2N7000-G

N-Channel
RoHS Device

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

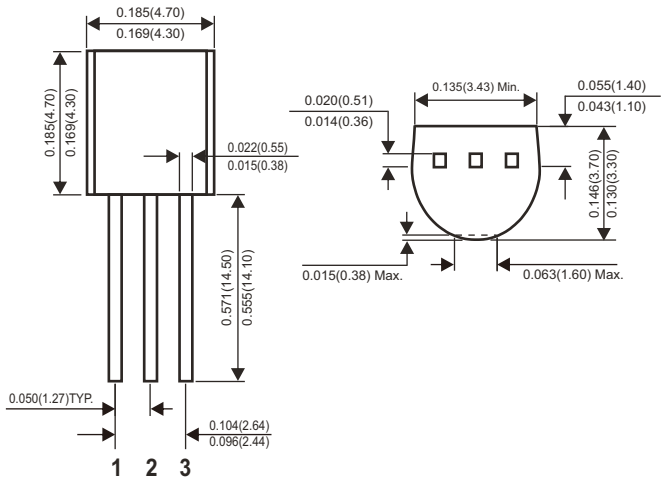
Features

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

Mechanical data

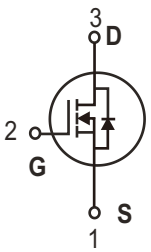
- Case: TO-92, molded plastic.
- Terminals: Solderable per MIL-STD-750, method 2026.

TO-92



Dimensions in inches and (millimeter)

Circuit Diagram



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

Maximum Ratings (at T_A=25°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	°C/W
Junction temperature range		T_J	150	°C
Storage temperature range		T_{STG}	-55 to +150	°C

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

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Drain-source breakdown voltage	V_{GS}=0V, I_D=10μA	$V_{BR(DSS)}$	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}=±15V	I_{GSS}			±10	nA
Zero gate voltage drain current	V_{DS}=60V, V_{GS}=0V	I_{DSS}			1	μA
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	Ω
	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=30Ω, I_D=500mA, V_{GEN}=10V, R_G=25Ω	$t_{d(on)}$			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

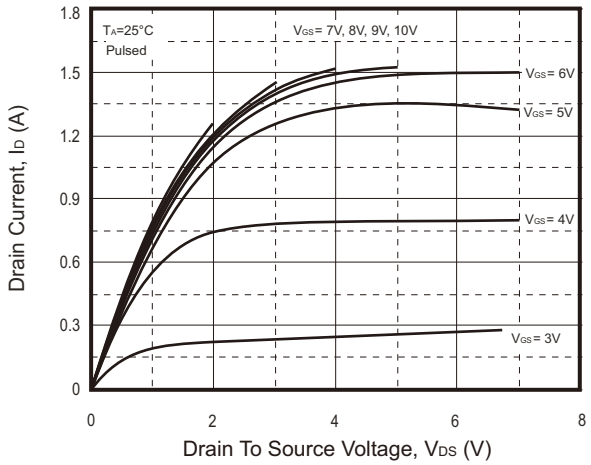


Fig.2 - Transfer Characteristics

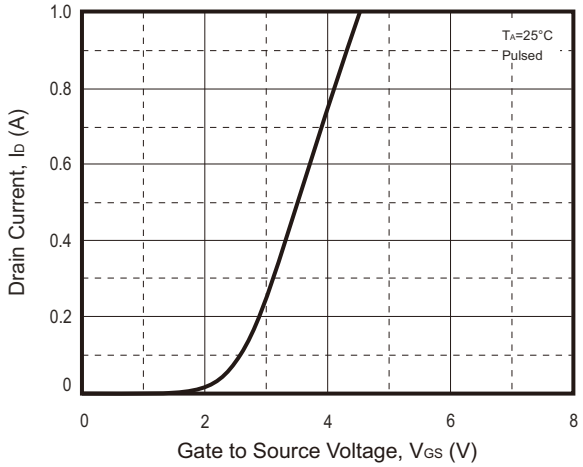


Fig.3 - $R_{DS(ON)}$ — I_D

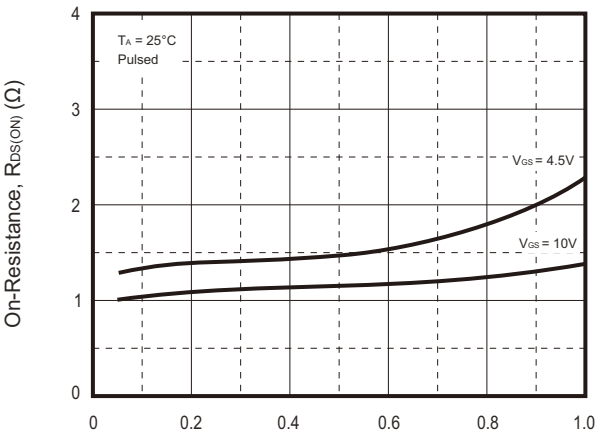


Fig.4 - $R_{DS(ON)}$ — V_{GS}

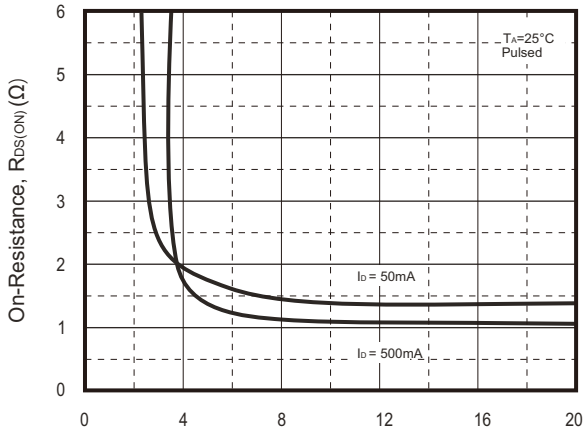
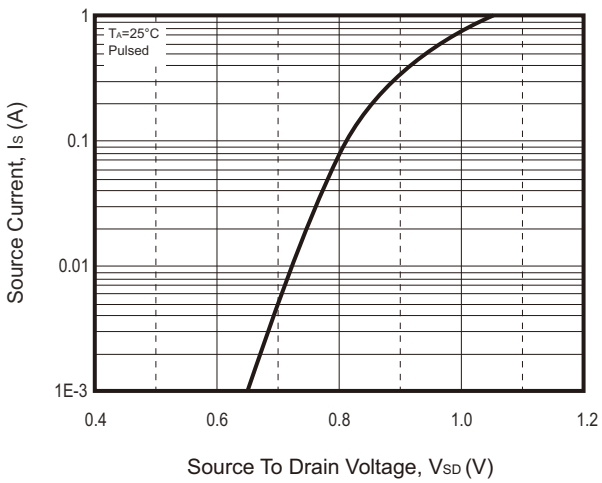
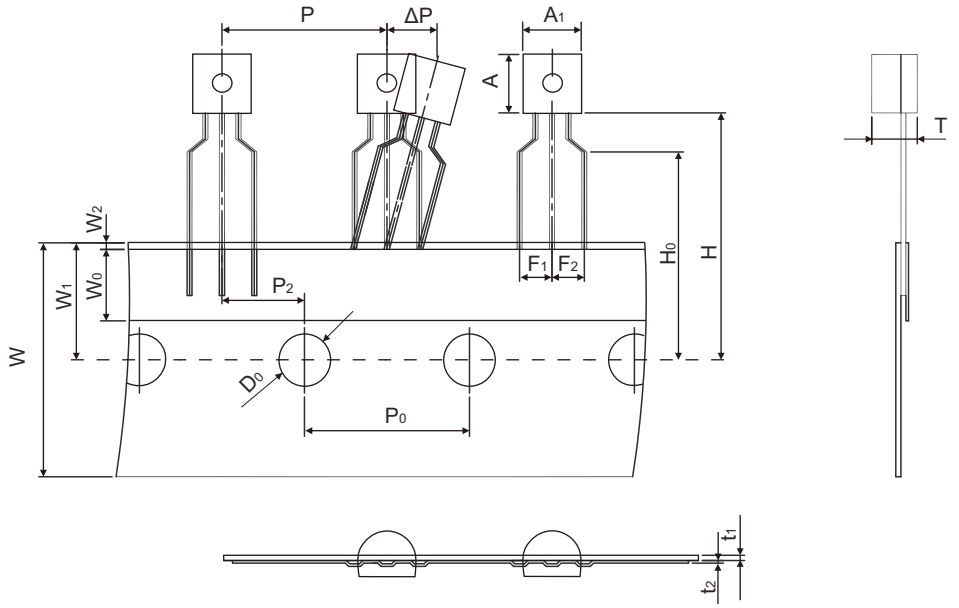
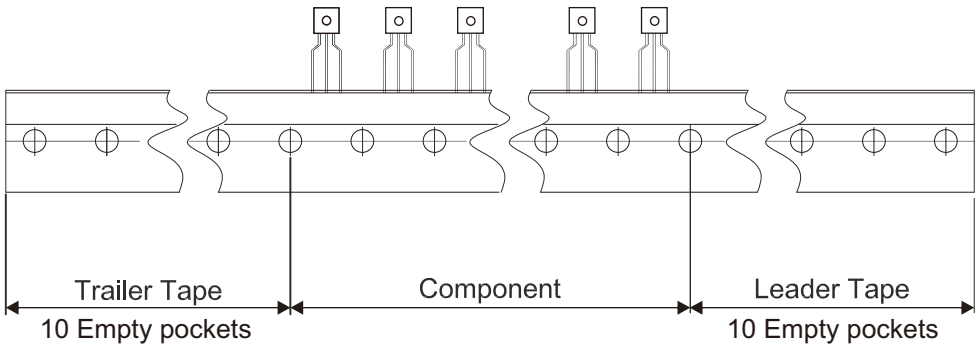


Fig.5 - I_S — V_{SD}



Reel Taping Specification



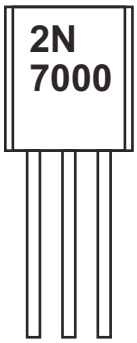


	SYMBOL	A_1	A	T	P	P_0	P_2	F_1	F_2	W
TO-92	(mm)	4.50 ± 0.20	4.50 ± 0.20	3.50 ± 0.20	12.70 ± 0.30	12.70 ± 0.20	6.35 ± 0.30	2.50 ± 0.30	2.50 ± 0.30	18.00 + 1.00 - 0.50
	(inch)	0.177 ± 0.008	0.177 ± 0.008	0.138 ± 0.008	0.500 ± 0.012	0.500 ± 0.008	7.008 ± 0.039	0.098 ± 0.039	0.098 ± 0.012	0.709 + 0.040 - 0.020

	SYMBOL	W_0	W_1	W_2	H	H_0	D_0	t_1	t_2	ΔP
TO-92	(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

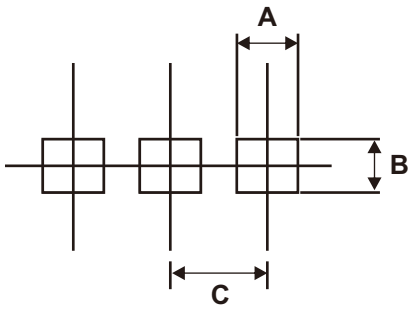
Marking Code

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	AMMO PACK
	BOX (pcs)
TO-92	2,000