

MCC

Micro Commercial Components

Microsemi Components
20736 Marilla Street Chatsworth
CA 91311
Phone: (818) 701-4933
Fax: (818) 701-4939

Features

- Low Drain-Source ON-Resistance
- High Input Impedance
- High-Speed Switching
- CMOS Logic Compatible Input
- Marking: 2N7000
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0

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

- Operation Temperature: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Maximum Thermal Resistance: 150°C/W Junction to Ambient

Parameter	Symbol	Value	Unit
Drain-Source-Voltage	V_{DSS}	60	V
Drain-Gate-Voltage	V_{DGS}	60	V
Gate-Source-Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	300	mA
Pulsed Drain Current	I_{DM}	1.3	A
Maximum Power Dissipation	P_{TOT}	830 ⁽¹⁾	mW

Note: (1) Valid provided that are kept at ambient temperature at a distance of 2mm from case

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	90V	---	$I_D=100\mu\text{A}$, $V_{GS}=0$
Gate-Body Leakage Current	I_{GSS}	---	---	$\pm 10\text{nA}$	$V_{GS}=\pm 20\text{V}$, $V_{DS}=0\text{V}$
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	1.5V	3.0V	$V_{GS}=V_{DS}$, $I_D=1.0\text{mA}$
Drain-Source On-State Resistance	$R_{DS(on)}$	---	3.5Ω	5.0Ω	$V_{GS}=10\text{V}$, $I_D=500\text{mA}$
Input Capacitance	C_{iss}	---	60pF	---	$V_{DS}=25\text{V}$,
Output Capacitance	C_{oss}	---	25pF	---	$V_{GS}=0$,
Feedback Capacitance	C_{rss}	---	5pF	---	$f=1\text{MHz}$
Turn-On Time	T_{on}	---	10ns	---	$V_{GS}=10\text{V}$, $V_{DS}=10\text{V}$,
Turn-Off Time	T_{off}	---	10ns	---	$R_D=100\Omega$

Source-Drain Diode

Parameter	Symbol	Value	Unit
Max. Forward Current	I_F	500 ⁽¹⁾	mA
Typ. Diode Forward Voltage	V_{SD}	850 ⁽²⁾	mV

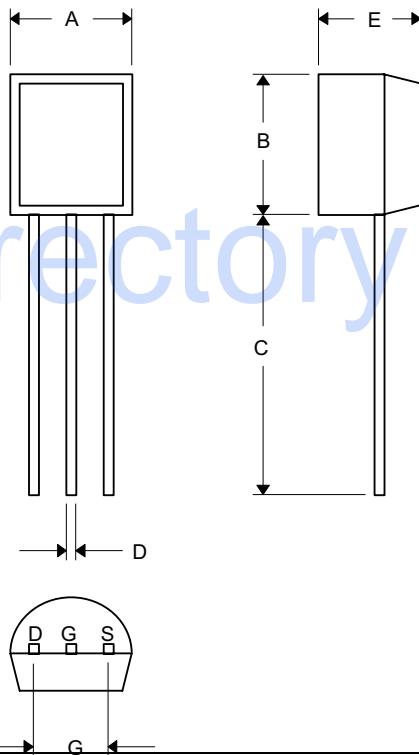
Note: (1) Tested at $T_{amb} = 25^\circ\text{C}$

(2) Tested at $V_{GS} = 0$, $I_F = 0.5\text{A}$, $T_J = 25^\circ\text{C}$

2N7000

DMOS Transistor (N-Channel)

TO-92



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.170	.190	4.33	4.83	
B	.170	.190	4.30	4.83	
C	.550	.590	13.97	14.97	
D	.010	.020	0.36	0.56	
E	.130	.160	3.30	3.96	
G	.096	.104	2.44	2.64	

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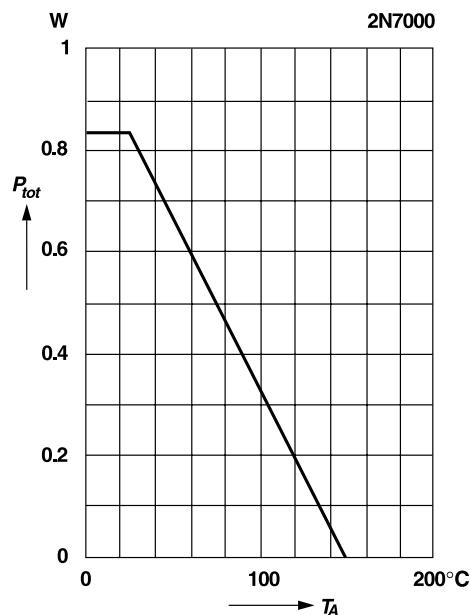
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Admissible power dissipation versus temperature

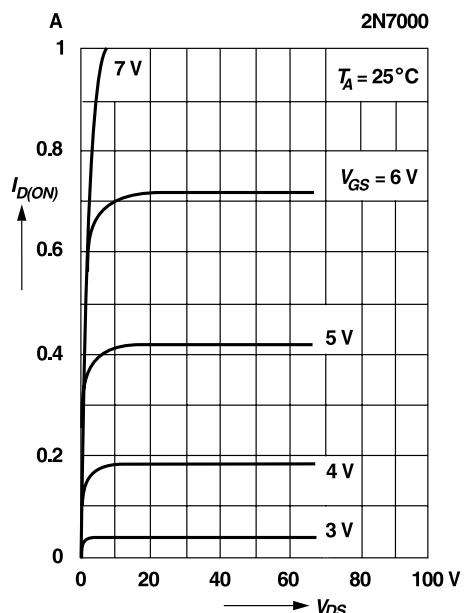
Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case



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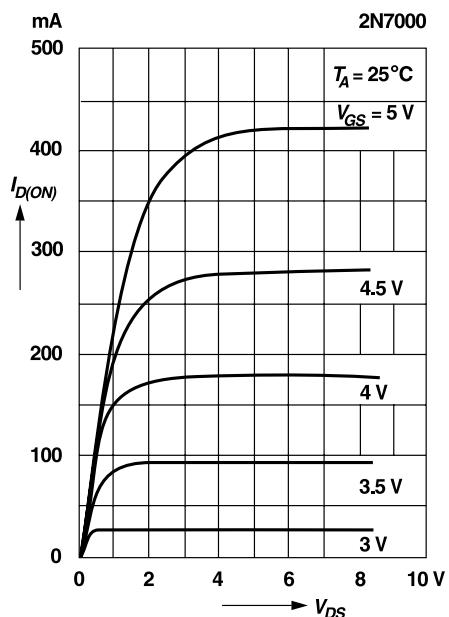
Output characteristics

Pulse test width 80 ms; pulse duty factor 1%.



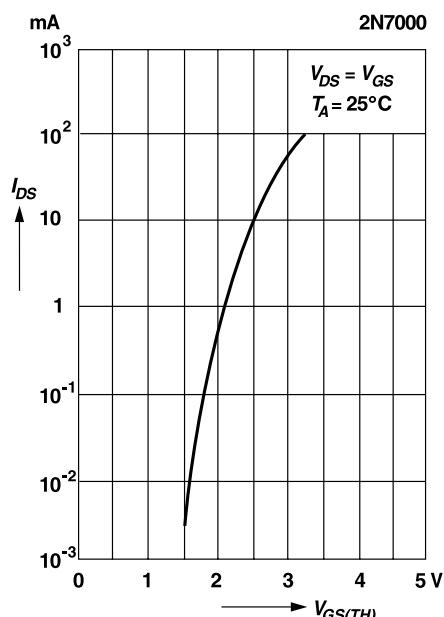
Saturation characteristics

Pulse test width 80 ms; pulse duty factor 1%.



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Drain-source current versus gate threshold voltage



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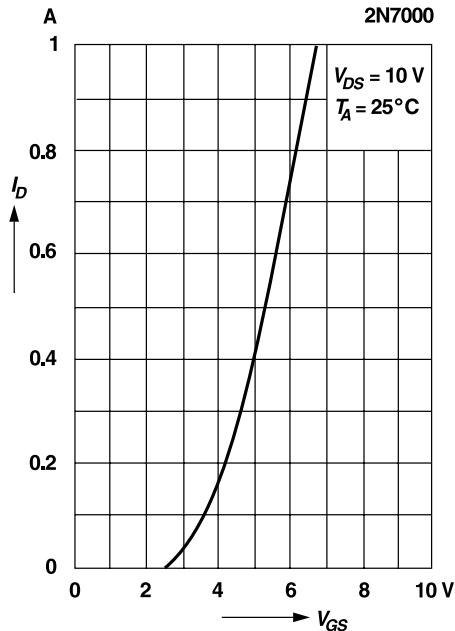
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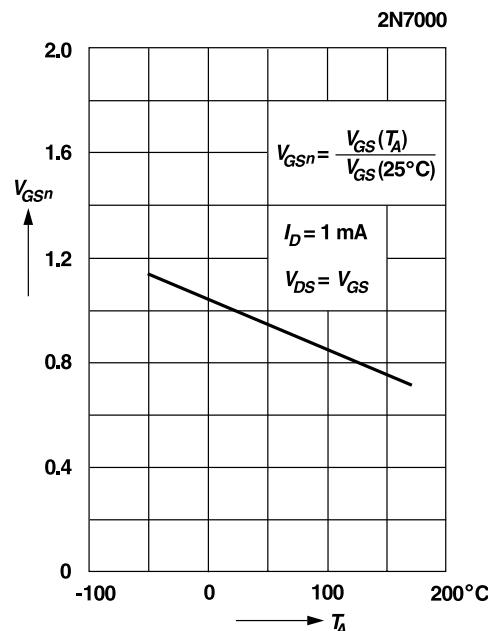
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**Drain current
versus gate-source voltage**

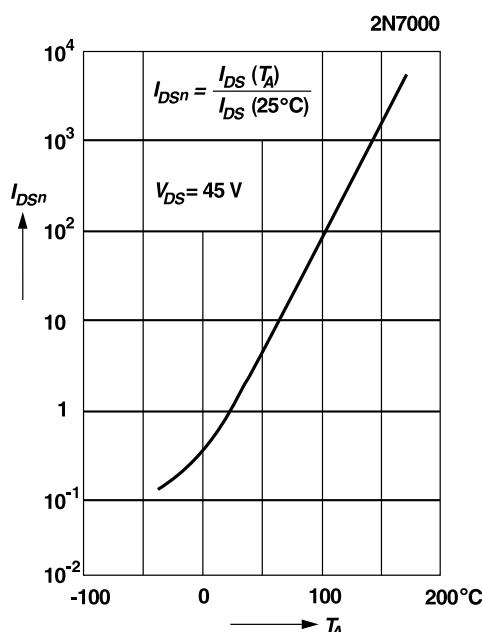
Pulse test width 80 ms; pulse duty factor 1%.



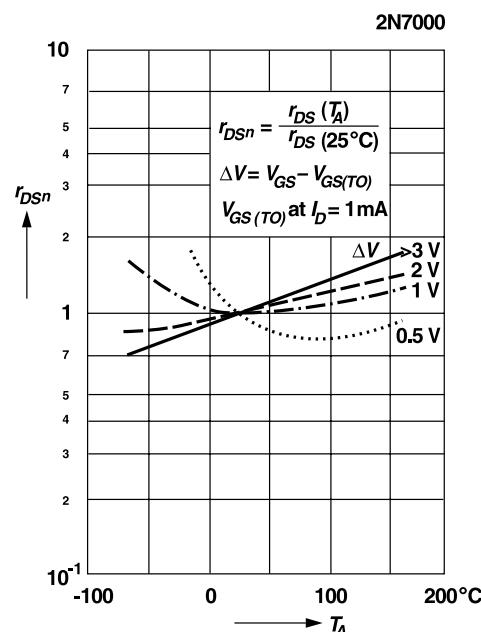
**Normalized gate-source voltage
versus temperature**



**Normalized drain-source current
versus temperature**



**Normalized drain-source resistance
versus temperature**

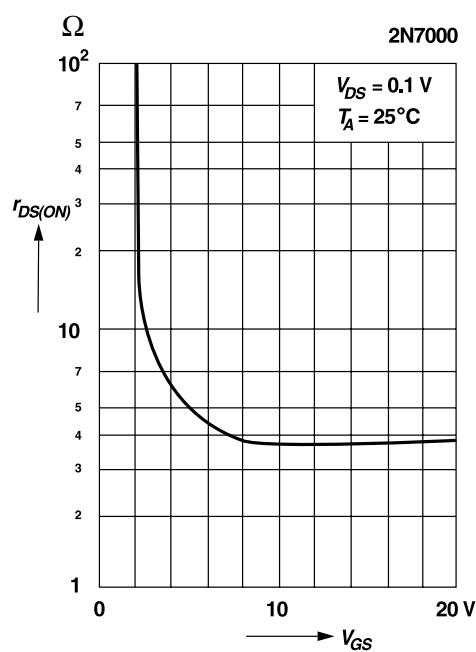


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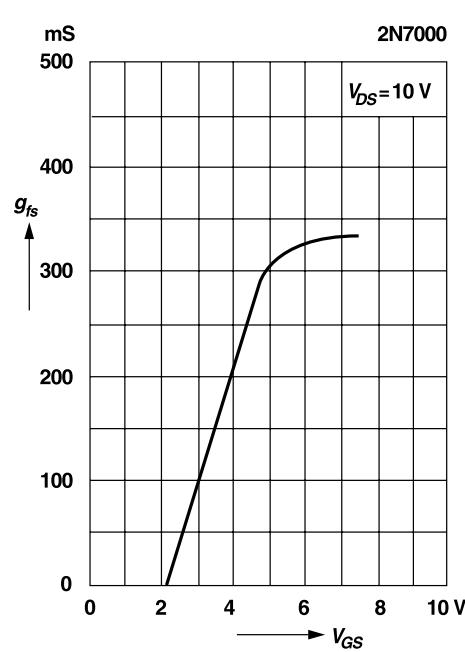
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Drain-source resistance
versus gate-source voltage

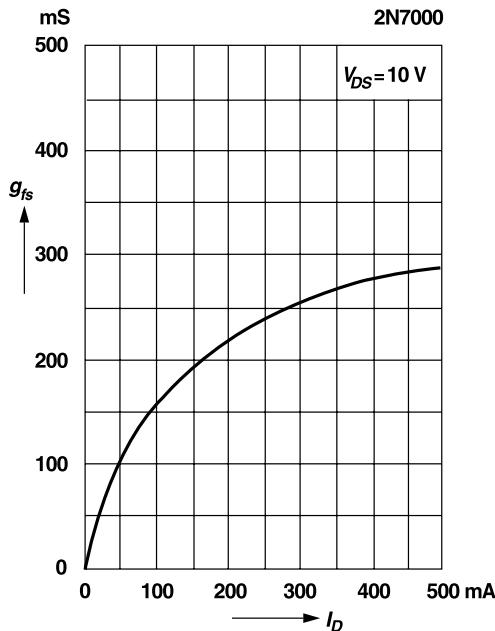


Transconductance
versus gate-source voltage

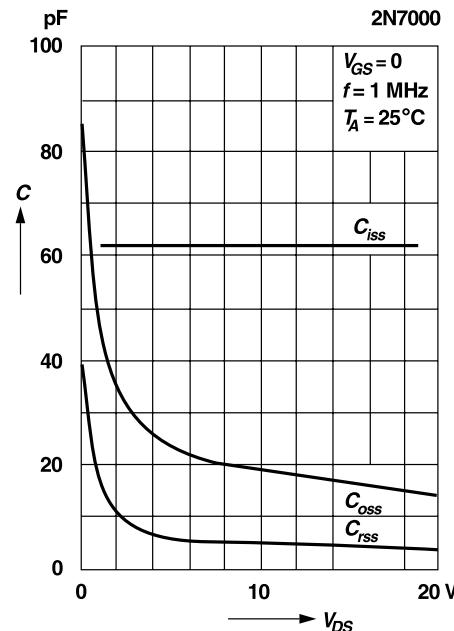


Transconductance
versus drain current

Pulse test width 80 ms; pulse duty factor 1%



Capacitance
versus drain-source voltage





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