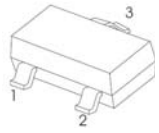
ShenzhenTaimaoTechnology Co.,Ltd.

SOT-23 Plastic-Encapsulate MOSFETs

2N7002K N-channel MOSFET

SOT-23



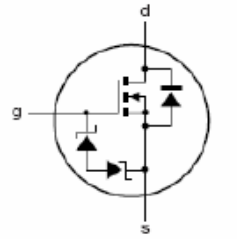
1. GATE
2. SOURCE
3. DRAIN

FEATURES

- High density cell design for Low $R_{DS(on)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability
- ESD protected up to 2KV

Marking: 72K

Equivalent circuit



MOSFET MAXIMUM RATINGS (T_a = 25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source voltage	60	V
I_D	Drain Current	340	mA
P_D	Power Dissipation	0.35	W
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55-150	℃
$R_{\theta JA}$	Thermal Resistance fromJunction to Ambient	357	℃ /W

MOSFET ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static Characteristics						
Drain-Source Breakdown Voltage	V_{DS}	V_{GS} = 0V, I_D =250μA	60			V
Gate Threshold Voltage*	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =1mA	1			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =48V,V_{GS} = 0V			1	μA
Gate –Source leakage current	I_{GSS1}	V_{GS} =±20V, V_{DS} = 0V			±10	μA
	I_{GSS2}	V_{GS} =±10V, V_{DS} = 0V			±200	nA
	I_{GSS3}	V_{GS} =±5V, V_{DS} = 0V			±100	nA
Drain-Source On-Resistance*	$R_{DS(on)}$	V_{GS} = 4.5V, I_D =200mA			5.3	Ω
		V_{GS} =10V,I_D =500mA			5	Ω
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=300mA			1.5	V
Recovered charge	Q_r	V_{GS}=0V,I_S=300mA,V_R=25V, dI_S/dt=-100A/μS		30		nC
Dynamic Characteristics**						
Input Capacitance	C_{iss}	V_{DS} =10V,V_{GS} =0V,f =1MHz			40	pF
Output Capacitance	C_{oss}				30	pF
Reverse Transfer Capacitance	C_{rss}				10	pF
Switching Characteristics**						
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V,V_{DD}=50V,R_G=50Ω, R_{GS}=50Ω, R_L=250Ω			10	ns
Turn-Off Delay Time	$t_{d(off)}$				15	ns
Reverse recovery Time	t_{rr}	V_{GS}=0V,I_S=300mA,V_R=25V, dI_S/dt=-100A/μS		30		ns
GATE-SOURCE ZENER DIODE						
Gate-Source Breakdown Voltage	BV_{GSO}	I_{gs}=±1mA (Open Drain)	±21.5		±30	V

Notes :

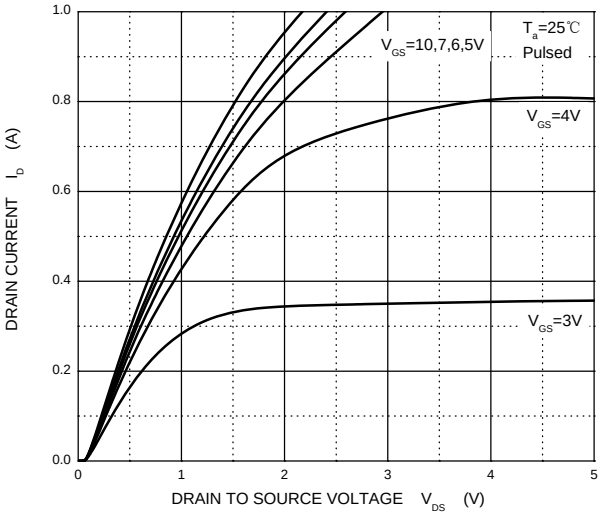
*Pulse Test : Pulse Width ≤300μs, Duty Cycle ≤2%.

**These parameters have no way to verify.

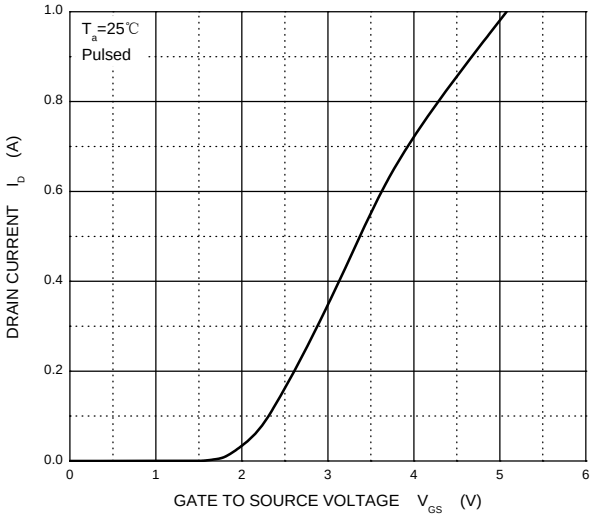
A,Dec,2010

Typical Characteristics 2N7002K

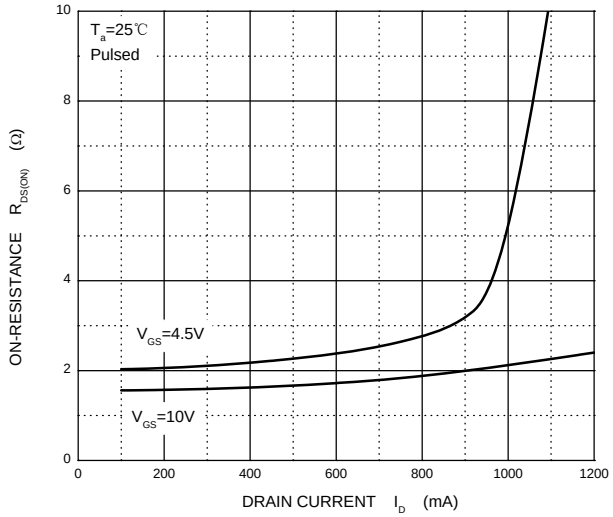
Output Characteristics



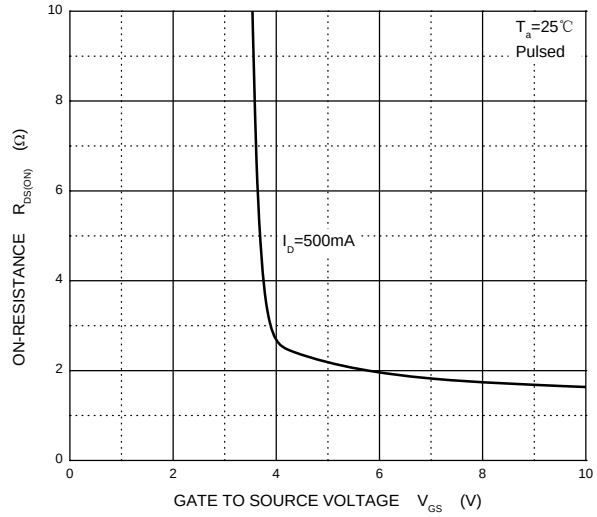
Transfer Characteristics



$R_{DS(ON)}$ —— I_D



$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}