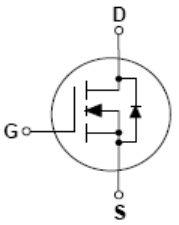
N-Channel Enhancement Mode Field Effect Transistor

2N7002W

FEATURES

- Low On-Resistance。
- Low Gate Threshold Voltage.
- Low Input Capacitance.
- Fast Switching Speed.
- Low Input/Output Leakage.

Lead-free



SOT-323

APPLICATIONS

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

ORDERING INFORMATION

Type No.	Marking	Package Code
2N7002W	7002	SOT-323

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Symbol	**Parameter**	**Value**	**Units**
V_{DSS}	Drain-Source voltage	60	V
V_{DGR}	Drain-Gate voltage(R_{GS}≤1MΩ)	60	V
V_{GSS}	Gate -Source voltage - continuous -Non Repetitive (t_p<50μs)	±20 ±40	V
I_D	Maximum Drain current -continuous -Pulsed	115 800	mA
P_D	Power Dissipation	200	mW
$R_{\theta JA}$	Thermal resistance,Junction-to-Ambient	625	℃/W
T_J, Tstg	Junction and Storage Temperature	-55 to +150	℃

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ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=10μA	60	70	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.0	-	2.0	
Gate-body Leakage Forward	I_{GSS}	V_{DS}=0V, V_{GS}=20V	-	-	100	nA
Reverse		V_{DS}=0V, V_{GS}=-20V	-	-	-100	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V	-	-	1	μA
		V_{DS}=60V,V_{GS}=0V,T_j=125℃	-	-	500	
On-state Drain Current	$I_{D(On)}$	V_{GS}=10V, V_{DS}=7.5V	0.5	1.0	-	A
Drain-Source on-voltage	$V_{DS(ON)}$	V_{GS}=10V,I_D=500mA	-	0.6	3.75	V
		V_{GS}=5V,I_D=50mA	-	0.09	1.5	
Forward transconductance	g_{FS}	V_{DS}=10V,I_D=200mA	80	-	-	mS
Static drain-Source on-resistance	$R_{DS(ON)}$	V_{GS}=5.0V,I_D=50mA	-	3.2	7.5	Ω
		V_{GS}=10V,I_D=500mA, T_j=125℃	-	4.4	13.5	
On-state drain current	$I_{D(ON)}$	V_{GS}=10V,V_{DS}=7.5V	0.5	1.0	-	A
Drain-Source diode forward voltage	V_{SD}	V_{GS}=0V,I_D=115mA	-	0.88	1.5	V
Input capacitance	C_{ISS}	V_{DS}=25V,V_{GS}=0V,f=1.0MHz	-	22	50	pF
Output capacitance	C_{OSS}		-	11	25	
Reverse transfer capacitance	C_{RSS}		-	2	5	
Turn-On Delay Time	$t_{D(ON)}$	V_{DD} = 30V, I_D= 0.2A, R_L = 150Ω, V_{GS}= 10V, R_{GEN}= 25Ω	-	7	20	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	11	20	ns

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TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

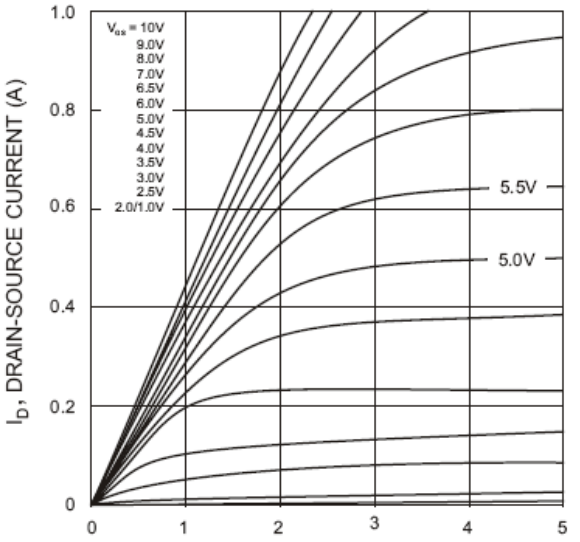

Fig. 1 On-Region Characteristics

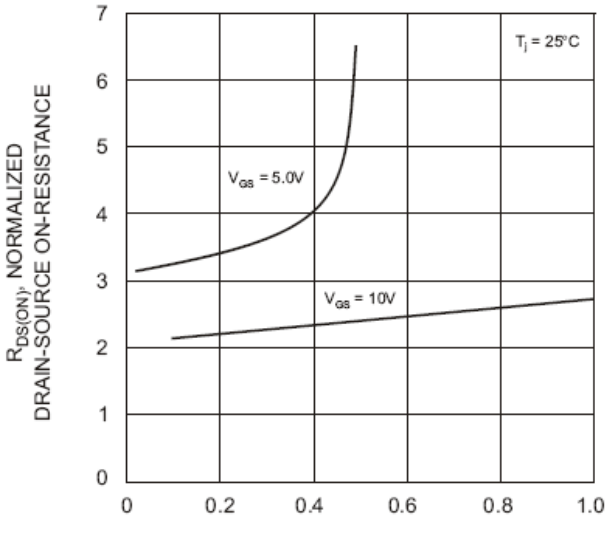

Fig. 2 On-Resistance vs Drain Current

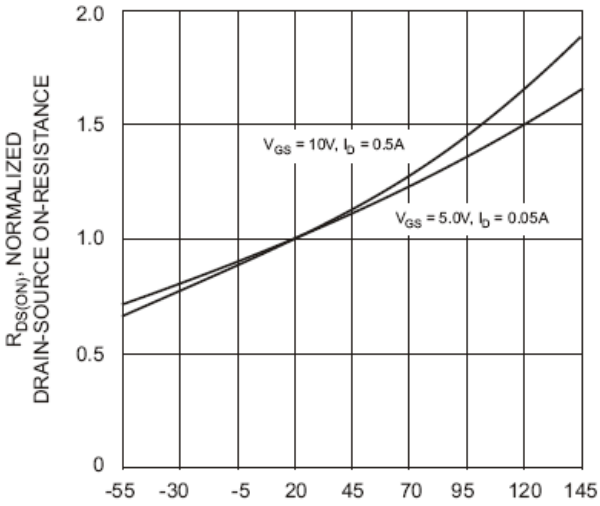

Fig. 3 On-Resistance vs Junction Temperature

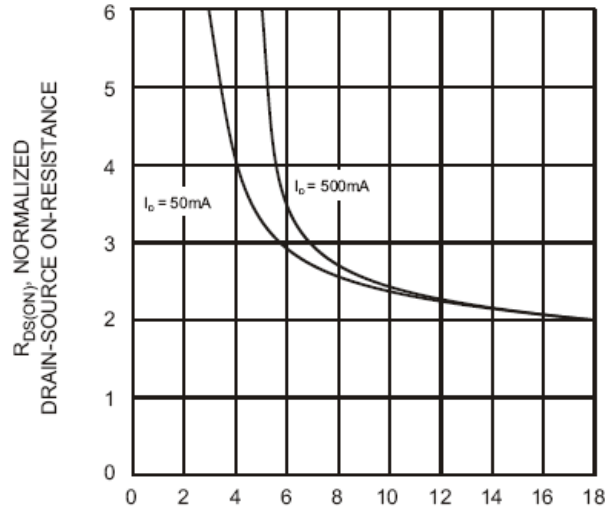

Fig. 4 On-Resistance vs. Gate-Source Voltage

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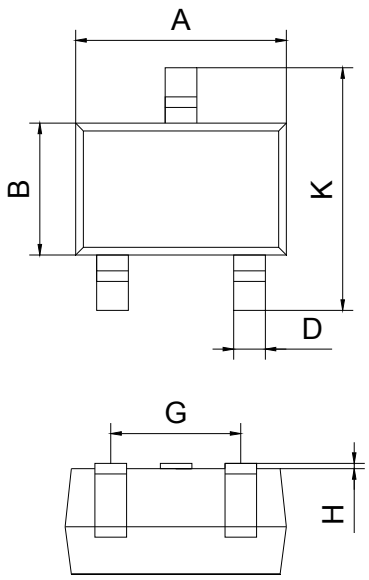
PACKAGE OUTLINE

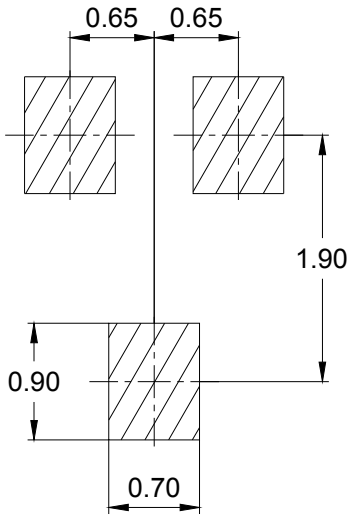
Plastic surface mounted package

SOT-323



SOT-323		
Dim	Min	Max
A	2.00	2.20
B	1.15	1.35
C	0.95 Typical	
D	0.30 Typical	
E	0.25	0.40
G	1.2	1.4
H	0.02	0.10
J	0.10 Typical	
K	2.20	2.40
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
2N7002W	SOT-323	3000/Tape&Reel