Notes: * Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

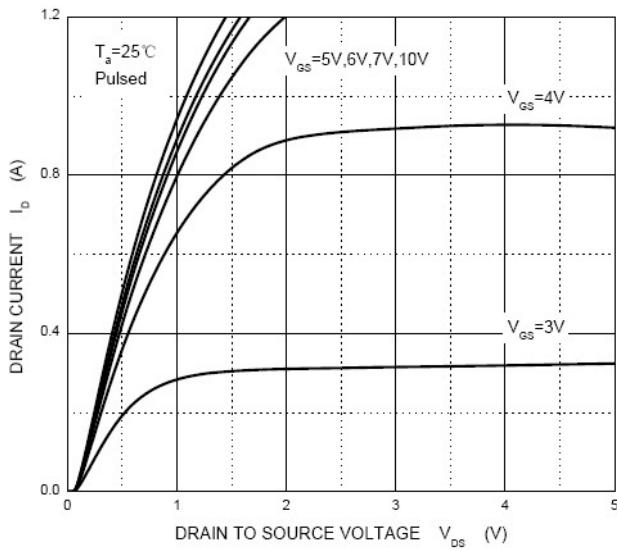
** These parameters have on way to verify.



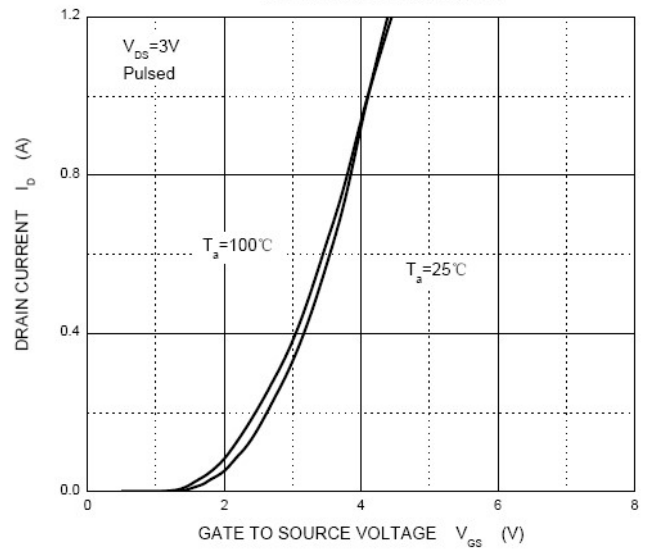


Typical characteristics

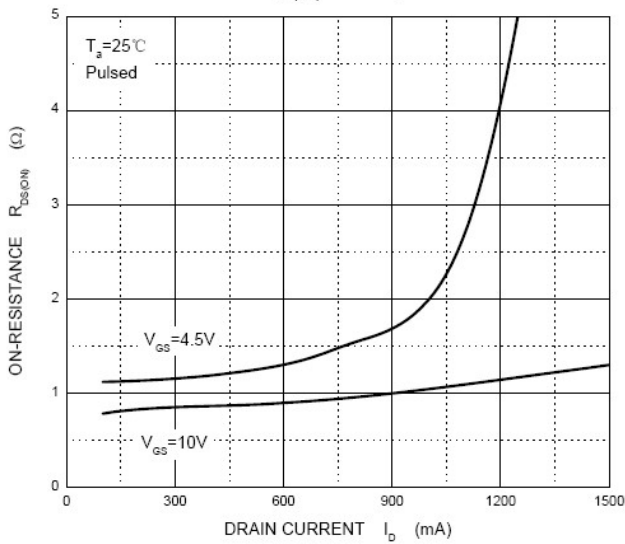
Output Characteristics



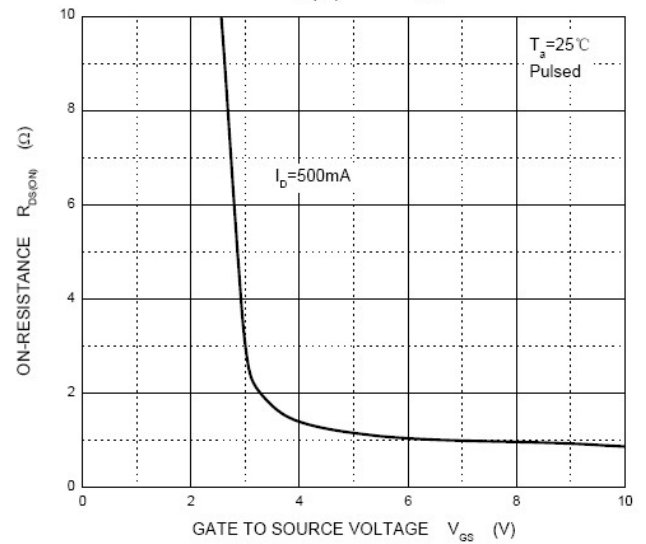
Transfer Characteristics



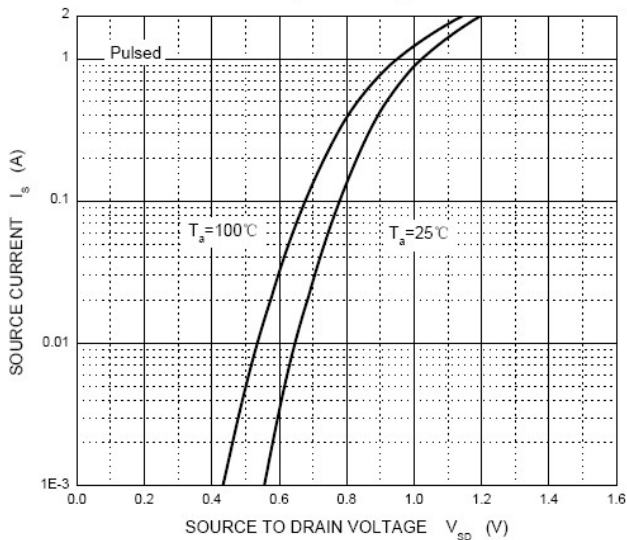
$R_{DS(ON)}$ — I_D



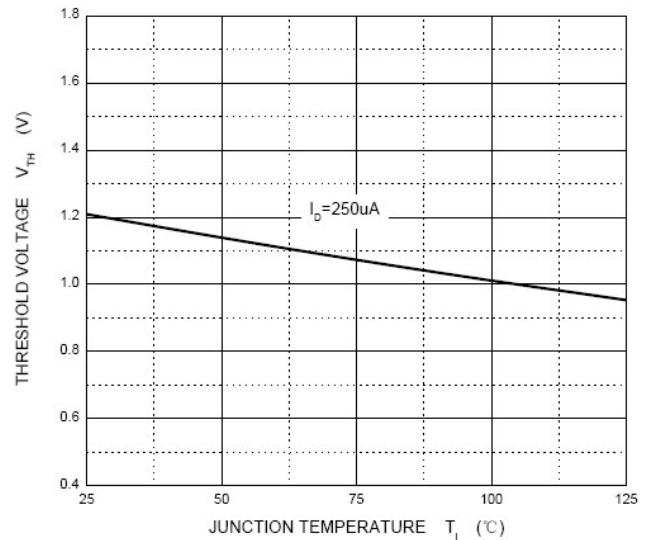
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}

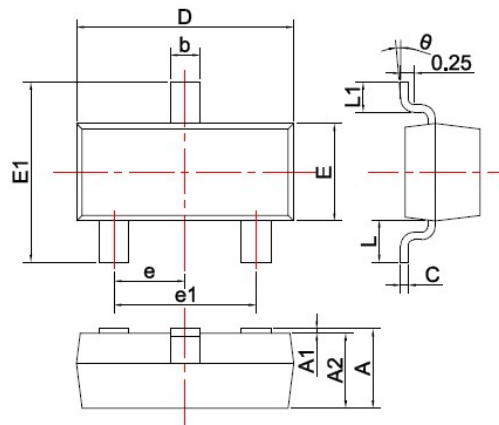


Threshold Voltage





SOT-23 PACKAGE OUTLINE Plastic surface mounted package

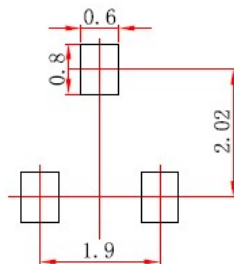


SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Unit: mm

焊盘设计参考 Precautions: PCB Design

Recommended land dimensions for SOT-23 diode. Electrode patterns for PCBs



Note:

1. Controlling dimension; in millimeters.
2. General tolerance: ±0.05mm.
3. The pad layout is for reference purposes only.