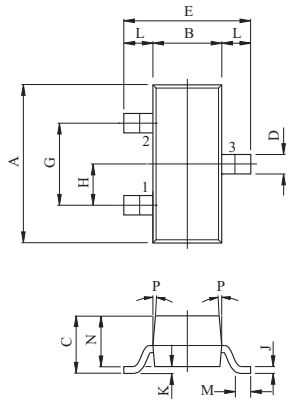
2N7002

N CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

INTERFACE AND SWITCHING APPLICATION.

FEATURES

- High density cell design for low $R_{DS(ON)}$.
- Voltage controlled small signal switch.
- Rugged and reliable.
- High saturation current capablity.



DIM	MILLIMETERS
A	2.93±0.20
B	1.30+0.20/-0.15
C	1.30 MAX
D	0.45+0.15/-0.05
E	2.40+0.30/-0.20
G	1.90
H	0.95
J	0.13+0.10/-0.05
K	0.00 ~ 0.10
L	0.55
M	0.20 MIN
N	1.00+0.20/-0.10
P	7°

1. SOURCE
2. GATE
3. DRAIN

SOT-23

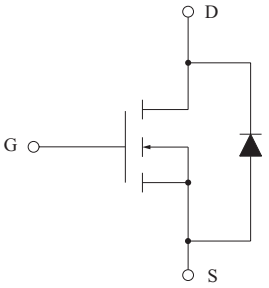
MAXIMUM RATING (Ta=25℃)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	60	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	Continuous	I_D	300	mA
	Pulsed (Note 1)	I_{DP}	1200	
Drain Power Dissipation (Note 2)		P_D	300	mW
Junction Temperature		T_j	150	℃
Storage Temperature Range		T_{stg}	-55 ~ 150	℃

Note 1) Pulse Width ≦10㎲, Duty Cycle ≦1%

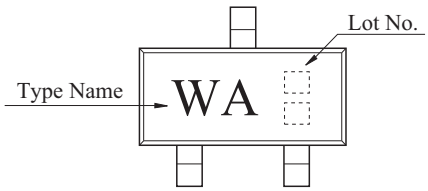
Note 2) Package mounted on a glass epoxy PCB($100mm^2 \times 1mm$)

EQUIVALENT CIRCUIT



THIS TRANSISTOR IS ELECTROSTATIC SENSITIVE DEVICE.
PLEASE HANDLE WITH CAUTION.

Marking



ELECTRICAL CHARACTERISTICS (Ta=25℃)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=10㎂	60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V	-	-	1	㎂
Gate-Body Leakage, Forward	I_{GSSF}	V_{GS}=20V, V_{DS}=0V	-	-	100	nA
Gate-Body Leakage, Reverse	I_{GSSR}	V_{GS}=-20V, V_{DS}=0V	-	-	-100	nA

ELECTRICAL CHARACTERISTICS (Ta=25℃)

ON CHARACTERISTICS (Note 3)

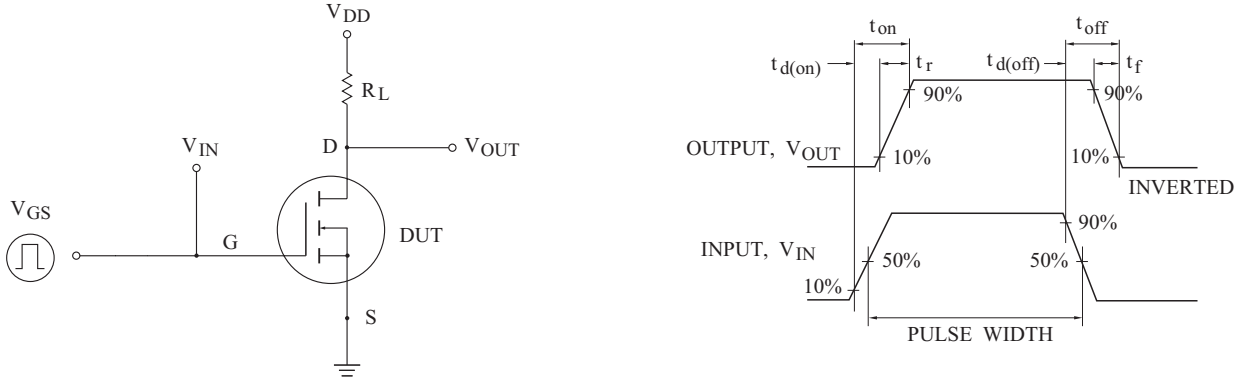
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Threshold Voltage	V_{th}	V_{DS}=V_{GS}, I_D=250㎂	1.1	1.8	2.3	V
Drain-Source ON Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=500mA	-	1.2	1.8	Ω
		V_{GS}=5V, I_D=50mA	-	1.5	2.1	
Drain-Source ON Voltage	$V_{DS(ON)}$	V_{GS}=10V, I_D=500mA	-	0.6	0.9	V
		V_{GS}=5V, I_D=50mA	-	0.075	0.105	
On State Drain Current	$I_{D(ON)}$	V_{GS}=10V, V_{DS}=≥2 $V_{DS(ON)}$	500	-	-	mA
Forward Transconductance	g_{FS}	V_{DS}=10V, I_D=500mA	200	580	-	mS
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=200mA (Note1)	-	0.78	1.15	V

(Note 3) Pulse Test : Pulse Width≦80㎲, Duty Cycle≦1%

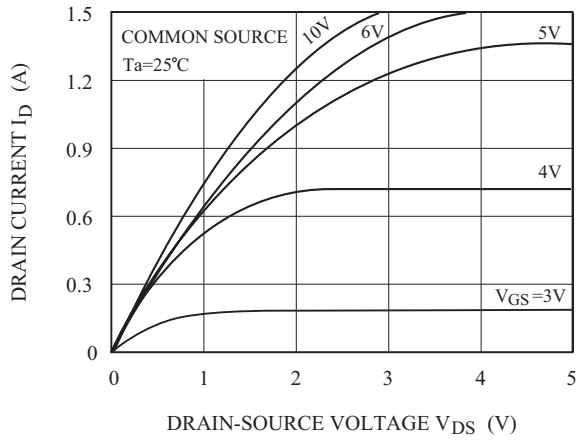
DYNAMIC CHARACTERISTICS

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Capacitance		C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz	-	47.1	-	pF
Reverse Transfer Capacitance		C_{rss}		-	3.5	-	
Output Capacitance		C_{oss}		-	8.8	-	
Switching Time	Turn-On Time	t_{on}	V_{DD}=30V, R_L=155 Ω, I_D=190mA, V_{GS}=10V	-	8.8	-	nS
	Turn-Off Time	t_{off}		-	14.8	-	

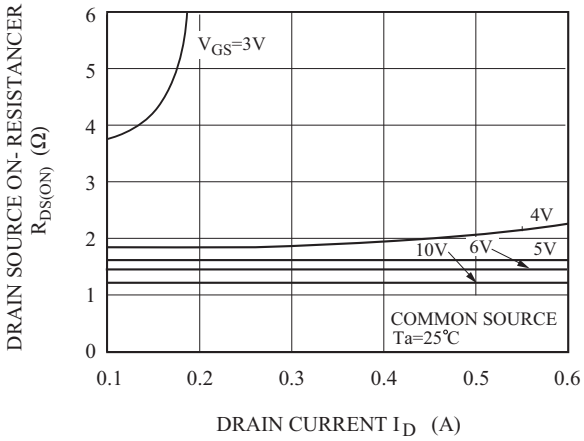
SWITCHING TIME TEST CIRCUIT



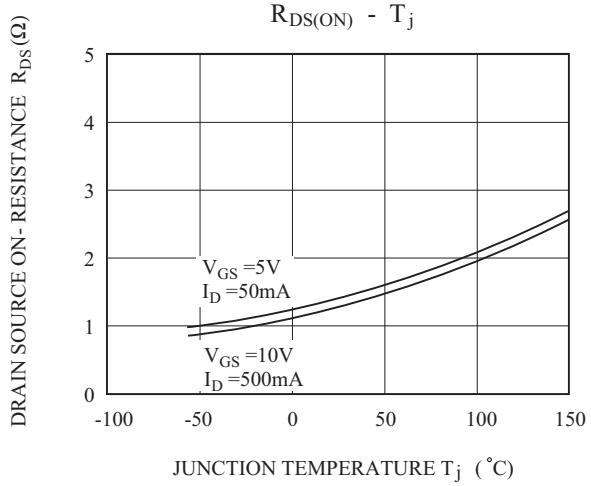
I_D - V_{DS}



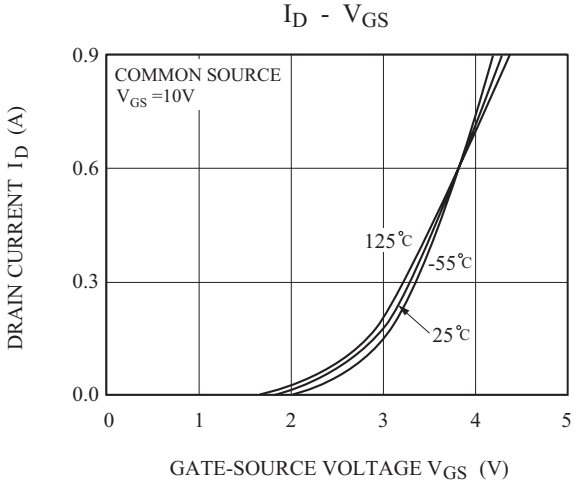
$R_{DS(ON)}$ - I_D



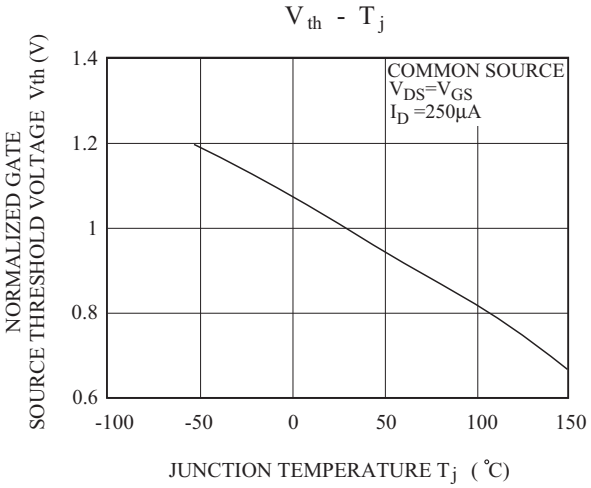
$R_{DS(ON)}$ - T_j



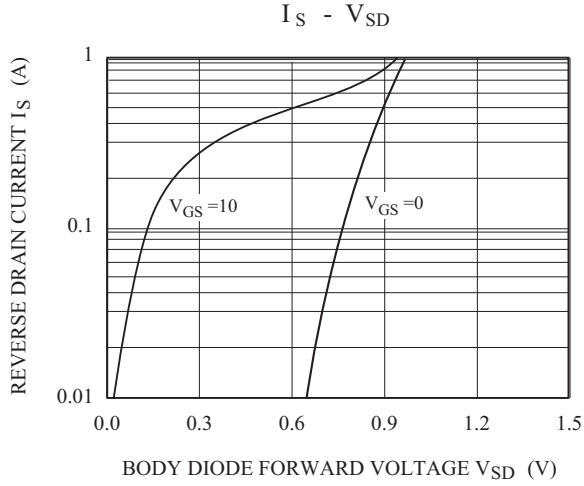
I_D - V_{GS}



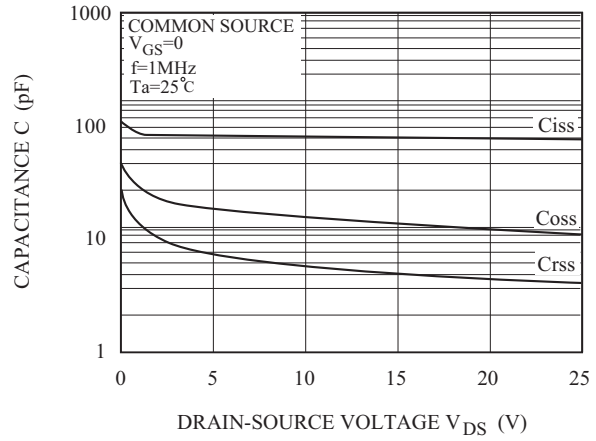
V_{th} - T_j



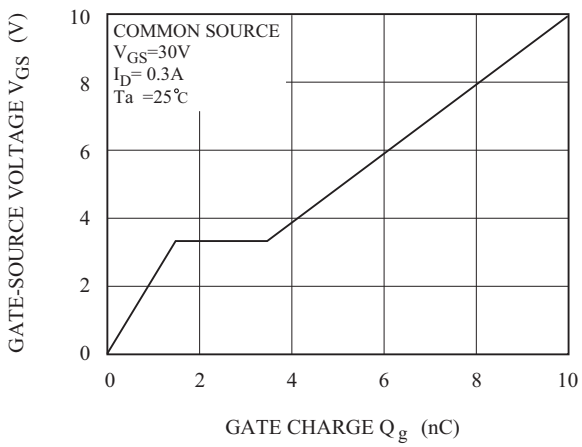
I_S - V_{SD}



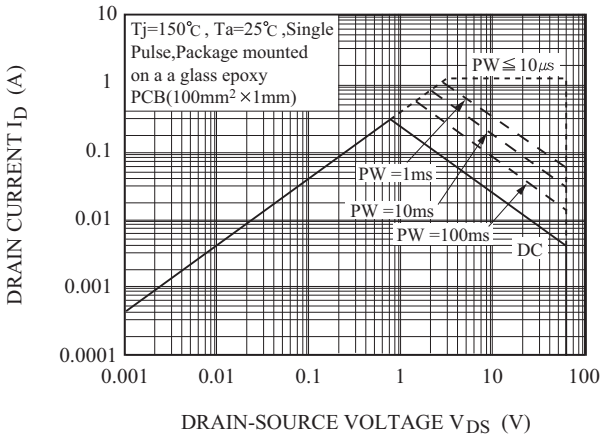
C - V_{DS}



V_{GS} - Q_g



SOA



P_D - Ta

