

## 2N7000-G

N-Channel  
RoHS Device



$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
60V	5Ω @ 10V	200mA
	6Ω @ 4.5V	

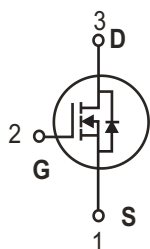
### Features

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

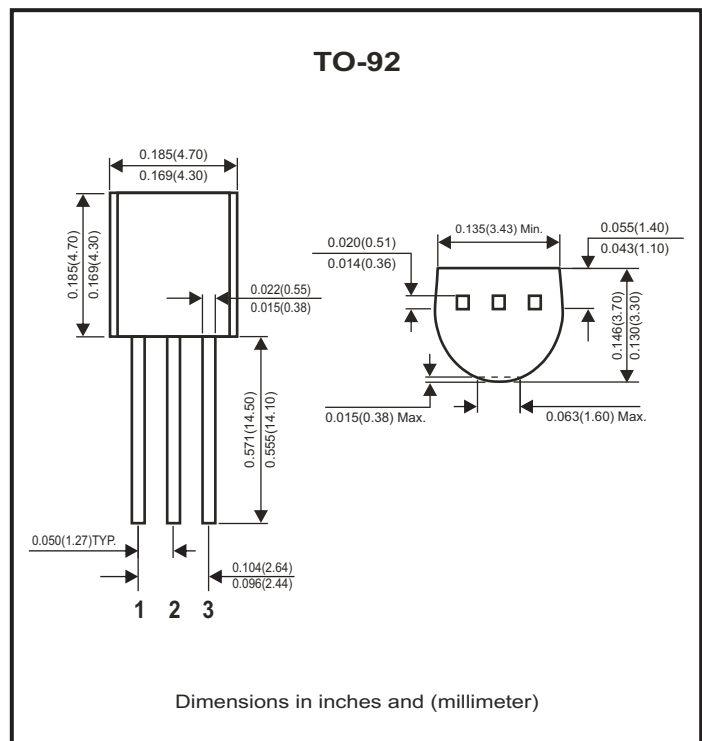
### Mechanical data

- Case: TO-92, molded plastic.
- Terminals: Solderable per MIL-STD-750, method 2026.

### Circuit Diagram



1. S : Source
2. G : Gate
3. D : Drain



### Maximum Ratings (at $T_A=25^{\circ}C$ unless otherwise noted)

Parameter	Conditions	Symbol	Value	Unit
Drain-Source voltage		$V_{DS}$	60	V
Continuous drain current		$I_D$	0.2	A
Power dissipation		$P_D$	0.625	W
Thermal resistance	Junction to ambient	$R_{\theta JA}$	200	$^{\circ}C/W$
Junction temperature range		$T_J$	150	$^{\circ}C$
Storage temperature range		$T_{STG}$	-55 to +150	$^{\circ}C$

## Electrical Characteristics (at TA=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Drain-source breakdown voltage	$V_{GS}=0V, I_D=10\mu A$	$V_{BR(DSS)}$	60			V
Gate-threshold voltage*	$V_{DS}=V_{GS}, I_D=1mA$	$V_{th(GS)}$	0.8		3	V
Gate-body leakage	$V_{DS}=0V, V_{GS}=\pm 15V$	$I_{GSS}$			$\pm 10$	nA
Zero gate voltage drain current	$V_{DS}=60V, V_{GS}=0V$	$I_{DSS}$			1	$\mu A$
On-state drain current	$V_{GS}=4.5V, V_{DS}=10V$	$I_{D(ON)}$	75			mA
Drain-source on resistance*	$V_{GS}=4.5V, I_D=75mA$	$R_{DS(ON)}$			6	$\Omega$
	$V_{GS}=10V, I_D=500mA$				5	
Forward trans conductance*	$V_{DS}=10V, I_D=200mA$	$g_{fs}$	100			mS
Drain-source on-voltage*	$V_{GS}=10V, I_D=500mA$	$V_{DS(ON)}$			2.5	V
	$V_{GS}=4.5V, I_D=75mA$				0.45	
Input capacitance **	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	$C_{iss}$			60	pF
Output capacitance **		$C_{oss}$			25	
Reverse transfer capacitance **		$C_{rss}$			5	
Turn-on time **	$V_{DD}=15V, R_L=30\Omega, I_D=500mA, V_{GEN}=10V, R_G=25\Omega$	$t_{d(on)}$			10	nS
Turn-off time **		$t_{d(off)}$			10	

Note: \* Pulse test

\*\* These parameters have no way to verify

## RATING AND CHARACTERISTIC CURVES (2N7000-G)

Fig.1 - Output Characteristics

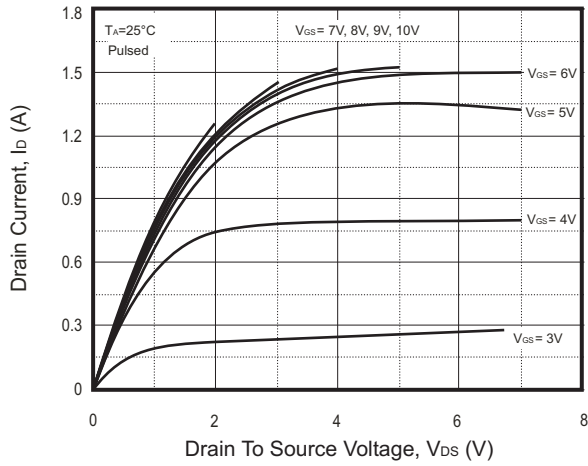


Fig.2 - Transfer Characteristics

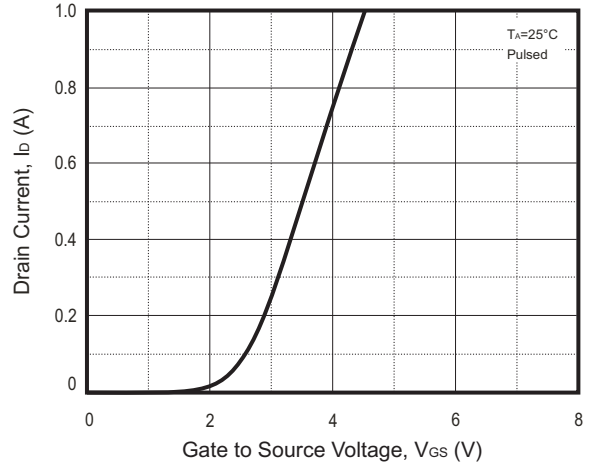


Fig.3 -  $R_{DS(ON)}$  —  $I_D$

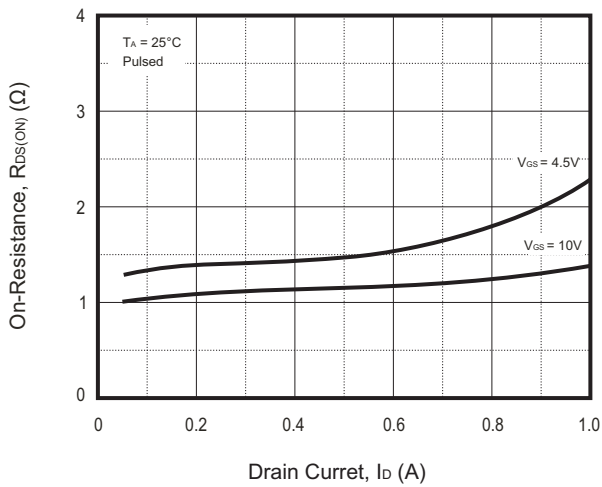


Fig.4 -  $R_{DS(ON)}$  —  $V_{GS}$

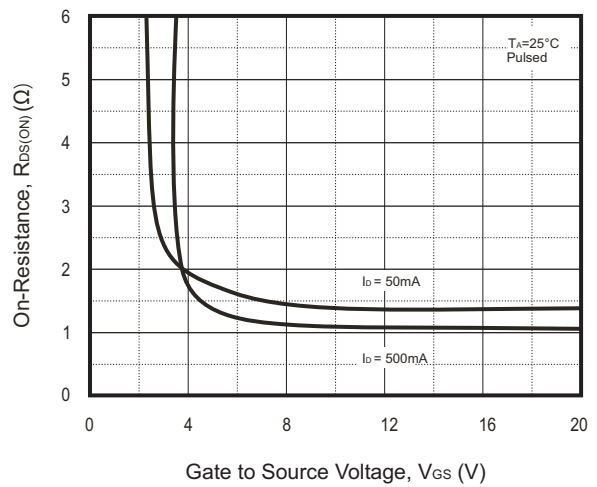
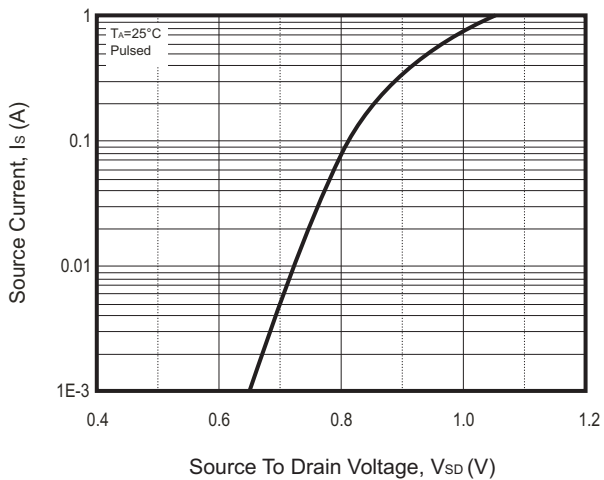
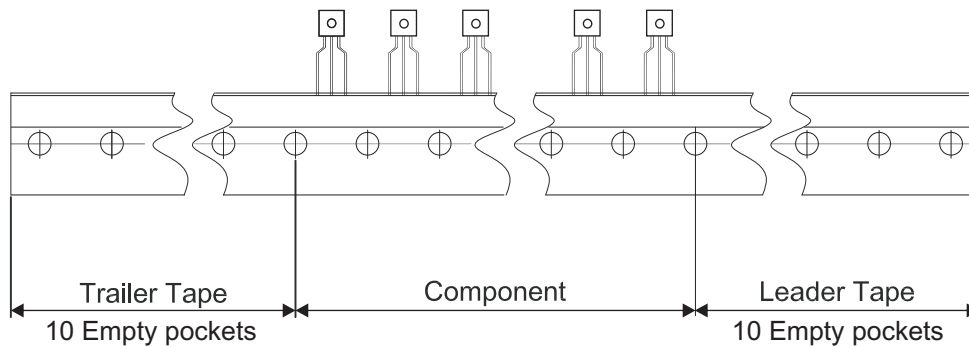
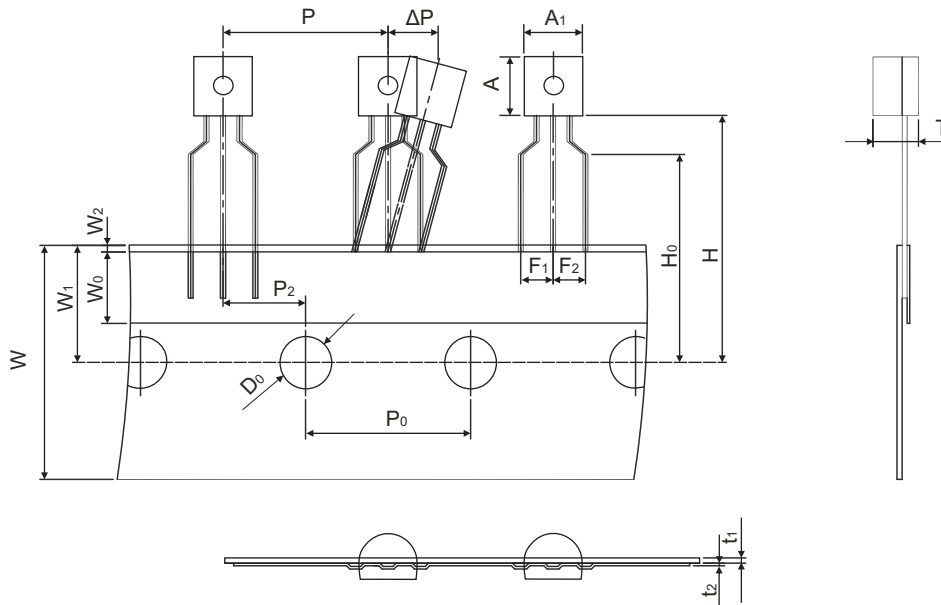


Fig.5 -  $I_S$  —  $V_{SD}$



## Reel Taping Specification

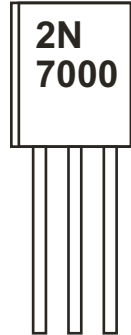


TO-92	SYMBOL	A <sub>1</sub>	A	T	P	P <sub>0</sub>	P <sub>2</sub>	F <sub>1</sub>	F <sub>2</sub>	W
	(mm)	4.50 ± 0.20	4.50 ± 0.20	3.50 ± 0.20	12.70 ± 0.30	12.70 ± 0.20	6.35 ± 0.30	2.50 ± 0.30	2.50 ± 0.30	18.00 + 1.00 - 0.50
	(inch)	0.177 ± 0.008	0.177 ± 0.008	0.138 ± 0.008	0.500 ± 0.012	0.500 ± 0.008	7.008 ± 0.039	0.098 ± 0.039	0.098 ± 0.012	0.709 + 0.040 - 0.020

TO-92	SYMBOL	W <sub>0</sub>	W <sub>1</sub>	W <sub>2</sub>	H	H <sub>0</sub>	D <sub>0</sub>	t <sub>1</sub>	t <sub>2</sub>	ΔP
	(mm)	6.00 ± 0.50	9.00 ± 0.50	1.00 Max.	19.00 + 2.00 - 1.00	16.00 ± 0.50	4.00 ± 0.20	0.40 ± 0.05	0.20 ± 0.05	0.00 ± 0.10
	(inch)	0.236 ± 0.020	0.354 ± 0.020	0.039 Max.	0.748 + 0.079 - 0.039	0.630 ± 0.020	0.157 ± 0.008	0.016 ± 0.002	0.008 ± 0.002	0.000 ± 0.004

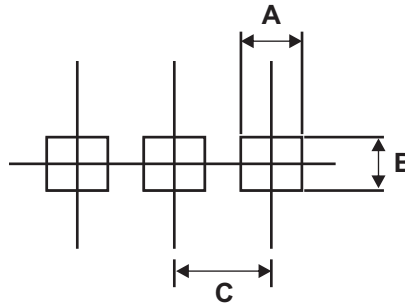
## Marking Code

Part Number	Marking Code
2N7000-G	2N7000



## Suggested PAD Layout

SIZE	TO-92	
	(mm)	(inch)
A	0.80	0.031
B	0.70	0.028
C	1.27	0.050



## Standard Packaging

Case Type	BOX	CARTON
	(Pcs)	(Pcs)
TO-92	2,000	20,000