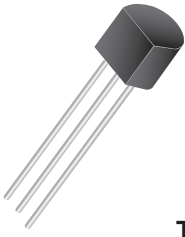
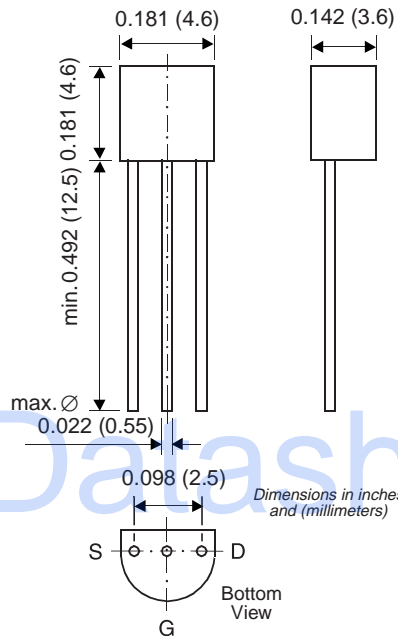


## DMOS Transistor (N-Channel)


**TO-226AA (TO-92)**


### Features

- High input impedance
- Low gate threshold voltage
- Low drain-source ON-resistance
- High-speed switching
- No minority carrier storage time
- CMOS logic compatible input
- No thermal runaway
- No secondary breakdown

### Mechanical Data

**Case:** TO-92 Plastic Package

**Weight:** approx. 0.18g

**Packaging Codes/Options:**

E7/4K per Ammo tape, 20K/box

### Maximum Ratings and Thermal Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V <sub>DSS</sub>	60	V
Drain-Gate Voltage	V <sub>DGS</sub>	60	V
Gate-Source-Voltage	V <sub>GS</sub>	±20	V
Drain Current (continuous)	I <sub>D</sub>	300	mA
Peak Drain Current (pulsed)	I <sub>DM</sub>	1.3	A
Power Dissipation at T <sub>amb</sub> = 25°C	P <sub>tot</sub>	830 <sup>(1)</sup>	mW
Thermal Resistance Junction to Ambient Air	R <sub>θJA</sub>	150 <sup>(1)</sup>	°C/W
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature Range	T <sub>S</sub>	-65 to +150	°C

**Note:**

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

## Electrical Characteristics (T<sub>J</sub> = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> = 100μA, V <sub>GS</sub> = 0	60	90	—	V
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> ± 20V, V <sub>DS</sub> = 0V	—	—	±10	nA
Drain Cutoff Current	I <sub>DSS</sub>	V <sub>DS</sub> = 48V, V <sub>GS</sub> = 0V	—	—	1	μA
Gate-Source Threshold Voltage	V <sub>GS(th)</sub>	V <sub>GS</sub> = V <sub>DS</sub> , I <sub>D</sub> = 1.0mA	0.8	1.5	3	V
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 500mA	—	3.5	5.0	Ω
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0, f = 1MHz	—	60	—	pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0, f = 1MHz	—	25	—	pF
Feedback Capacitance	C <sub>rss</sub>	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0, f = 1MHz	—	5	—	pF
Turn-On Time	t <sub>on</sub>	V <sub>GS</sub> = 10V, V <sub>DS</sub> = 10V R <sub>D</sub> = 100Ω	—	10	—	ns
Turn-Off Time	t <sub>off</sub>		—	10	—	ns

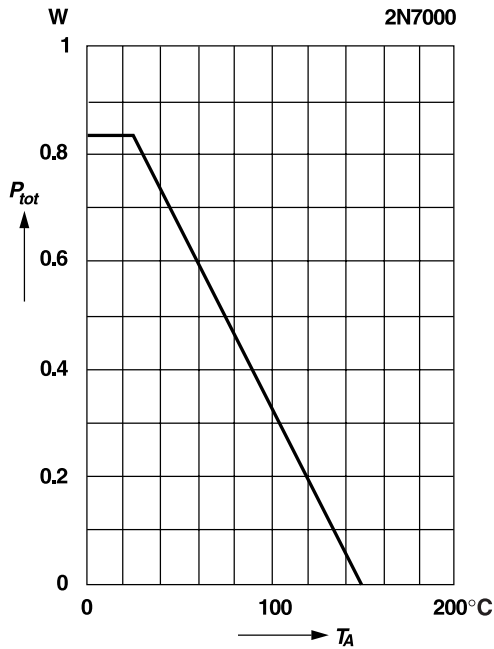
## Source-Drain Diode

Parameter	Symbol	Test Condition	Value	Unit
Max. Forward Current (continuous)	I <sub>F</sub>	T <sub>amb</sub> = 25 °C	500	mA
Diode Forward Voltage (typ.)	V <sub>SD</sub>	V <sub>GS</sub> = 0, I <sub>F</sub> = 0.5A T <sub>j</sub> = 25°C	850	mV

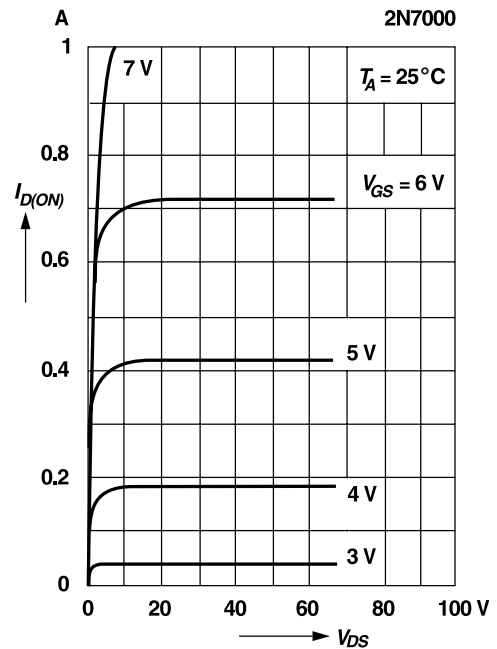
**Ratings and Characteristic Curves** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

**Admissible power dissipation versus temperature**

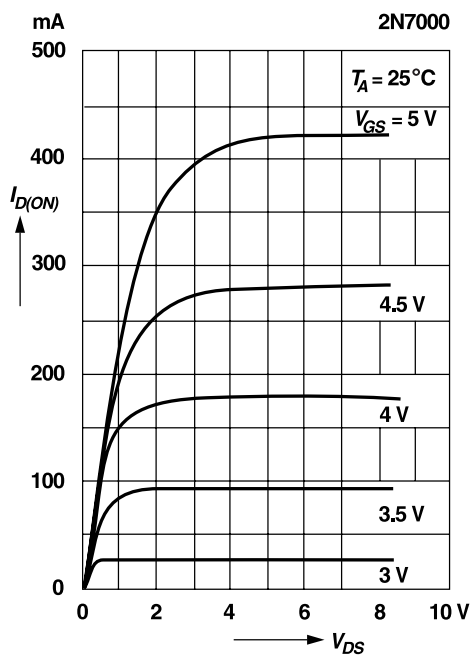
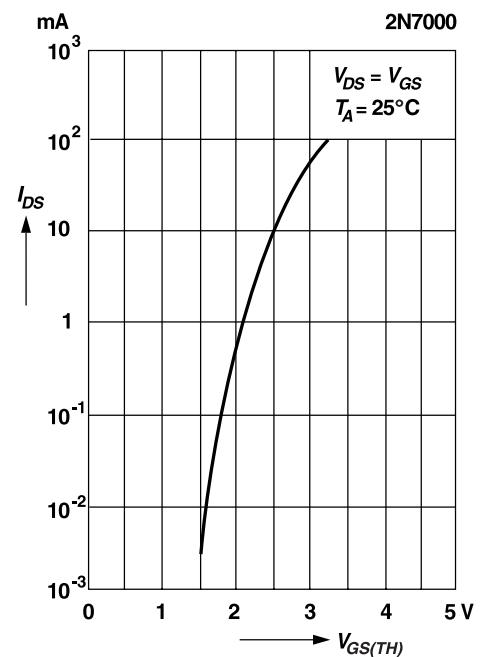
Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case


**Output characteristics**

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


**Saturation characteristics**

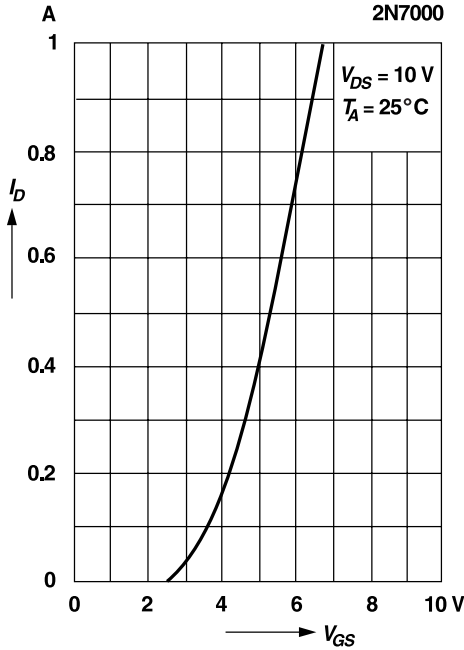
Pulse test width 80 ms; pulse duty factor 1%.


**Drain-source current versus gate threshold voltage**


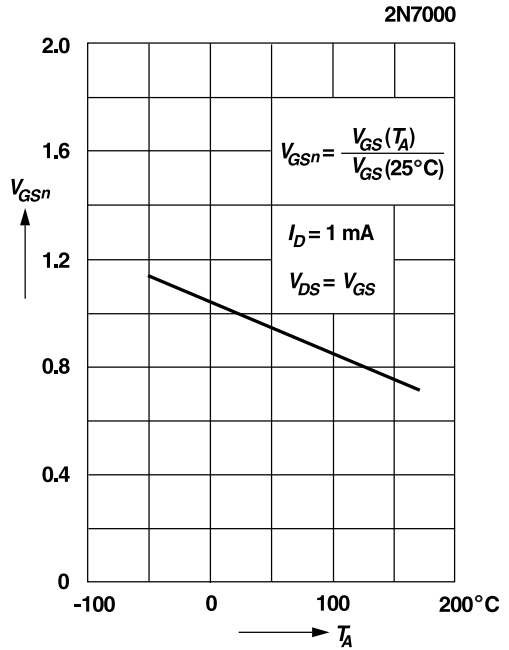
**Ratings and Characteristic Curves** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

**Drain current versus gate-source voltage**

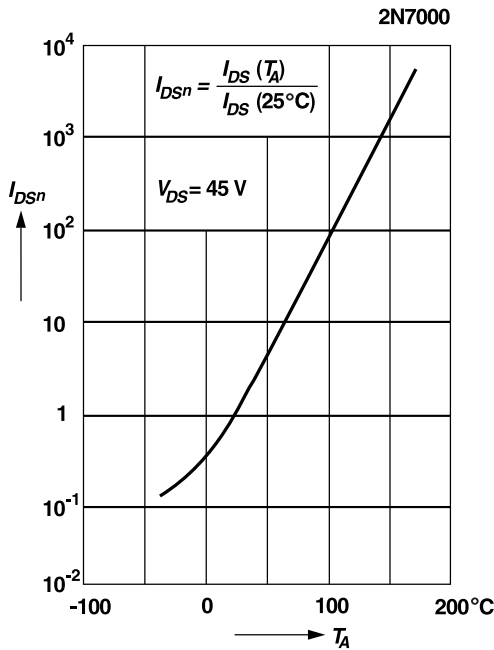
Pulse test width 80 ms; pulse duty factor 1%.



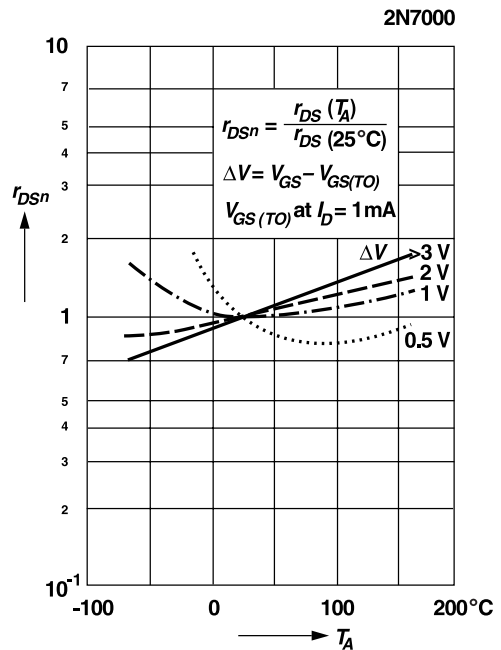
**Normalized gate-source voltage versus temperature**



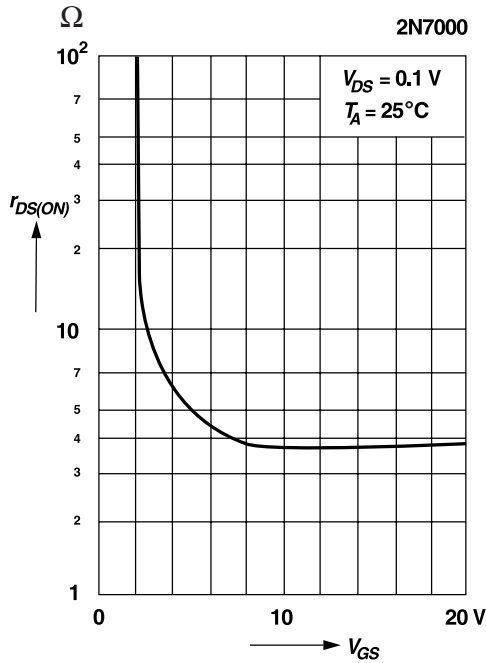
**Normalized drain-source current versus temperature**



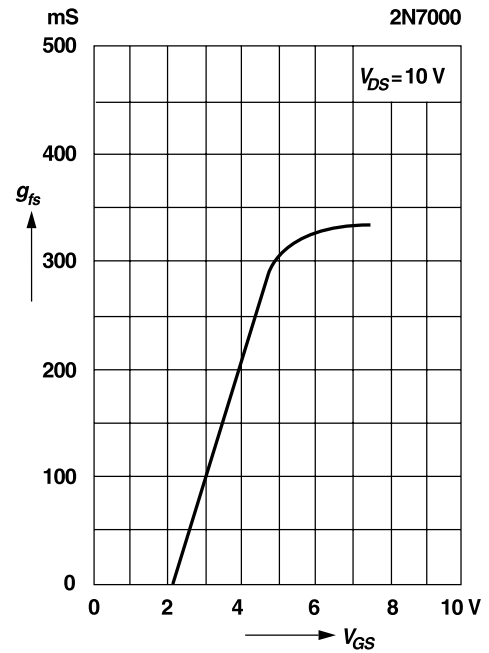
**Normalized drain-source resistance versus temperature**



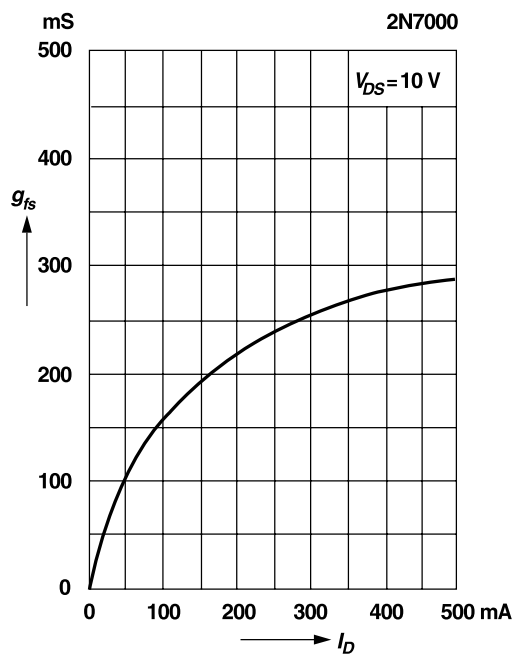
**Ratings and Characteristic Curves** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

**Drain-source resistance versus gate-source voltage**

**Transconductance versus gate-source voltage**

Pulse test width 80 ms; pulse duty factor 1%


**Transconductance versus drain current**

Pulse test width 80 ms; pulse duty factor 1%


**Capacitance versus drain-source voltage**
