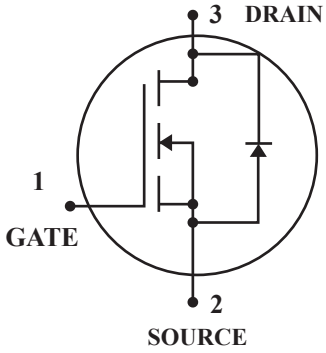
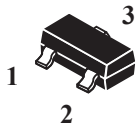
WEITRON

2N7002

Small Signal MOSFET
N-Channel

Lead(Pb)-Free





SOT-23

Features:

*Low On-Resistance : 3Ω
*Low Input Capacitance: 25PF
*Low Out put Capacitance : 6PF
*Low Threshole :1 .5V(TYE)
*Fast Switching Speed : 7.5ns

Maximum Ratings (TA=25°C Unless Otherwise Specified)

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (TA=25°C)	I_D	250	mA
Pulsed Drain Current(1)	I_{DM}	1300	mA
Power Dissipation (TA=25°C)	P_D	350	mW
Maximax Junction-to-Ambient	$R_{\theta JA}$	357	°C/W
Operating Junction and Storage Temperature Range	T_J, Tstg	-55 to 150	°C

Device Marking

2N7002=7002

Note 1:
Pulse Width Limited by Maximum Junction Temperature

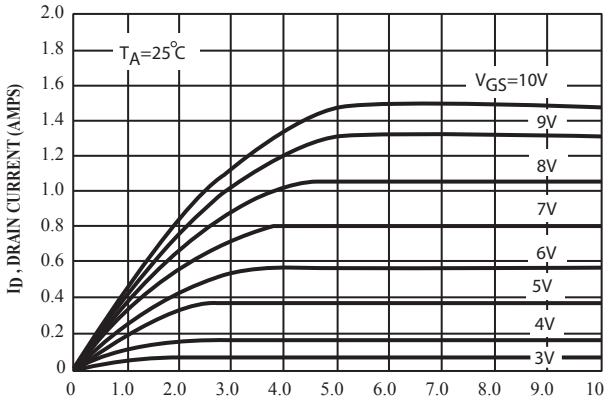
Electrical Characteristics (T_A=25 ℃ Unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Static					
Drain-Source Breakdown Voltage V_{GS}=0V, I_D=10 uA	$V_{(BR)DSS}$	60	70		V
Gate-Threshold Voltage V_{DS}=V_{GS} , I_D=250 uA	$V_{GS\ (th)}$	1	1.5	2.5	V
Gate-body Leakage V_{DS}=0V, V_{GS}=15V	I_{GSS}	-	-	100	nA
Zero Gate Voltage Drain Current V_{DS}=60V, V_{GS}=0V V_{DS}=60V, V_{GS}=0V, T_j=125 °C	I_{DSS}	-	-	1 500	uA
On-State Drain Current (2) V_{GS}=10V, V_{DS}=7.5V V_{GS}=4.5V, V_{DS}=10V	$I_{D\ (on)}$	800 500	1300 700	- -	mA
Drain-Source On-Resistance (2) V_{GS}=10V, I_D=250mA V_{GS}=4.5V, I_D=200mA	$r_{DS\ (on)}$	- -	1.5 2.0	3 4	Ω
Forward Transconductance (2) V_{DS}=15V, I_D=200mA	g_{fs}	-	300	-	mS
Diode Forward Voltage I_S=200mA, V_{GS}=0V	V_{SD}	-	0.85	1.2	V
Dynamic(1)					
Total Gate Charge V_{DS}=30V, V_{GS}=10V, I_D=250mA	Q_g	-	0.6	1.0	nC
Gate-Source Charge V_{DS}=30V, V_{GS}=10V, I_D=250mA	Q_{gs}	-	0.06	-	
Gate-Drain Charge V_{DS}=30V, V_{GS}=10V, I_D=250mA	Q_{gd}	-	0.06	-	
Input Capacitance V_{DS}=25V, V_{GS}=0V, f=1MHZ	C_{iss}	-	25	-	PF
Output Capacitance V_{DS}=25V, V_{GS}=0V, f=1MHZ	C_{oss}	-	6	-	
Reverse Transfer Capacitance V_{DS}=25V, V_{GS}=0V, f=1MHZ	C_{rss}	-	1.2	-	
Switching (1) (3)					
Turn-On Time V_{DD}=30V, R_L=200Ω, I_D=100mA V_{GEN}=10V, R_G=10Ω	$t_{d(on)}$	-	7.5	20	nS
	t_r	-	6.0	-	
Turn-Off Time V_{DD}=30V, R_L=200Ω, I_D=100mA V_{GEN}=10V, R_G=10Ω	$t_{d(off)}$	-	7.5	20	nS
	t_f	-	3.0	-	

Note: 1. For Design Aid Only not Subject to Production Testing.

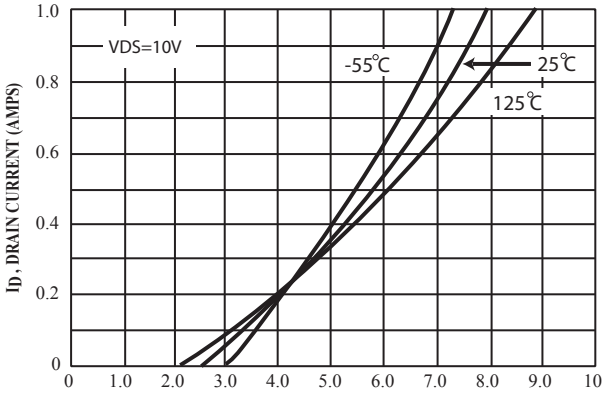
2. Pulse Test : PW≤ 300μs, Duty Cycle ≤2%

3. Switching Time is Essentially Independent of Operating Temperature .



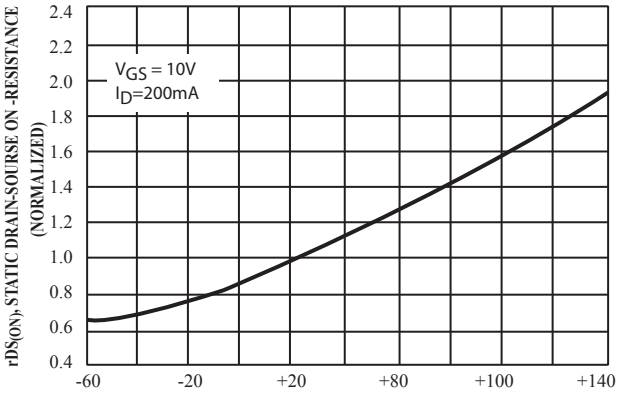
V_{DS}, DRAIN SOURSE VOLTAGE (VOLTS)

FIG.1 Ohmic Region



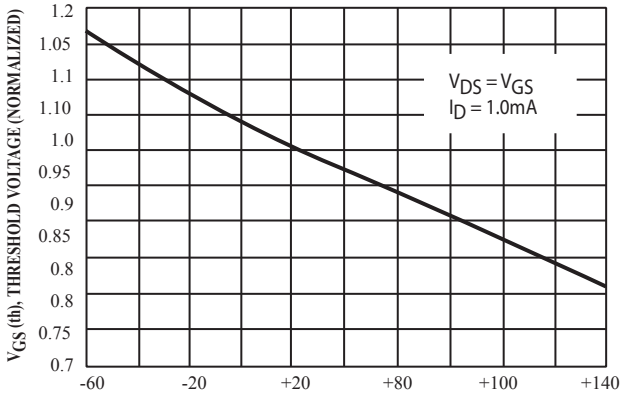
V_{GS}, GATE SOURCE VOLTAGE (VOLTS)

FIG.2 Transfer Characteristics



T,TEMPERATURE (˚C)

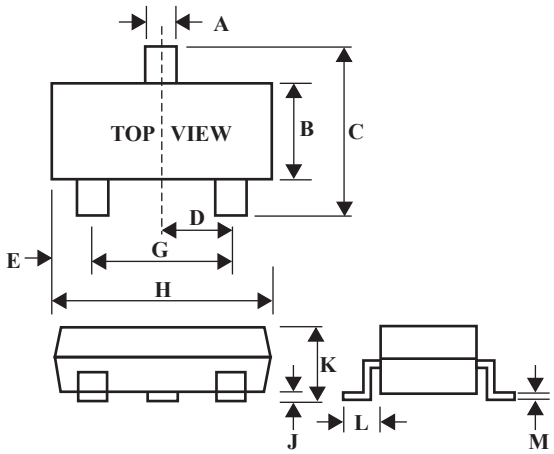
FIG.3 Temperature Versus Static Drain-Sourse On-Resistance



T,TEMPERATURE (℃)

FIG.4 Temperature Versus Gate Threshold Voltage

SOT-23 Outline Dimension



SOT-23		
Dim	**Min**	**Max**
A	0.35	0.51
B	1.19	1.40
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.10
L	0.30	0.61
M	0.076	0.25