

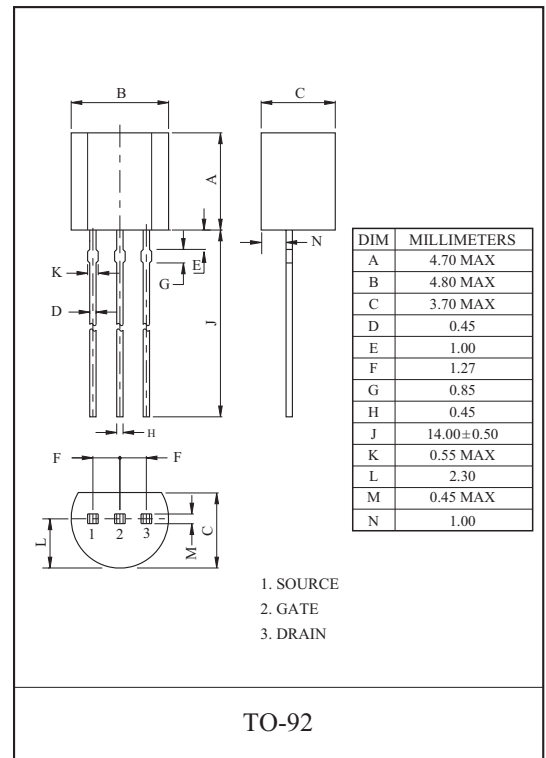
### INTERFACE AND SWITCHING APPLICATION.

#### FEATURES

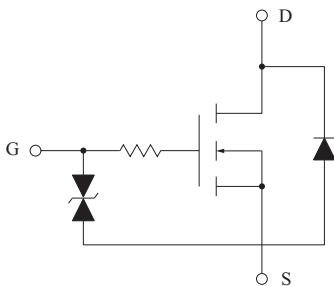
- High density cell design for low  $R_{DS(ON)}$ .
- Voltage controlled small signal switch.
- Rugged and reliable.
- High saturation current capability.

#### MAXIMUM RATING ( $T_a=25^\circ\text{C}$ )

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		$V_{DSS}$	60	V
Drain-Gate Voltage ( $R_{GS} = 1M\Omega$ )		$V_{DGR}$	60	V
Gate-Source Voltage		$V_{GSS}$	$\pm 20$	V
Drain Current	Continuous	$I_D$	200	mA
	Pulsed	$I_{DP}$	500	
Drain Power Dissipation		$P_D$	400	mW
Junction Temperature		$T_j$	150	
Storage Temperature Range		$T_{stg}$	-55 150	



#### EQUIVALENT CIRCUIT



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

#### ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=10\ \mu A$	60	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=48V, V_{GS}=0V$	-	-	1	$\mu A$
Gate-Body Leakage, Forward	$I_{GSSF}$	$V_{GS}=15V, V_{DS}=0V$	-	-	1	$\mu A$
Gate-Body Leakage, Reverse	$I_{GSSR}$	$V_{GS}=-15V, V_{DS}=0V$	-	-	-1	$\mu A$

# 2N7000A

## ELECTRICAL CHARACTERISTICS (Ta=25 ) ON CHARACTERISTICS (Note 1)

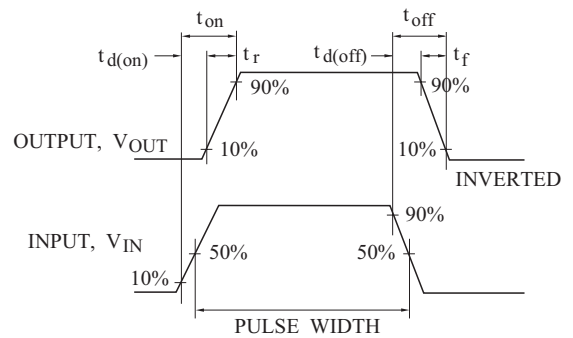
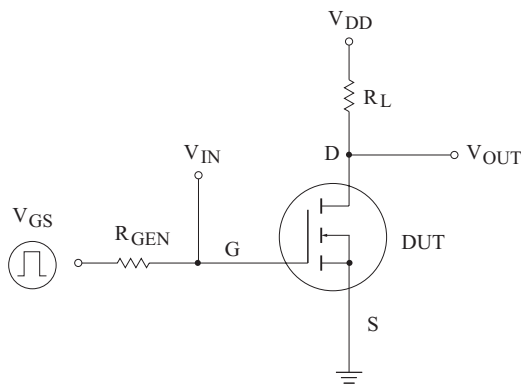
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Threshold Voltage	$V_{th}$	$V_{DS}=V_{GS}, I_D=1mA$	0.8	2.1	3	V
Drain-Source ON Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=500mA$	-	1.2	5	
		$V_{GS}=4.5V, I_D=75mA$	-	1.8	5.3	
Drain-Source ON Voltage	$V_{DS(ON)}$	$V_{GS}=10V, I_D=500mA$	-	0.6	2.5	V
		$V_{GS}=4.5V, I_D=75mA$	-	0.14	0.4	
On State Drain Current	$I_{D(ON)}$	$V_{GS}=4.5V, V_{DS}=10V$	75	600	-	mA
Forward Transconductance	$g_{FS}$	$V_{DS}=10V, I_D=200mA$	100	320	-	mS
Drain-Source Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=200mA$	-	0.76	1.15	V

Note 1) Pulse Test : Pulse Width 300 $\mu$ s, Duty Cycle 2.0%

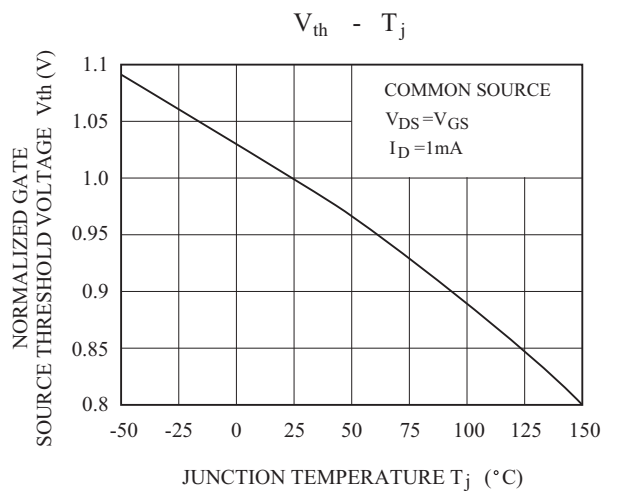
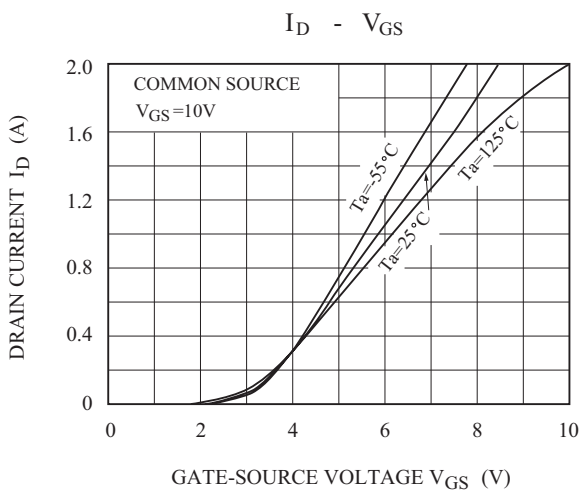
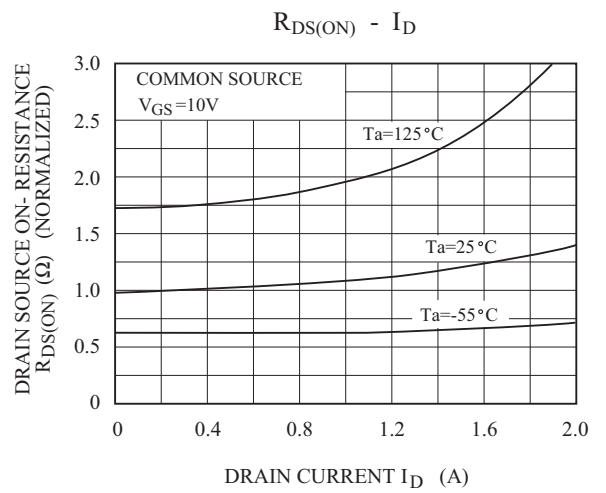
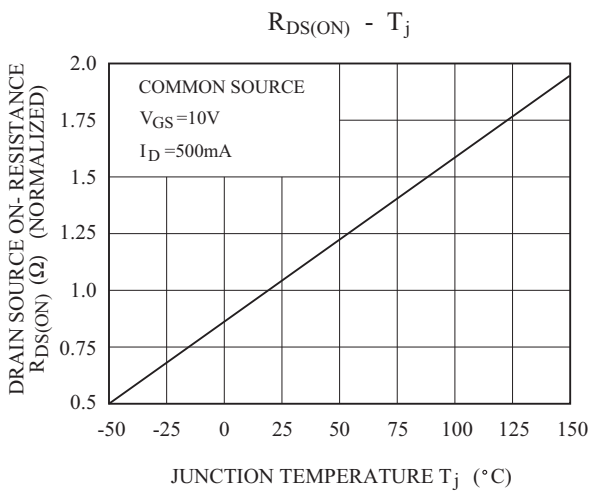
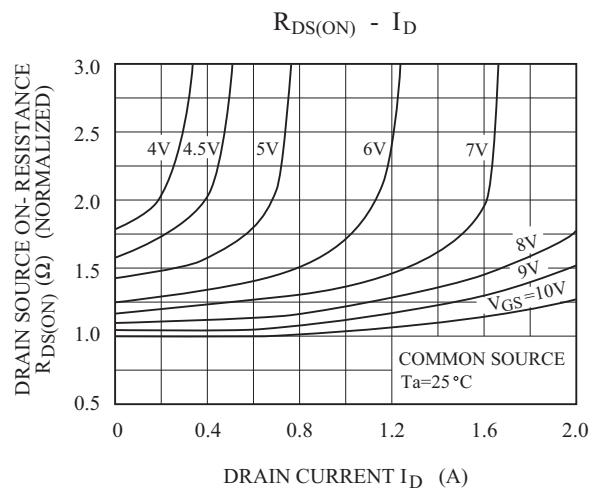
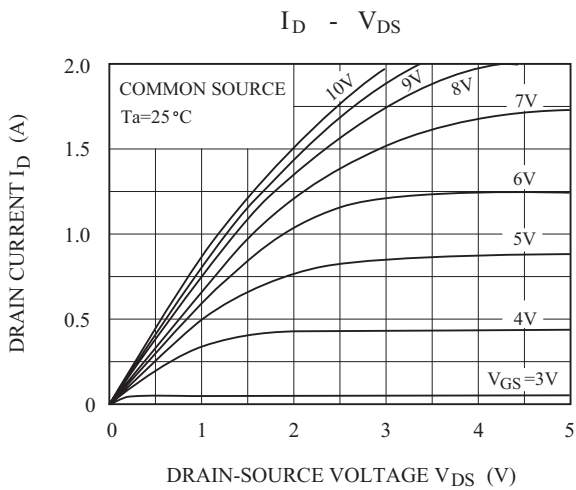
## DYNAMIC CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	-	20	50	pF	
Reverse Transfer Capacitance	$C_{rss}$		-	4	5		
Output Capacitance	$C_{oss}$		-	11	25		
Switching Time	Turn-On Time	$t_{on}$	$V_{DD}=15V, R_L=25, I_D=200mA,$ $V_{GS}=10V, R_{GEN}=25$	-	-	10	nS
	Turn-Off Time	$t_{off}$		-	-	10	

## SWITCHING TIME TEST CIRCUIT



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