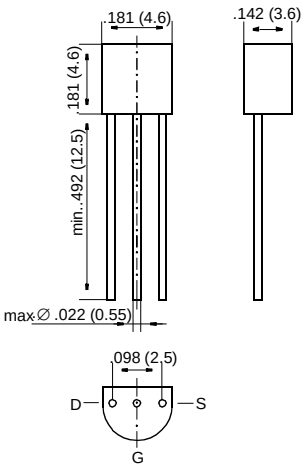
BS170

DMOS Transistors (N-Channel)

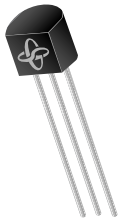
TO-92



Dimensions in inches and (millimeters)

FEATURES

- High input impedance
- 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. 0.18 g
On special request, this transistor is also manufactured in the pin configuration TO-18.

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified

	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	60	V
Drain-Gate Voltage	V_{DGS}	60	V
Gate-Source Voltage (pulsed)	V_{GS}	± 20	V
Drain Current (continuous)	I_D	300	mA
Power Dissipation at T_{amb} = 25 °C	P_{tot}	0.83[1)]	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_s	–65 to +150	°C
[1)] Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case.			

Inverse Diode

	Symbol	Value	Unit
Max. Forward Current (continuous) at T_{amb} = 25 °C	I_F	0.5	A
Forward Voltage Drop (typ.) at V_{GS} = 0, I_F = 0.5 A, T_j = 25 °C	V_F	0.85	V

ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified

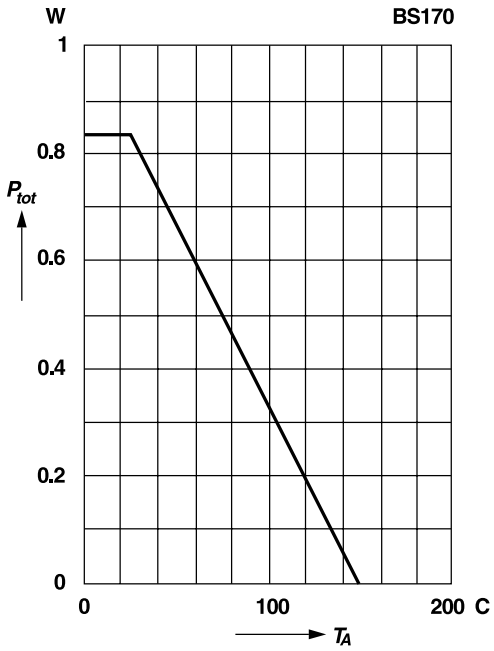
	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage at I_D = 100 μA, V_{GS} = 0	$V_{(BR)DSS}$	60	80	–	V
Gate Threshold Voltage at V_{GS} = V_{DS}, I_D = 1 mA	$V_{GS(th)}$	1.0	2	3.0	V
Gate-Body Leakage Current at V_{GS} = 15 V, V_{DS} = 0	I_{GSS}	–	–	10	nA
Drain Cutoff Current at V_{DS} = 25 V, V_{GS} = 0	I_{DSS}	–	–	0.5	μA
Drain-Source ON Resistance at V_{GS} = 10 V, I_D = 0.2 A	$R_{DS(ON)}$	–	3.5	5.0	Ω
Thermal Resistance Junction to Ambient Air	R_{thJA}	–	–	150[1)]	K/W
Forward Transconductance at V_{DS} = 10 V, I_D = 0.2 A, f = 1 MHz	g_m	–	200	–	mS
Input Capacitance at V_{DS} = 10 V, V_{GS} = 0, f = 1 MHz	C_{iss}	–	30	–	pF
Switching Times at V_{GS} = 10 V, V_{DS} = 10 V, R_D = 100 Ω					
Turn-On Time	t_{on}	–	5	–	ns
Turn-Off Time	t_{off}	–	15	–	ns

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

RATINGS AND CHARACTERISTIC CURVES BS170

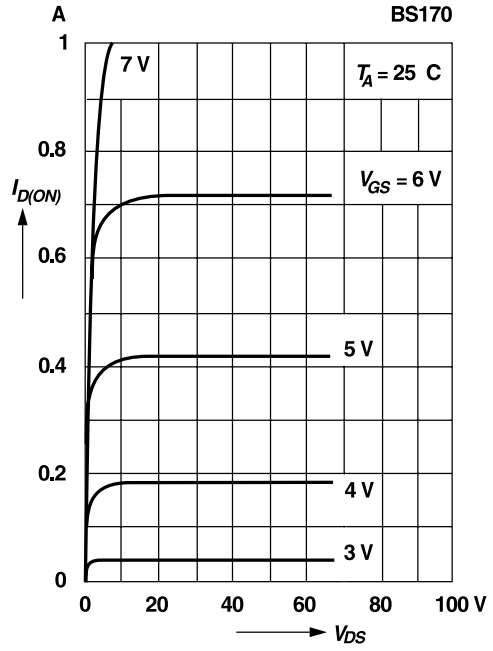
Admissible power dissipation versus temperature

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



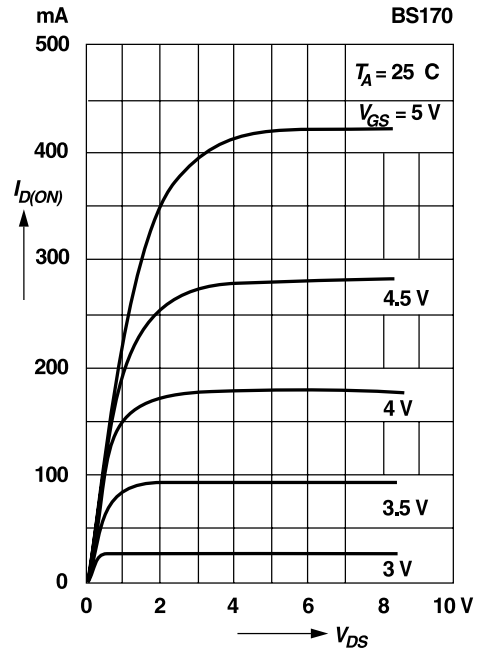
Output characteristics

Pulse test width 80 ms; pulse duty factor 1%

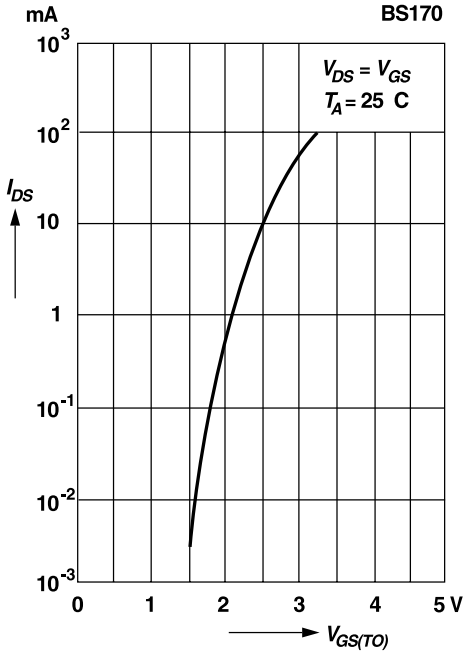


Saturation characteristics

Pulse test width 80 ms; pulse duty factor 1%



Drain-source current versus gate threshold voltage



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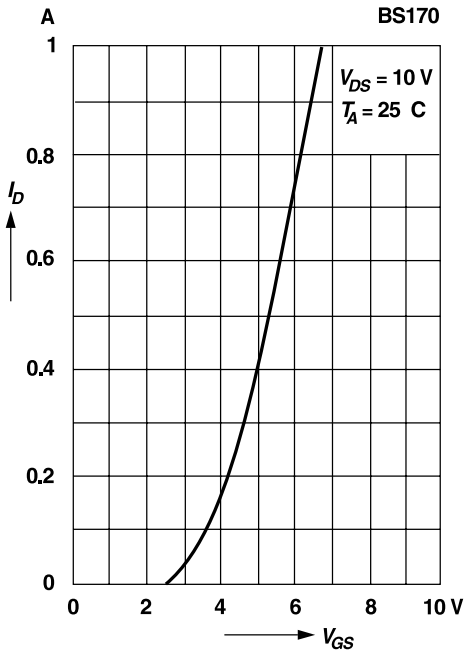
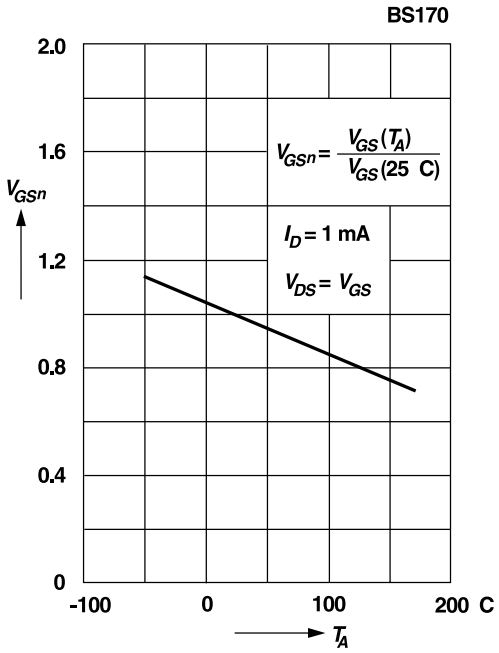
Drain current versus gate-source voltage

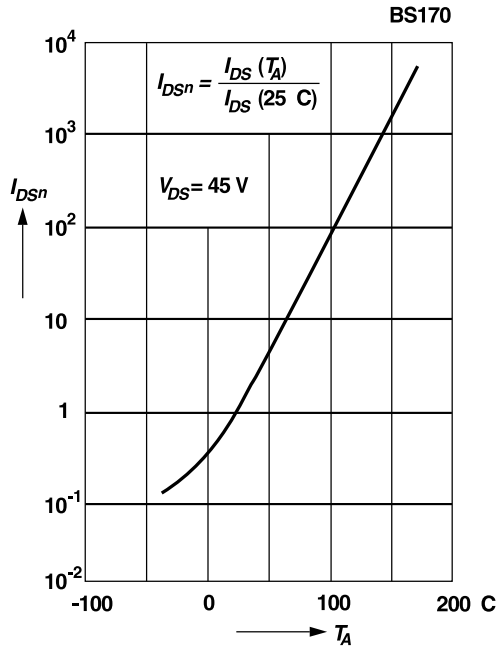
Pulse test width 80 ms; pulse duty factor 1%



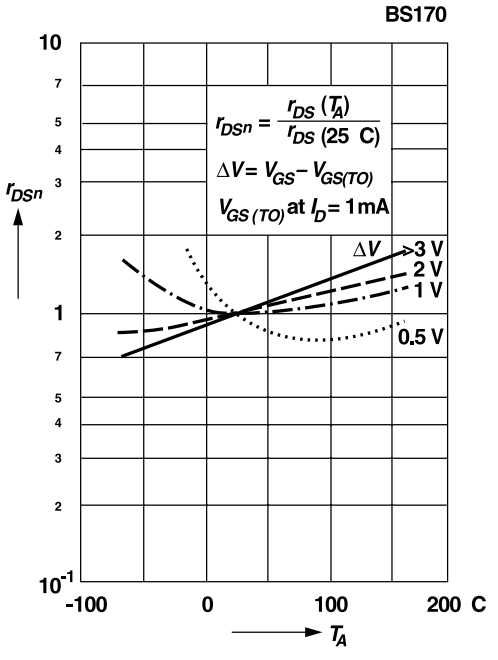
Normalized gate-source voltage versus temperature



Normalized drain-source current versus temperature



Normalized drain-source resistance versus temperature



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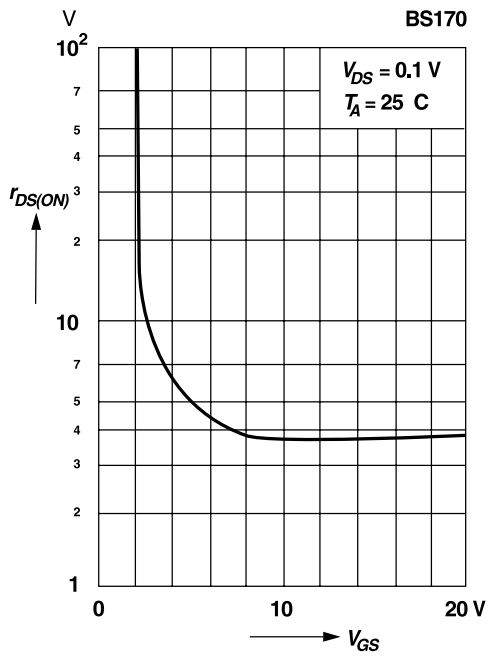
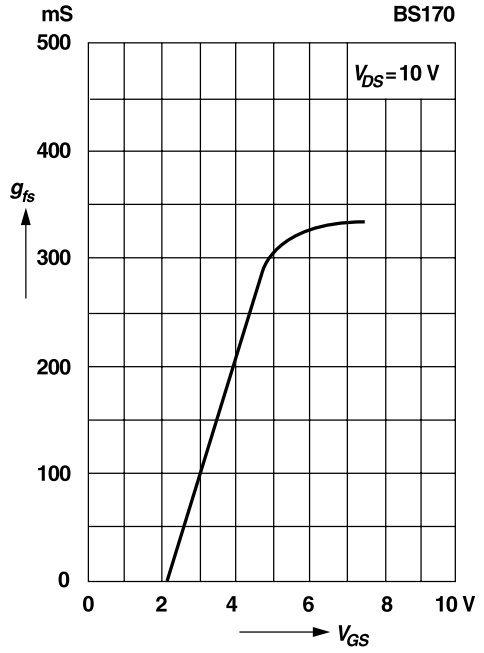
Drain-source resistance versus gate-source voltage



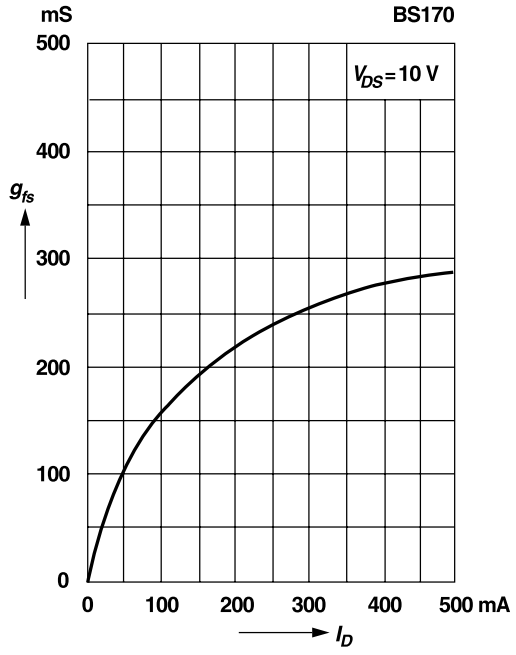
Transconductance versus gate-source voltage

Pulse test width 80 ms; pulse duty factor 1%

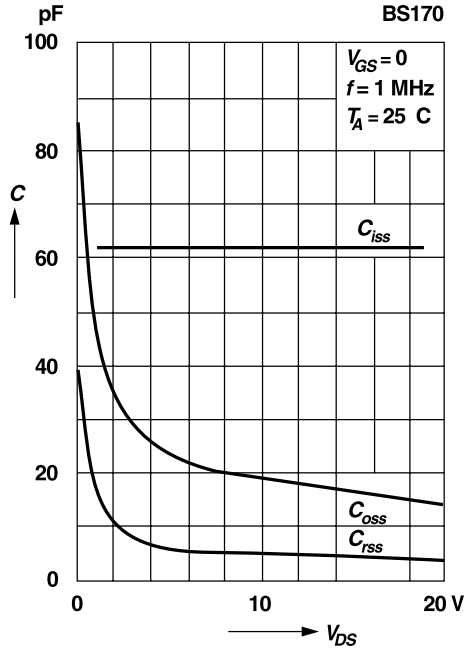


Transconductance versus drain current

Pulse test width 80 ms; pulse duty factor 1%



Capacitance versus drain-source voltage



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