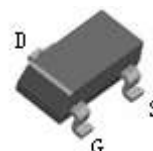
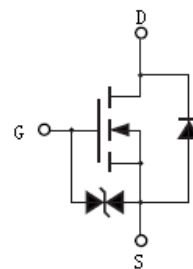


Features

- Low on-resistance.
- High ESD.
- High-speed switching.
- Low-voltage drive(4V).
- Drive circuits can be simple.
- Parallel use is easy.



2N7002SH

SOT-23

Typical Applications

- N-channel enhancement mode effect transistor.
- Switching application.

Mechanical Data

- Case: SOT-23.
- Molding Compound, UL Flammability Classification Rating 94V-0.
- Terminals: Matte Tin Plated Leads, Solderable Per MIL-STD-202, Method 208.

Ordering Information

Part Number	Package	Shipping	Marking Code
2N7002SH□	SOT-23	3000/Tape&Reel	7002K.

□: none is for Lead Free package;
“G” is for Halogen Free package.

Maximum Ratings (@T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Units
Drain-Source Voltage	V _{DSS}	60	V
Gate -Source Voltage	V _{GSS}	±20	V
Continuous Drain Current	I _D	300	mA
Power Dissipation	P _D	0.35	W

Thermal Characteristics

Parameter	Symbol	Limits	Unit
Thermal Resistance Junction to Ambient Air	R _{θJA}	357	°C/W
Operating Junction Temperature Range	T _j	150	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

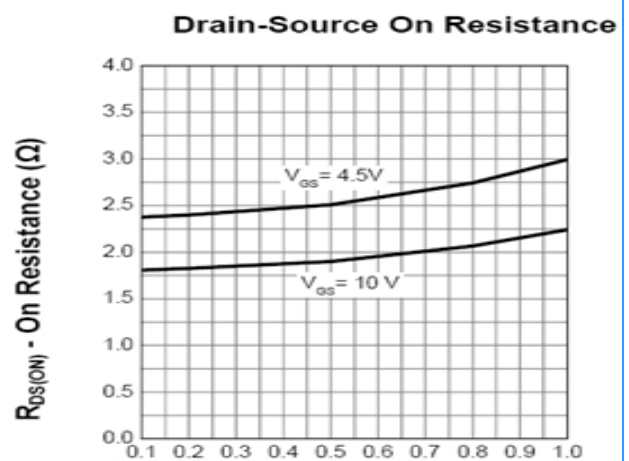
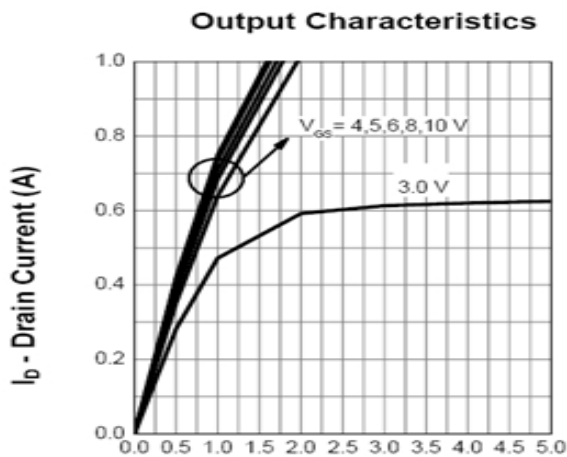
Electrical Characteristics (@T_A=25°C unless otherwise specified)

Symbol	Parameter	Test conditions	MIN	TYP	MAX	UNIT
OFF Characteristics						
V _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	60	-	-	V
I _{DSS}	Drain to Source Leakage Current	V _{DS} =60V, V _{GS} =0V	-	-	1	uA
I _{GSS}	Gate-body Leakage	V _{GS} =±20V, V _{DS} =0V	-	-	±10	uA
ON Characteristics ^(NOTE2)						
R _{DS(ON)}	Static Drain-Source On-resistance	V _{GS} =5V, I _D =0.05A	-	1.7	3	Ω
		V _{GS} =10V, I _D =0.5A	-	1.6	2.5	
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D =250uA	1	1.5	2.5	V
Dynamic Characteristics ^(NOTE3)						
C _{iss}	Input Capacitance	V _{GS} = 0V	-	21	-	pF
C _{oss}	Output Capacitance	V _{DS} = 25V	-	15		
Cr _{ss}	Reverse Transfer Capacitance	f = 1.0MHz	-	8		
Switching Characteristics ^(NOTE3)						
t _{d(on)}	Turn-on Delay Time	V _{DD} =30V, I _D =0.2A V _{GS} =10V, R _G =25Ω R _L =150Ω	-	6	-	nS
t _r	Turn-on Rise Time		-	5	-	
t _{d(off)}	Turn-Off Delay Time		-	25	-	
t _f	Turn-Off Fall Time		-	15	-	
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage ^(NOTE1)	I _S =0.3A, V _{GS} =0V	-	0.85	1.2	V
I _S	Diode Continuous Forward Current	T _C =25°C	-	-	0.3	A

NOTE:

- 1、 Surface Mounted on FR4 Board, t ≤ 10 sec
- 2、 Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
- 3、 Guaranteed by design, not subject to production.

Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

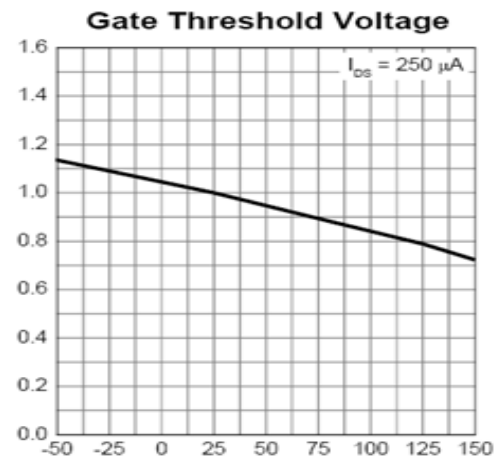


V_{DS} - Drain-Source Voltage (V)

I_D - Drain Current (A)

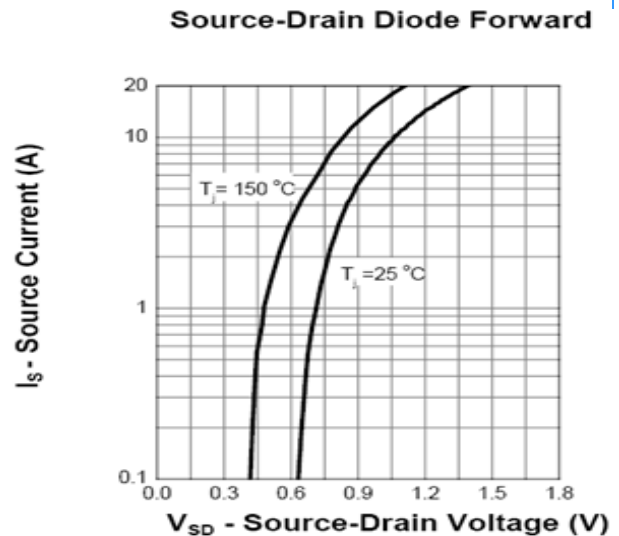
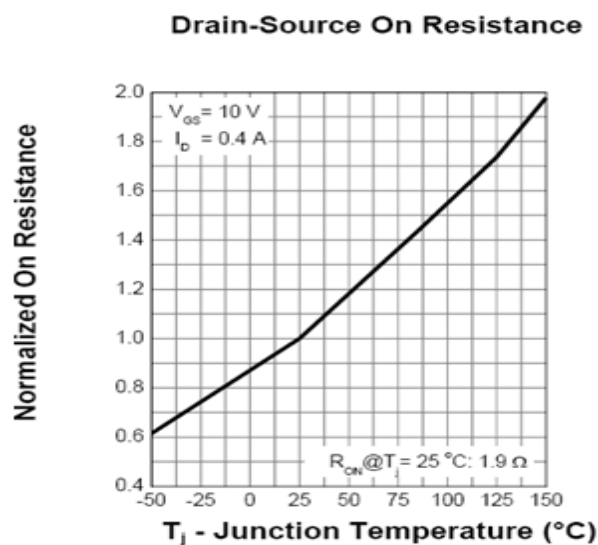


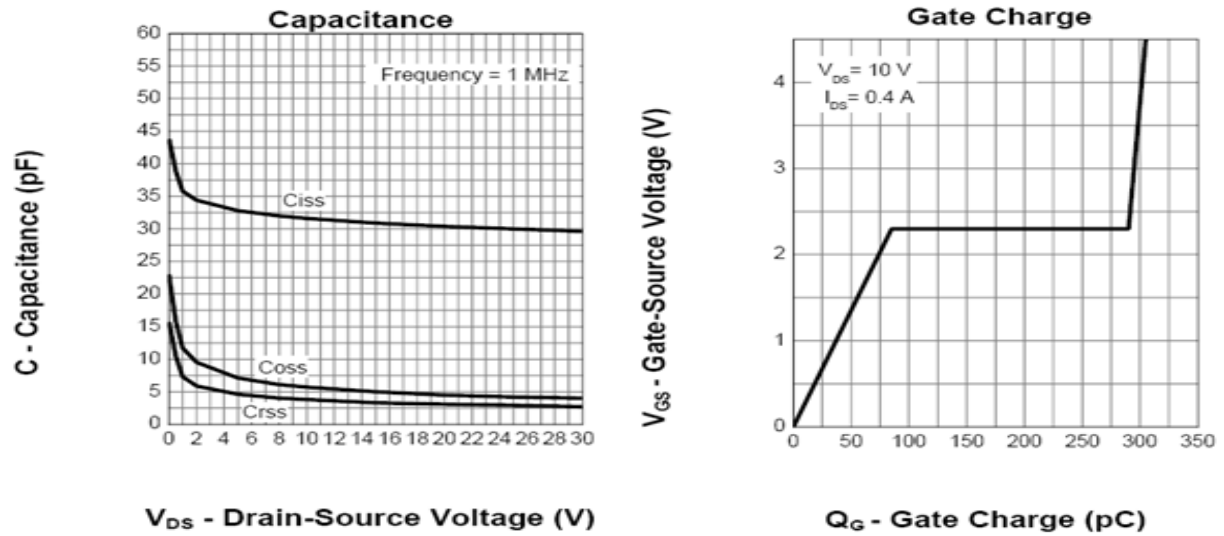
Normalized Threshold Voltage



V_{GS} - Gate-Source Voltage (V)

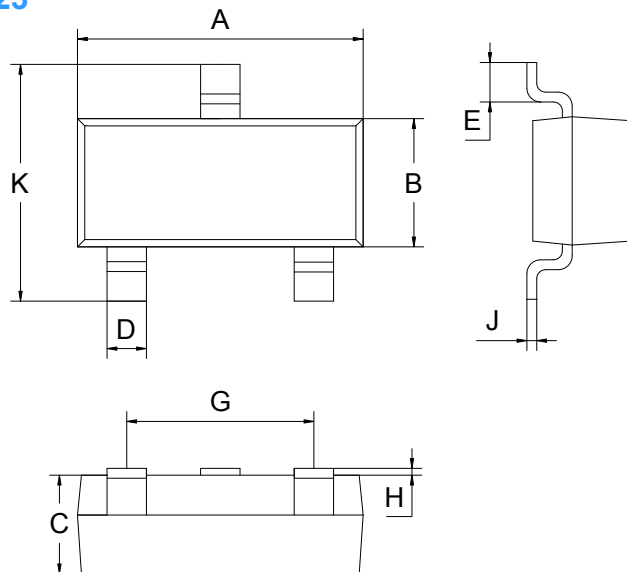
T_J - Junction Temperature ($^\circ\text{C}$)





Package Outline Dimensions(unit:mm)

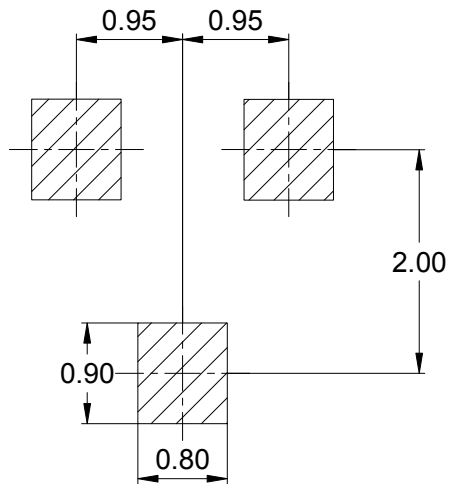
SOT-23



SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60

Mounting Pad Layout(unit:mm)

SOT-23



IMPORTANT NOTICE

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Change record

Rev.	Date	Modification
Preliminary	2018-10.31	The First Edition 初版