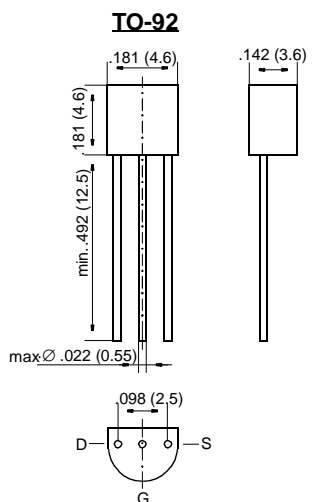


BS250

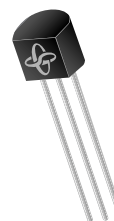
DMOS Transistors (P-Channel)



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)	$-I_D$	250	mA
Power Dissipation at $T_{amb} = 25\text{ }^\circ\text{C}$	P_{tot}	0.83 ¹⁾	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_S	-65 to +150	$^\circ\text{C}$

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 $T_{amb} = 25\text{ }^\circ\text{C}$	I_F	0.3	A
Forward Voltage Drop (typ.) at $V_{GS} = 0, I_F = 0.12\text{ A}, T_j = 25\text{ }^\circ\text{C}$	V_F	0.85	V

BS250

ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified

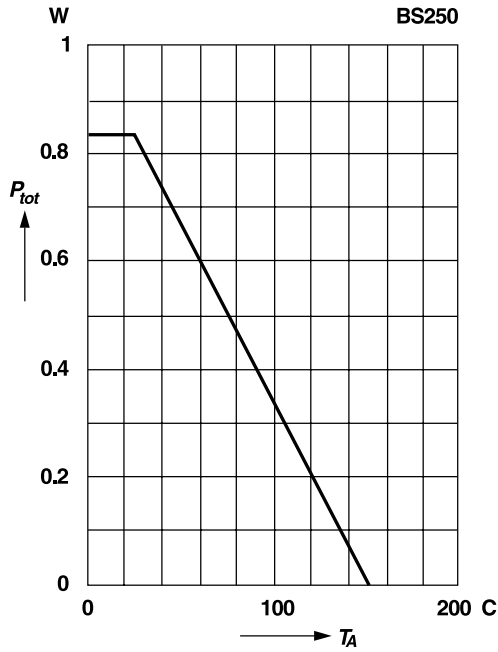
	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage at $-I_D = 100 \mu\text{A}$, $V_{GS} = 0$	$-V_{(BR)DSS}$	60	70	–	V
Gate Threshold Voltage at $V_{GS} = V_{DS}$, $-I_D = 1 \text{ mA}$	$-V_{GS(th)}$	1.0	2.0	3.0	V
Gate-Body Leakage Current at $-V_{GS} = 15 \text{ V}$, $V_{DS} = 0$	$-I_{GSS}$	–	–	20	nA
Drain Cutoff Current at $-V_{DS} = 25 \text{ V}$, $V_{GS} = 0$	$-I_{DSS}$	–	–	0.5	μA
Drain-Source ON Resistance at $-V_{GS} = 10 \text{ V}$, $-I_D = 0.2 \text{ A}$	$R_{DS(ON)}$	–	3.5	5.0	Ω
Thermal Resistance Junction to Ambient Air	R_{thJA}	–	–	150 ¹⁾	K/W
Forward Transconductance at $-V_{DS} = 10 \text{ V}$, $-I_D = 0.2 \text{ A}$, $f = 1 \text{ MHz}$	g_m	–	150	–	mS
Input Capacitance at $-V_{DS} = 10 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$	C_{iss}	–	60	–	pF
Switching Times at $-V_{GS} = 10 \text{ V}$, $-V_{DS} = 10 \text{ V}$, $R_D = 100 \Omega$					
Turn-On Time	t_{on}	–	5	–	ns
Turn-Off Time	t_{off}	–	25	–	ns

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

RATINGS AND CHARACTERISTIC CURVES BS250

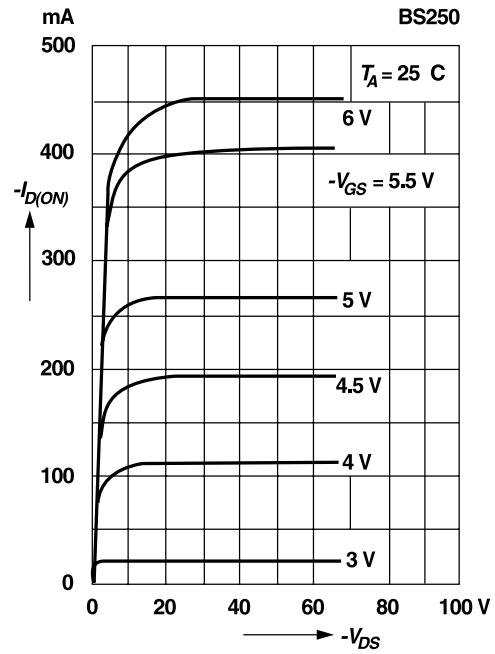
Admissible power dissipation versus temperature

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



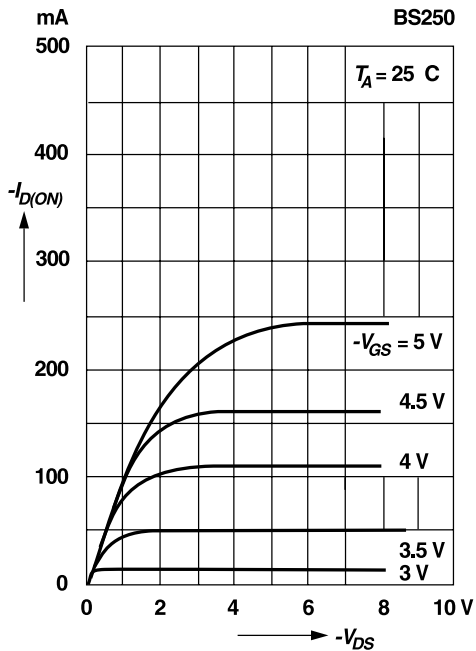
Output characteristics

Pulse test width 80 ms; pulse duty factor 1%

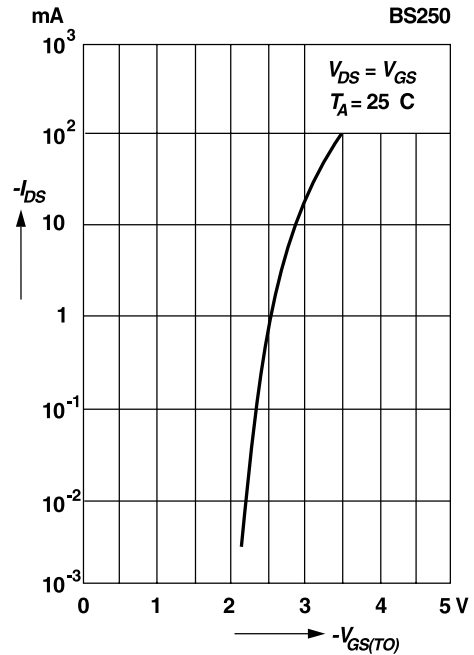


Saturation characteristics

Pulse test width 80 ms; pulse duty factor 1%



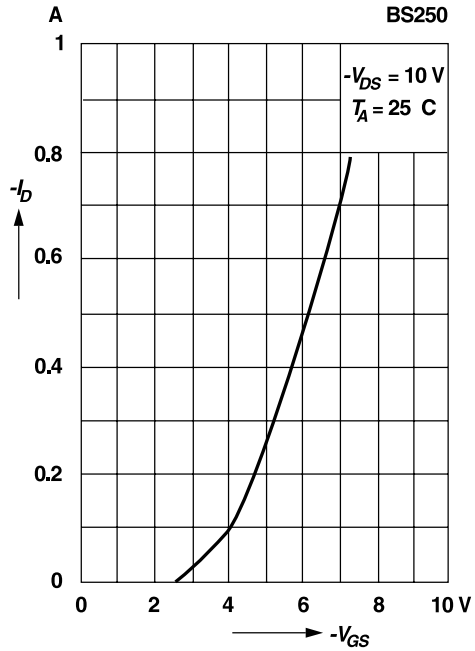
Drain-source current versus gate threshold voltage



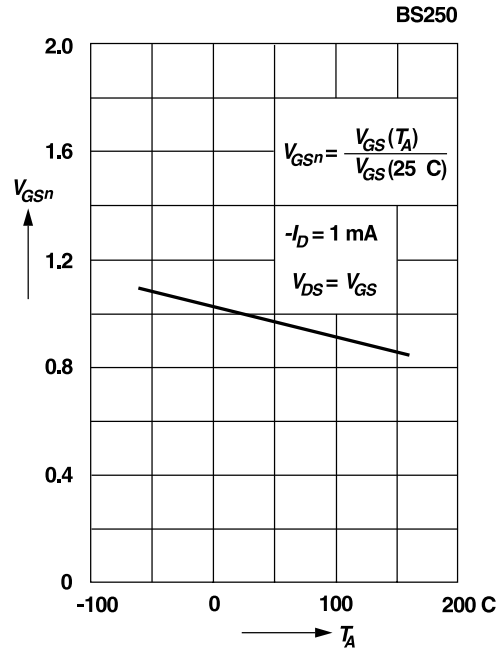
RATINGS AND CHARACTERISTIC CURVES BS250

Drain current versus gate-source voltage

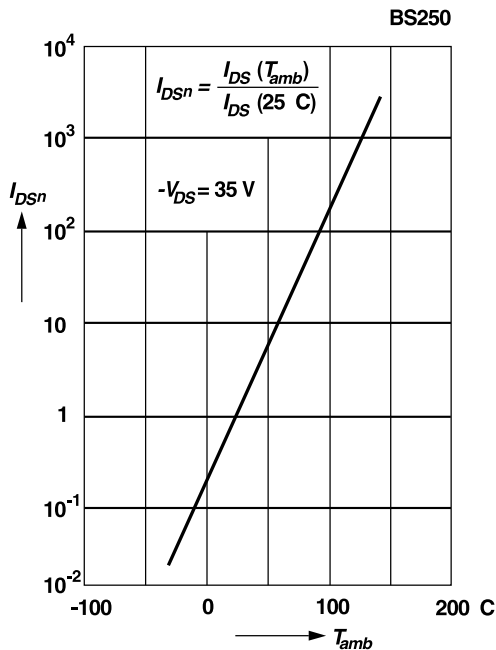
Pulse test width 80 ms; pulse duty factor 1%



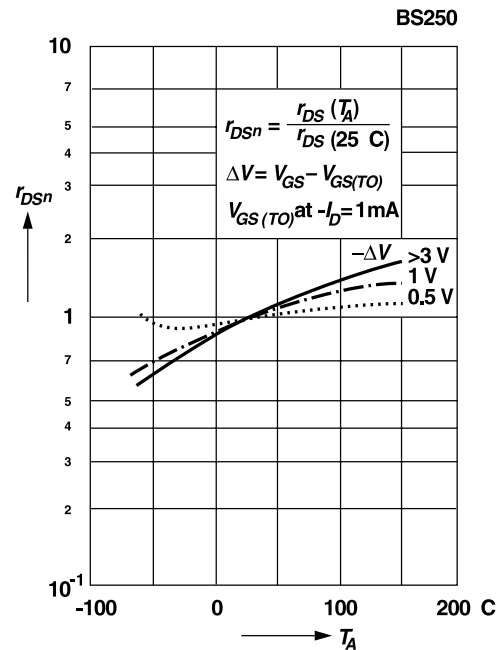
Normalized gate-source voltage versus temperature



Normalized drain-source current versus temperature

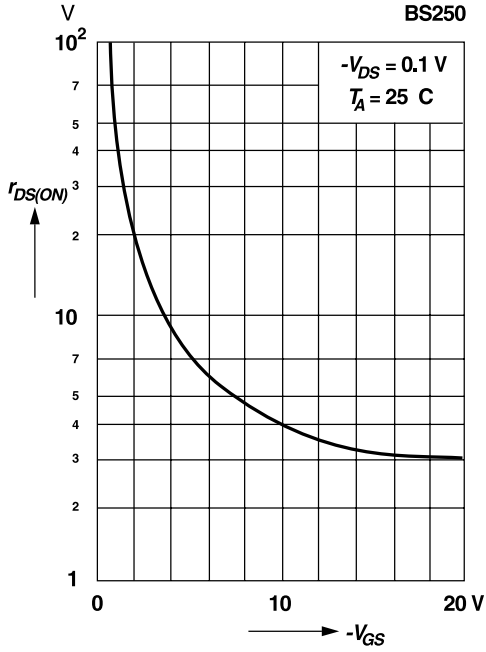


Normalized drain-source resistance versus temperature



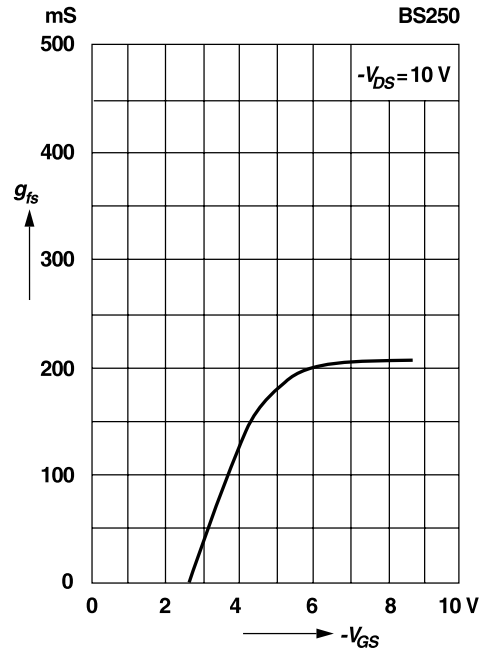
RATINGS AND CHARACTERISTIC CURVES BS250

Drain-source resistance versus gate-source voltage



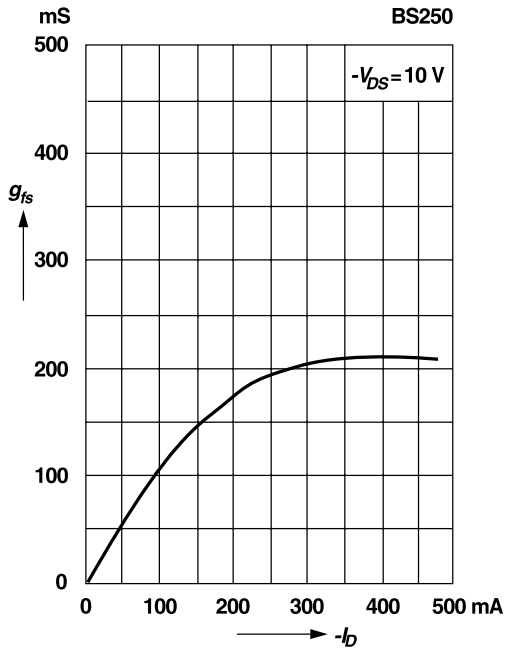
Transconductance versus gate-source voltage

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

