



Micro Commercial Components



Micro Commercial Components  
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# 2N7000

## N-Channel MOSFET

### Features

- High density cell design for low  $R_{DS(ON)}$
- Voltage controlled small signal switch
- Rugged and reliable
- Halogen free available upon request by adding suffix "-HF"
- Marking: 2N7000
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

### Maximum Ratings @ $T_A=25^\circ\text{C}$ Unless Otherwise Noted

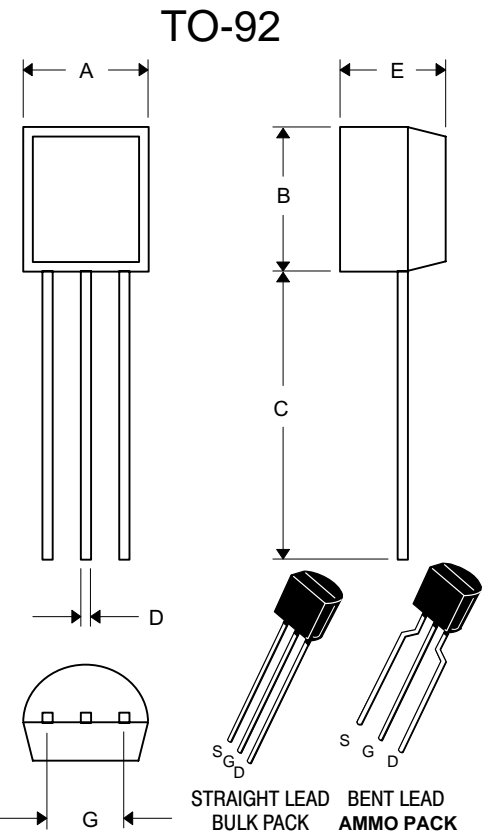
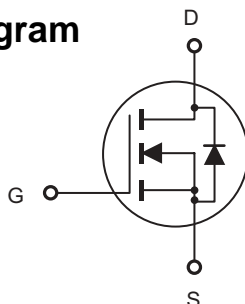
- Operation Temperature:  $-55^\circ\text{C}$  to  $+150^\circ\text{C}$
- Storage Temperature:  $-55^\circ\text{C}$  to  $+150^\circ\text{C}$
- Maximum Thermal Resistance:  $200^\circ\text{C/W}$  Junction to Ambient

Parameter	Symbol	Value	Unit
Drain-Source-Voltage	$V_{DS}$	60	V
Gate-Source-Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	200	mA
Power Dissipation	$P_D$	625	mW

### Electrical Characteristics @ $T_A=25^\circ\text{C}$ Unless Otherwise Noted

Parameter	Symbol	Min	Typ	Max	Test Condition
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	60V	---	---	$I_D=100\mu\text{A}$ , $V_{GS}=0$
Gate-Body Leakage Current	$I_{GSS}$	---	---	$\pm 10\text{nA}$	$V_{GS}=\pm 15\text{V}$ , $V_{DS}=0\text{V}$
Drain Cutoff Current	$I_{DSS}$	---	---	$1.0\mu\text{A}$	$V_{DS}=48\text{V}$ , $V_{GS}=0\text{V}$
Gate-Source Threshold Voltage	$V_{GS(th)}$	0.8V	---	3.0V	$V_{GS}=V_{DS}$ , $I_D=1.0\text{mA}$
On-state Drain Current	$I_{D(ON)}$	75mA	---	---	$V_{GS}=4.5\text{V}$ , $V_{DS}=10\text{V}$
Drain-Source On-State Resistance	$R_{DS(on)}$	---	---	$5.0\Omega$	$V_{GS}=10\text{V}$ , $I_D=500\text{mA}$
Forward Trans Conductance	$g_{fs}$	100ms	---	---	$V_{DS}=10\text{V}$ , $I_D=200\text{mA}$
Drain-source on-voltage	$V_{DS(ON)}$	---	---	2.5V 0.45V	$V_{GS}=10\text{V}$ , $I_D=500\text{mA}$ $V_{GS}=4.5\text{V}$ , $I_D=75\text{mA}$
Input Capacitance	$C_{iss}$	---	60pF	---	$V_{DS}=25\text{V}$ , $V_{GS}=0$ , $f=1\text{MHz}$
Output Capacitance	$C_{oss}$	---	25pF	---	
Reverse Transfer Capacitance	$C_{rss}$	---	5pF	---	
Turn-On Time	$t_{d(on)}$	---	---	10ns	$V_{DD}=15\text{V}$ , $V_{GEN}=10\text{V}$ , $R_L=30\Omega$ , $I_D=500\text{mA}$
Turn-Off Time	$t_{d(off)}$	---	---	10ns	

### Internal Block Diagram

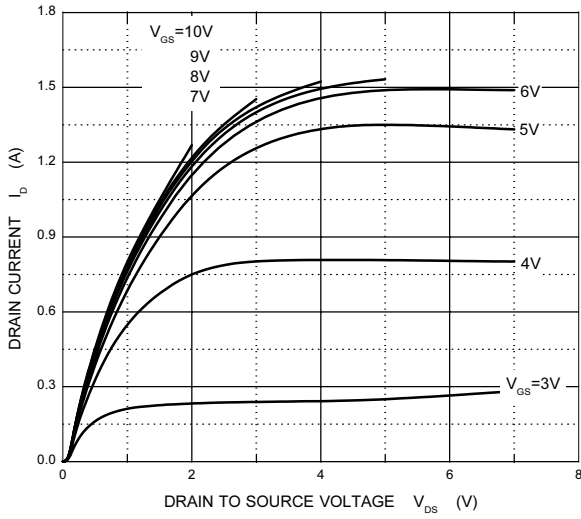


DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.175	.185	4.45	4.70	
B	.175	.185	4.45	4.70	
C	.500	---	12.70	---	
D	.016	.020	0.41	0.63	
E	.135	.145	3.43	3.68	
G	.095	.105	2.42	2.67	Straight Lead
	.173	.220	4.40	5.60	

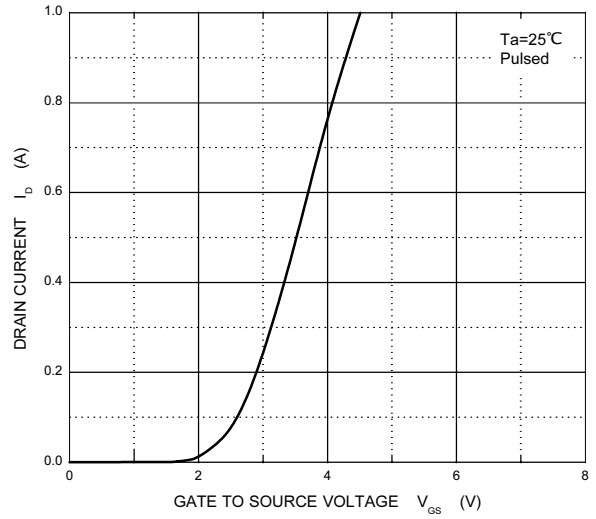
\* For ammo packing detailed specification, click here to visit our website of product packaging for details.

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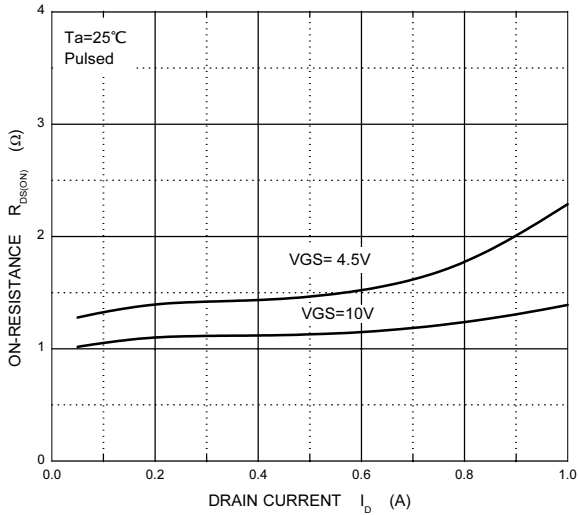
**Output Characteristics**



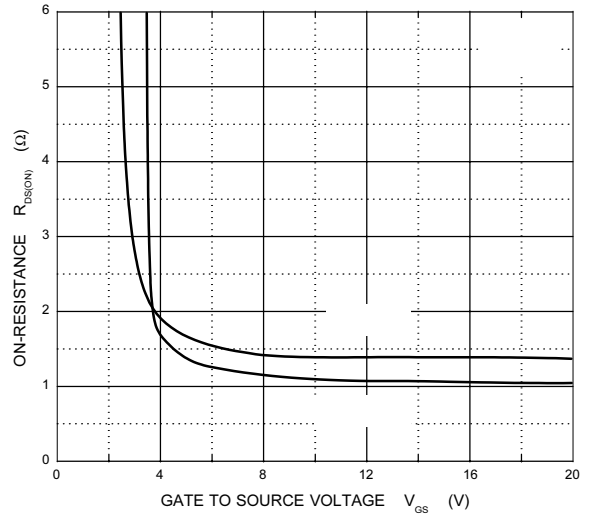
**Transfer Characteristics**



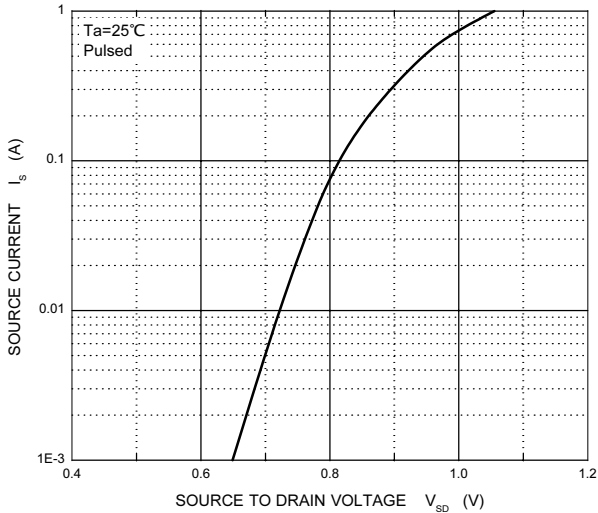
**$R_{DS(ON)}$  —  $I_D$**



**$R_{DS(ON)}$  —  $V_{GS}$**



**$I_S$  —  $V_{SD}$**





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### Ordering Information :

Device	Packing
Part Number-AP	Ammo Packing: 20Kpcs/Carton
Part Number-BP	Bulk: 100Kpcs/Carton

Note : Adding "-HF" suffix for halogen free, eg. Part Number-AP-HF

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