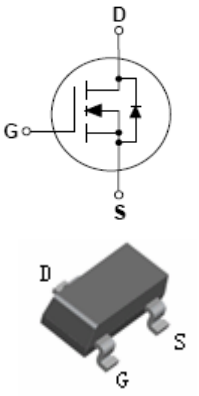
Small Signal MOSFET Transistor **2N7002**

FEATURES

- High Density Cell Design For Low $R_{DS(ON)}$.
- Voltage Controlled Small Switch.
- Rugged and Reliable.
- High Saturation Current Capability.

Lead-free



SOT-23

APPLICATIONS

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

ORDERING INFORMATION

Type No.	Marking	Package Code
2N7002	3P	SOT-23

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	-55-150	℃

ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

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Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=10μA	60			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1	2.1	2.5	
Gate-body Leakage Forward Reverse	I_{GSS}	V_{DS}=0V, V_{GS}=20V V_{DS}=0V, V_{GS}=-20V			100 -100	nA
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}≥2.0$V_{DS(ON)}$	500	2700		mA
Drain-Source on-voltage	$V_{DS(ON)}$	V_{GS}=10V,I_D=500mA V_{GS}=5V,I_D=50mA		0.6 0.09	3.75 1.5	V
Forward transconductance	g_{FS}	V_{DS}≥2.0$V_{DS(ON)}$,I_D=200mA	80	320		mS
Static drain-Source on-resistance	$R_{DS(ON)}$	V_{GS}=10V,I_D=500mA V_{GS}=10V,I_D=500mA,T_j=100℃ V_{GS}=5.0V,I_D=50mA V_{GS}=5.0V,I_D=50mA, T_j=100℃		1.2 1.7 1.7 2.4	7.5 13.5 7.5 13.5	Ω
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		20	50	pF
Output capacitance	C_{OSS}			11	25	
Reverse transfer capacitance	C_{RSS}			4	5	
Turn-On Delay Time	$t_{D(ON)}$	V_{DD} = 30V, I_D= 0.2A, R_L = 150Ω, V_{GS}= 10V, R_{GEN}= 25Ω			20	ns
Turn-Off Delay Time	$t_{D(OFF)}$				20	ns

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

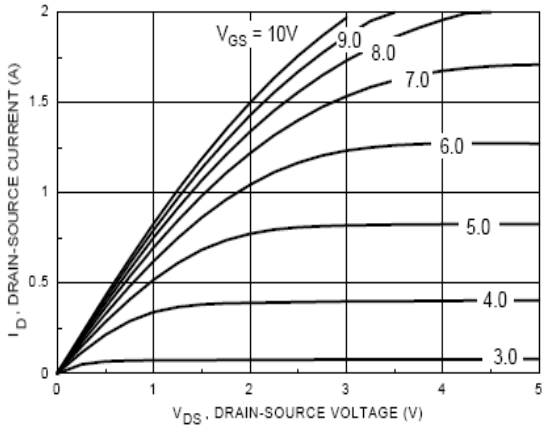

Figure 1. On-Region Characteristics

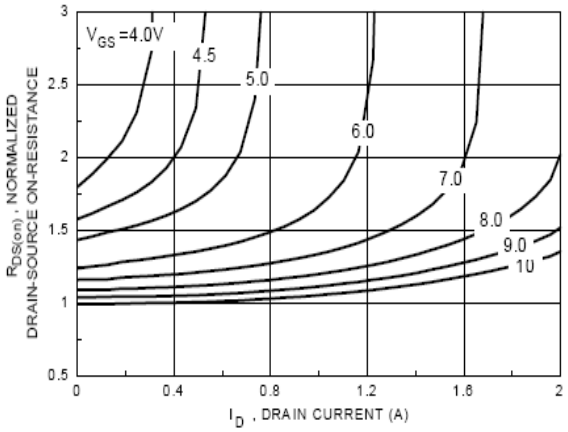

Figure 2. On-Resistance Variation with Gate Voltage and Drain Current

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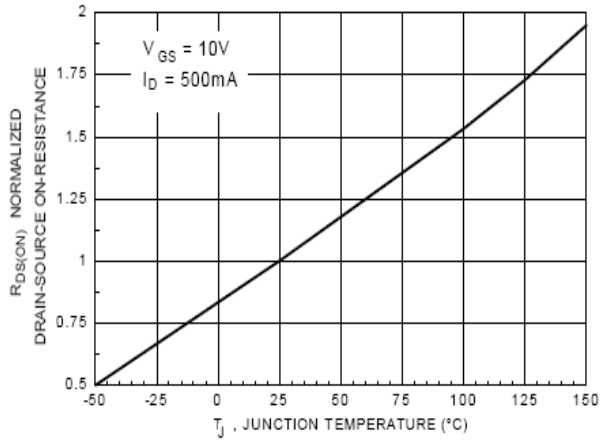

Figure 3. On-Resistance Variation with Temperature

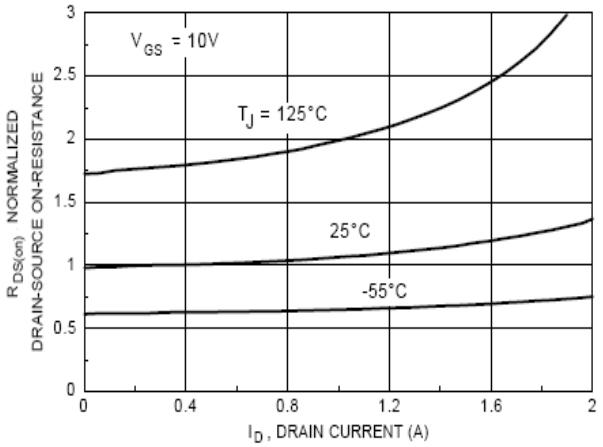

Figure 4. On-Resistance Variation with Drain Current and Temperature

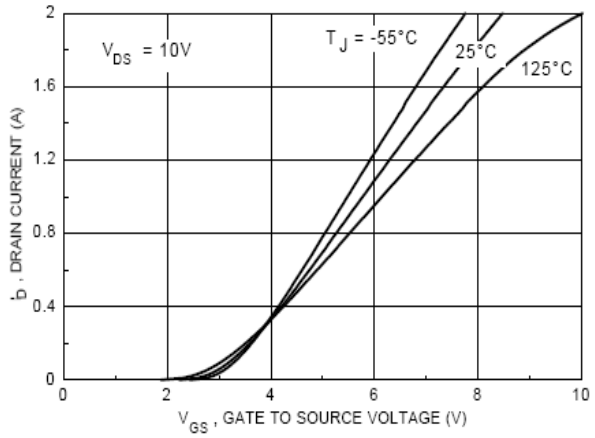

Figure 5. Transfer Characteristics

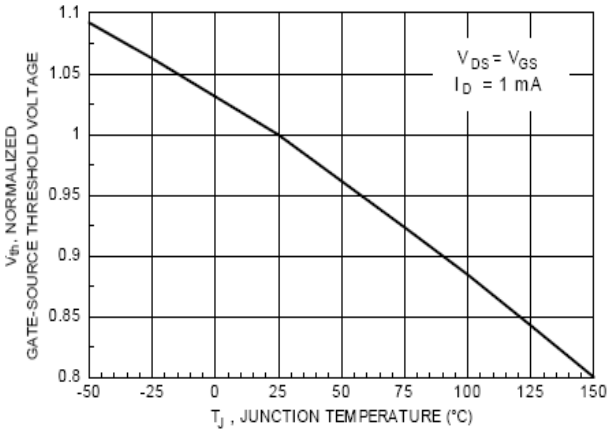

Figure 6. Gate Threshold Variation with Temperature

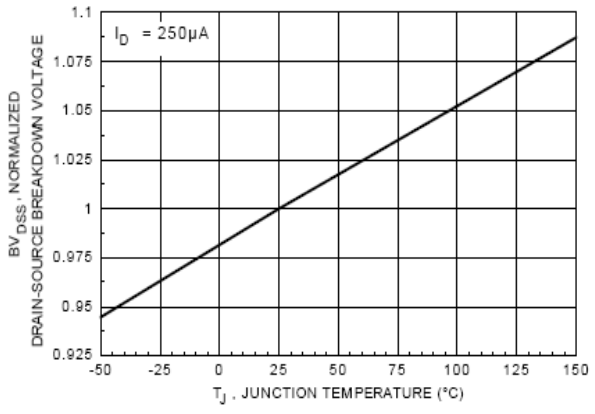

Figure 7. Breakdown Voltage Variation with Temperature

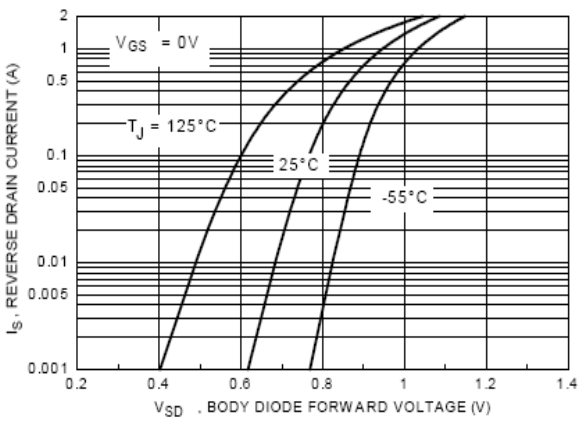

Figure 8. Body Diode Forward Voltage Variation with

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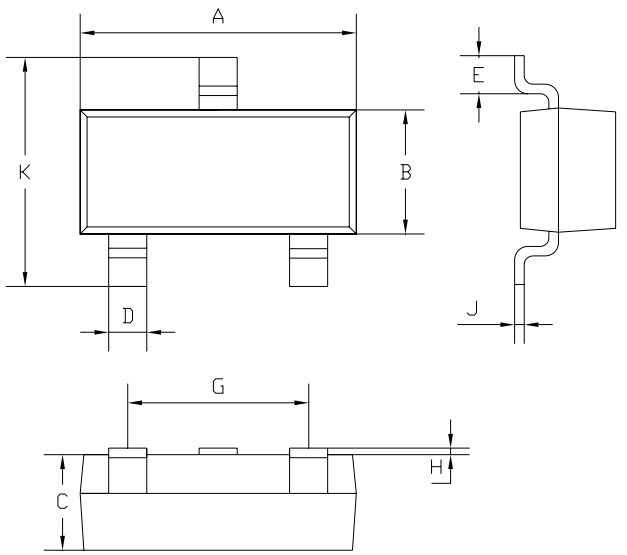
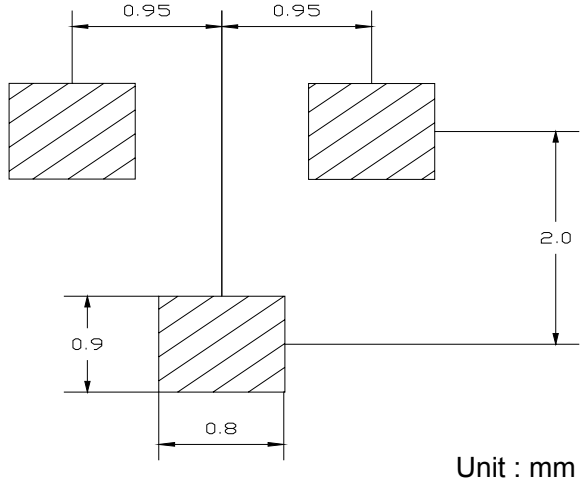
PACKAGE OUTLINE

Plastic surface mounted package SOT-23



SOT-23		
Dim	Min	Max
A	2.85	2.95
B	1.25	1.35
C	1.0Typical	
D	0.37	0.43
E	0.35	0.48
G	1.85	1.95
H	0.02	0.1
J	0.1Typical	
K	2.35	2.45
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
2N7002	SOT-23	3000/Tape&Reel