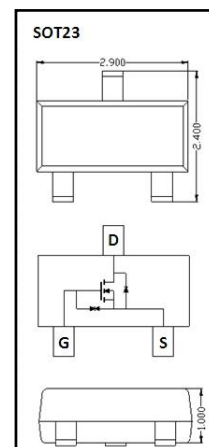


DATA SHEET

2N7002K

- ◇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 up to 2KV (HBM)

Device Marking Code	
2N7002K	72K



MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

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	$^\circ\text{C}$
T_{JL}	Storage Temperature	-55 to 150	$^\circ\text{C}$
R	Thermal Resistance from Junction to Ambient	357	$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

Symbol	Parameter	Test Conditions	Min	Max	Units
$V_{(BR)DSS}$	Drain-source Voltage Breakdown Voltage	$V_{GS}=0V, I_D=10\mu A$	60		V
$V_{GS(th)}$	Gate-Threshold Voltage	$V_{DS}=V_{GS}, I_D=1mA$	1.0	2.5	V
I_{GSS}	Gate-body Leakage	$V_{DS}=0V, V_{GS}=\pm 10V$ $V_{DS}=0V, V_{GS}=\pm 5V$		± 200 ± 100	nA nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=48V, V_{GS}=0V$		1	μA
R_{dson}	Drain-source On-resistance	$V_{GS}=4.5V, I_D=200mA$ $V_{GS}=10V, I_D=500mA$		5.3 5.0	Ω
V_{sd}	Diode Forward Voltage	$V_{GS}=0V, I_S=300mA$		1.5	V
Qr	Recovered charge	$V_{gs}=0V, I_S=300mA, V_r=25V$ $DI_S/dt=-100A/\mu s$		30	nC

Ciss	Input Capacitance	$V_{DS}=10V$		40	
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Coss	Output Capacitance	VGS=0V		30	pF
Crss	Reverse Transfer Capacitance	F=1MHz		10	

SWITCHING

Td(on)	Turn on time	VDD=50V,RL=250Ω		10	ns
Td(off)	Turn off time	RGS=50Ω,VGS=10V RG=50Ω		15	
trr	Reverse recovery time	VGS=0V,Is=300mA VR=25V DIs/dt=-100A/us		30	

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

The diagram illustrates the SOT23 package outline in three views: top, side, and cross-sectional. The top view shows a rectangular package with dimensions A (total width), B (body width), C (lead width), D (lead thickness), E (pitch), F (lead length), and G (lead width). The side view shows the package height H and the lead thickness D. The cross-sectional view shows the package profile with dimensions J (lead height) and K (lead length).

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