◇Epoxy meets UL 94 V-0 flammability rating

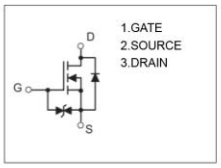
◇High density cell design for low $R_{DS(ON)}$

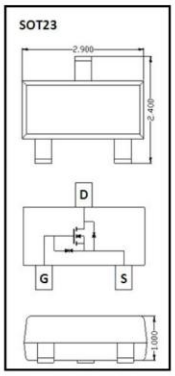
◇Voltage controlled small signal switch

◇Rugged and reliable

◇ESD Protected

Internal Structure





Device Marking Code	
2N7002K	**72K**

MAXIMUM RATINGS (Ta = 25 ℃)

Symbol	Parameter	Value	Units
V_{DS}	Drain-source Voltage	60	V
V_{GS}	Gate-source-Voltage	±20	V
I_D	Drain Current	340	mA
P_d	Total Power Dissipation	300	mW
T_J	Junction Temperature	-55 to 150	℃
$T_{J,}$	Storage Temperature	-55 to 150	℃
R	Thermal Resistance from Junction to Ambient	357	℃/W

ELECTRICAL CHARACTERISTICS (Ta = 25 ℃)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
$V_{(BR)Dss}$	Drain-source Voltage Breakdown Voltage	V_{GS}=0V,I_D=10uA	60			V
$V_{GS(th)}$	Gate-Threshold Voltage (note 1)	V_{DS}=VGS,I_D=1mA	1.0		2.5	V
I_{GSS}	Gate -body Leakage	V_{DS}=0V,V_{GS}=±10V V_{DS}=0V,V_{GS}=±5V V_{DS}=0V,V_{GS}=±20V			±200 ±100 10	nA nA uA
I_{Dss}	Zero Gate Voltage Drain Current	V_{DS}=48V,V_{GS}=0V			1	uA
$R_{Ds(on)}$	Drain-source On-resistance (note 1)	V_{GS}=4.5V,I_D=200mA V_{GS}=10V,I_D=500mA			5.3 5.0	Ω
V_{sd}	Diode Forward Voltage (note 1)	V_{GS}=0V,Is=300mA			1.5	V

Q_r	Recovered charge	V_{GS}=0V,Is=300mA,V_R=25V dIs/dt=−100A/us		30		nC

Dynamic Characteristics

C_{iss}	Input Capacitance	V_{DS}=10V			40	pF
C_{oss}	Output Capacitance	V_{GS}=0V			30	
C_{rss}	Reverse Transfer Capacitance	f=1MHz			10	

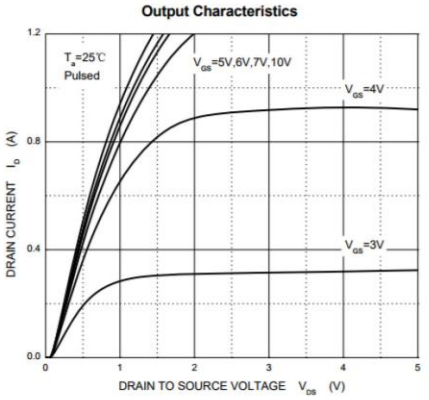
Switching Characteristics

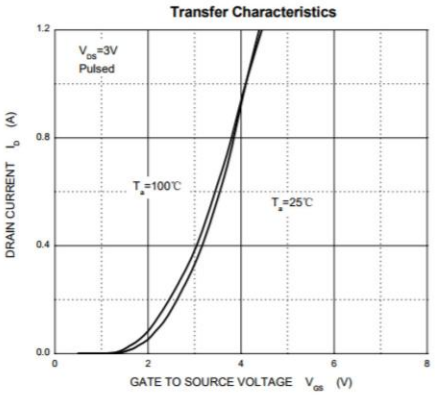
$t_{d(on)}$	Turn on time	V_{DD}=50V,R_L=250Ω			10	ns
$t_{d(off)}$	Turn off time	R_{GS}=50Ω,V_{GS}=10V, R_G=50Ω			15	
t_{rr}	Reverse recovery time	V_{GS}=0V,I_S=300mA V_R=25V, dI_S/dt=−100A/us		30		

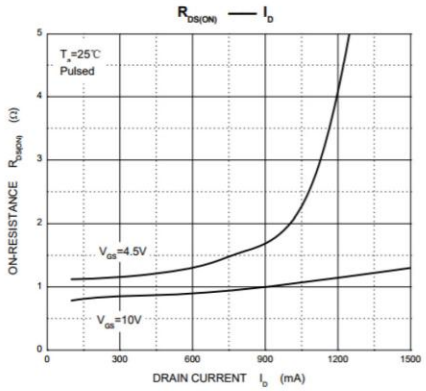
Note:

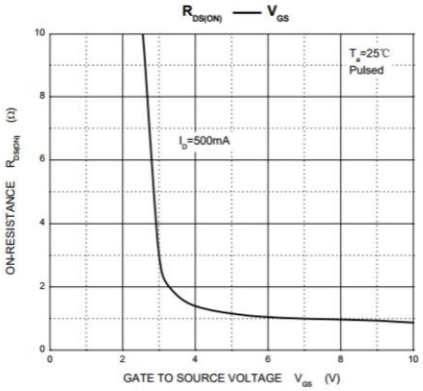
1. Pulse Test：Pulse width≤300μs, duty cycle≤2%.

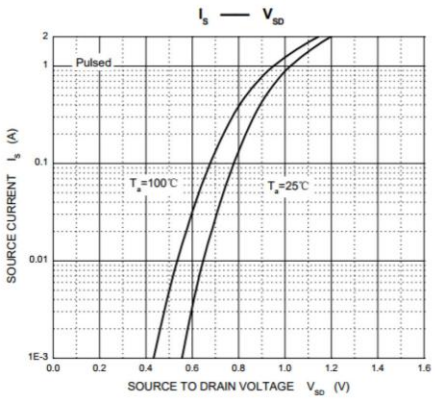
TYPICAL CHARACTERISTICS

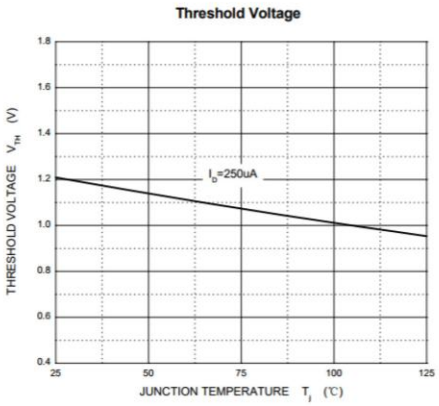










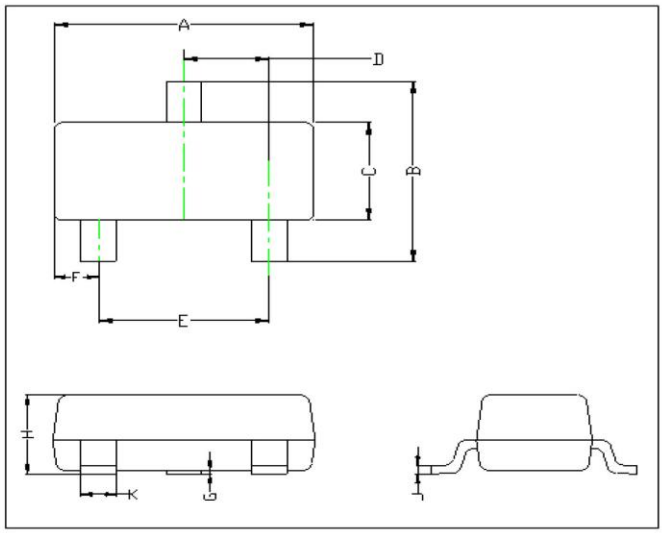


ORDERING INFORMATION

Device	Package	Shipping	Tape wide	Emboss pitch	Tape specification	Notes
2N7002K	SOT23	Tape & Reel 3000pcs /7" Reel	8mm	4mm	Conductive	

PACKAGE DIMENSIONS

Package Outline :SOT23



SOT23 Package Outline

Symbol	Dimensions in mm	
	Min.	Max.
A	2.800	3.040
B	2.100	2.640
C	1.200	1.400
D	0.890	1.030
E	1.780	2.050
F	0.450	0.600
G	0.013	0.100
H	0.900	1.110
J	0.090	0.180
K	0.370	0.510

Note:
1.Habgen free ,EMC
2.Pb free solder
3:.Lead thickness solder plating
4.Lead frame CAC-5
5.Other Tolerance ±0.05
6.Dimensions are exclusiveof Burrs Mold Flash and Tie Bar extrusions
7.Unit :mm