

DATA SHEET

BSP92

P-channel enhancement mode
vertical D-MOS transistor

Product specification
File under Discrete Semiconductors, SC13b

April 1995

P-channel enhancement mode vertical
D-MOS transistor

BSP92

FEATURES

- Low threshold voltage $V_{GS(th)}$
- Direct interface to C-MOS, TTL, etc.
- High-speed switching
- No secondary breakdown.

DESCRIPTION

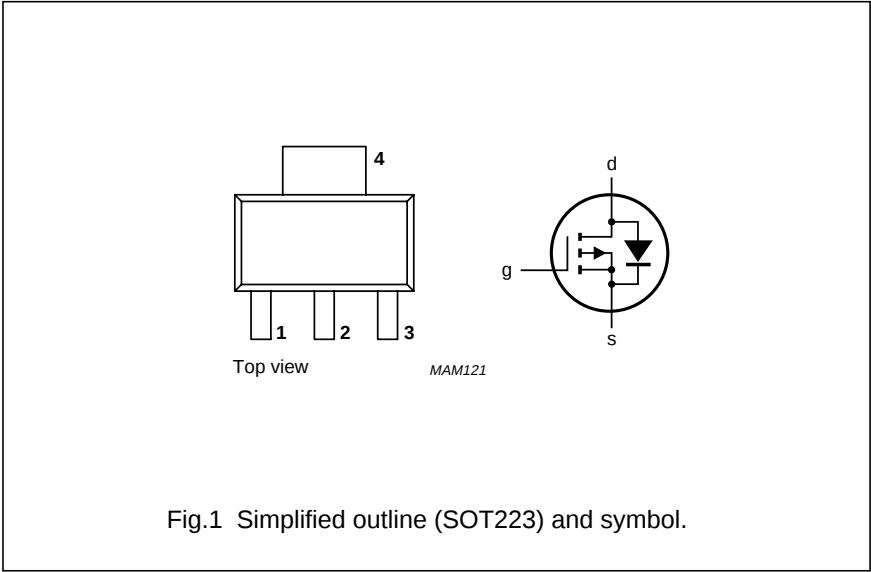
P-channel enhancement mode vertical D-MOS transistor in a SOT223 envelope, intended for use as a surface-mounted device in line current interruptor in telephone sets and for application in relay, high speed and line transformer drivers.

PINNING - SOT223

PIN	DESCRIPTION
1	gate
2	drain
3	source
4	drain

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
$-V_{DS}$	drain-source voltage	240	V
$-I_D$	DC drain current	180	mA
$R_{DS(on)}$	drain-source on-resistance	20	Ω
$-V_{GS(th)}$	gate-source threshold voltage	1.8	V



LIMITING VALUES

In accordance with the Absolute Maximum System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$-V_{DS}$	drain-source voltage		—	240	V
$\pm V_{GSO}$	gate-source voltage	open drain	—	20	V
$-I_D$	DC drain current		—	180	mA
$-I_{DM}$	peak drain current		—	720	mA
P_{tot}	total power dissipation	up to $T_{amb} = 25\text{ }^{\circ}\text{C}$ (note 1)	—	1.5	W
T_{stg}	storage temperature range		−65	150	$^{\circ}\text{C}$
T_j	junction temperature		—	150	$^{\circ}\text{C}$

THERMAL RESISTANCE

SYMBOL	PARAMETER	THERMAL RESISTANCE
$R_{th\ j-a}$	from junction to ambient (note 1)	83.3 K/W

Note

1. Transistor mounted on an epoxy printed circuit board, 40 x 40 x 1.5 mm, mounting pad for the drain tab minimum 6 cm².

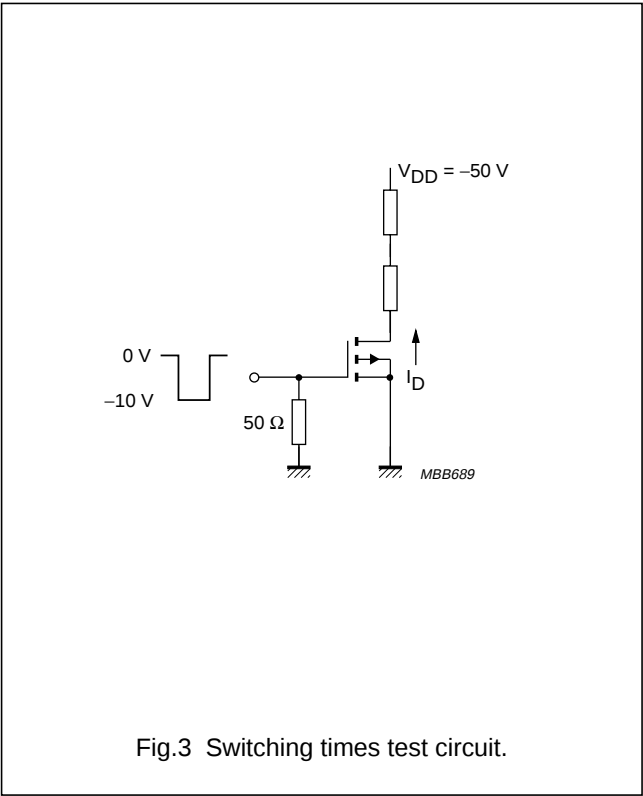
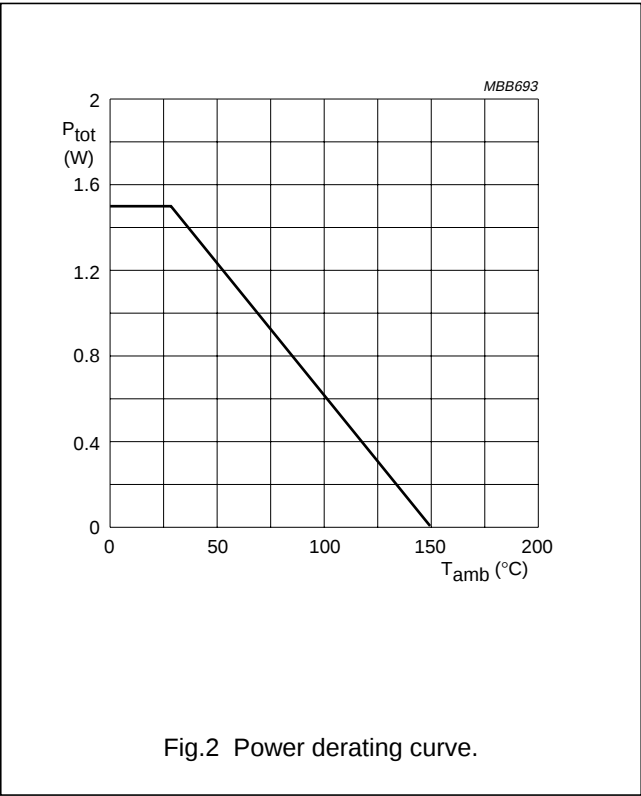
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CHARACTERISTICS

T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
-V _{(BR)DSS}	drain-source breakdown voltage	-I _D = 10 µA; V _{GS} = 0	240	—	—	V
-I _{DSS}	drain-source leakage current	-V _{DS} = 200 V; V _{GS} = 0	—	—	1	µA
±I _{GSS}	gate-source leakage current	±V _{GS} = 20 V; V _{DS} = 0	—	—	100	nA
-V _{GS(th)}	gate-source threshold voltage	-I _D = 1 mA; V _{GS} = V _{DS}	0.8	—	2	V
-V _{GS}	gate-source voltage	-I _D = 50 mA; -V _{DS} = 5 V	0.8	—	2.8	V
R _{DS(on)}	drain-source on-resistance	-I _D = 180 mA; -V _{GS} = 10 V	—	10	20	Ω
		-I _D = 100 mA; -V _{GS} = 5 V	—	—	18	Ω
		-I _D = 25 mA; -V _{GS} = 2.8 V	—	—	20	Ω
Y _{fs}	transfer admittance	-I _D = 180 mA; -V _{DS} = 25 V	100	200	—	mS
C _{iss}	input capacitance	-V _{DS} = 25 V; V _{GS} = 0; f = 1 MHz	—	65	90	pF
C _{oss}	output capacitance	-V _{DS} = 25 V; V _{GS} = 0; f = 1 MHz	—	20	30	pF
C _{rss}	feedback capacitance	-V _{DS} = 25 V; V _{GS} = 0; f = 1 MHz	—	6	15	pF
Switching times (see Figs 3 and 4)						
t _{on}	turn-on time	-I _D = 250 mA; -V _{DD} = 50 V; -V _{GS} = 0 to 10 V	—	5	10	ns
t _{off}	turn-off time	-I _D = 250 mA; -V _{DD} = 50 V; -V _{GS} = 0 to 10 V	—	20	30	ns



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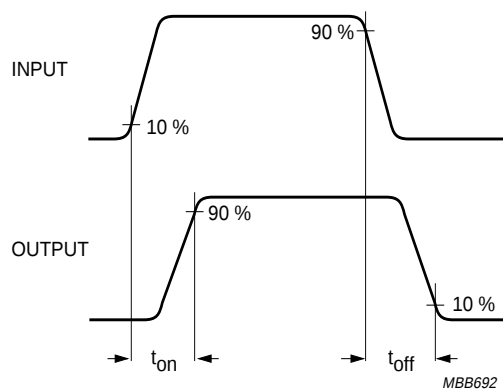
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Fig.4 Input and output waveforms.

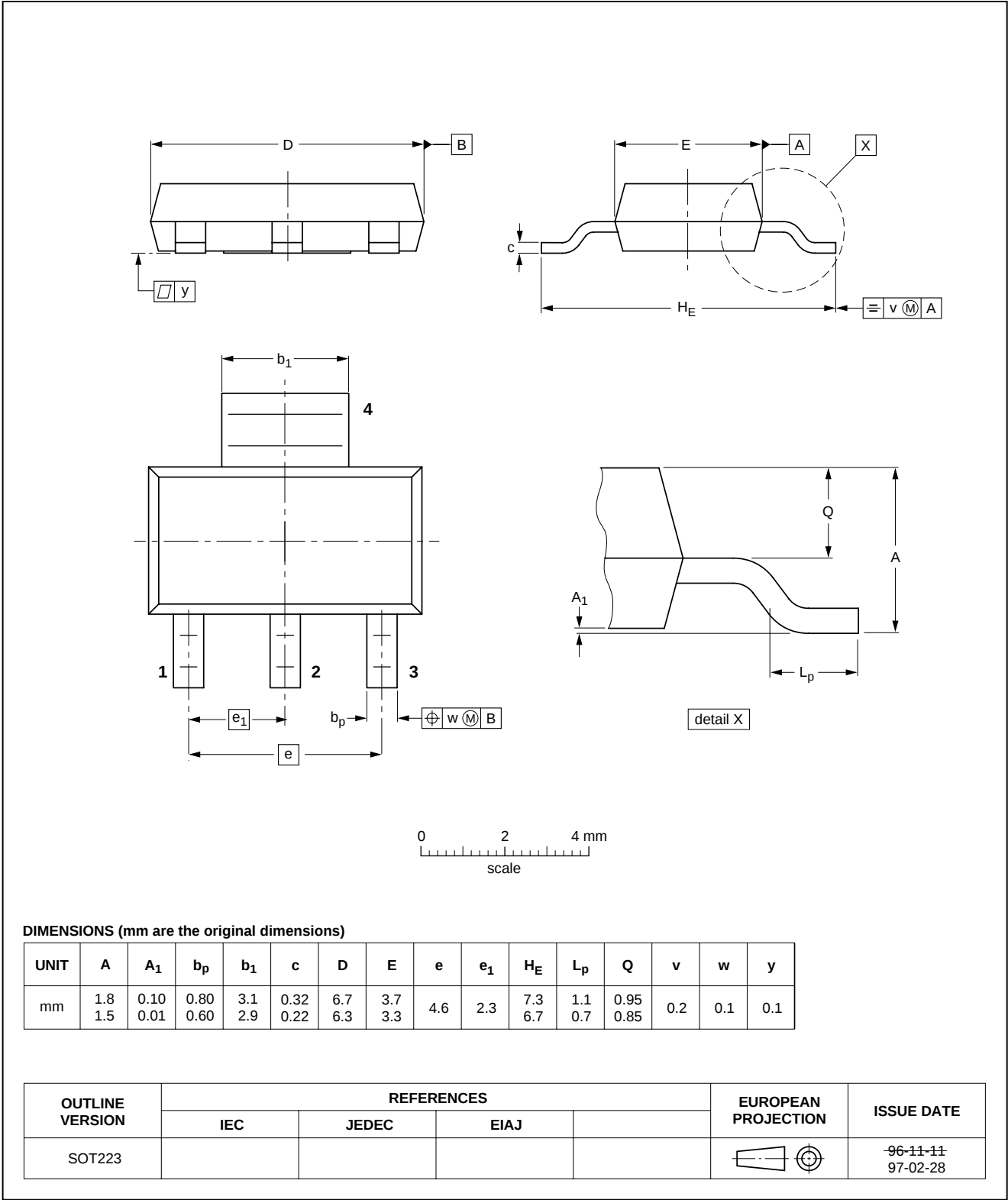
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PACKAGE OUTLINES

Plastic surface mounted package; collector pad for good heat transfer; 4 leads

SOT223



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BSP92**DEFINITIONS**

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

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Argentina: see South America

Australia: 34 Waterloo Road, NORTH RYDE, NSW 2113,
Tel. +61 2 9805 4455, Fax. +61 2 9805 4466

Austria: Computerstr. 6, A-1101 WIEN, P.O. Box 213,
Tel. +43 1 60 101, Fax. +43 1 60 101 1210

Belarus: Hotel Minsk Business Center, Bld. 3, r. 1211, Volodarski Str. 6,
220050 MINSK, Tel. +375 172 200 733, Fax. +375 172 200 773

Belgium: see The Netherlands

Brazil: see South America

Bulgaria: Philips Bulgaria Ltd., Energoproject, 15th floor,
51 James Bourchier Blvd., 1407 SOFIA,
Tel. +359 2 689 211, Fax. +359 2 689 102

Canada: PHILIPS SEMICONDUCTORS/COMPONENTS,
Tel. +1 800 234 7381

China/Hong Kong: 501 Hong Kong Industrial Technology Centre,
72 Tat Chee Avenue, Kowloon Tong, HONG KONG,
Tel. +852 2319 7888, Fax. +852 2319 7700

Colombia: see South America

Czech Republic: see Austria

Denmark: Prags Boulevard 80, PB 1919, DK-2300 COPENHAGEN S,
Tel. +45 32 88 2636, Fax. +45 31 57 0044

Finland: Sinikalliontie 3, FIN-02630 ESPOO,
Tel. +358 9 615800, Fax. +358 9 61580920

France: 4 Rue du Port-aux-Vins, BP317, 92156 SURESNES Cedex,
Tel. +33 1 40 99 6161, Fax. +33 1 40 99 6427

Germany: Hammerbrookstraße 69, D-20097 HAMBURG,
Tel. +49 40 23 53 60, Fax. +49 40 23 536 300

Greece: No. 15, 25th March Street, GR 17778 TAVROS/ATHENS,
Tel. +30 1 4894 339/239, Fax. +30 1 4814 240

Hungary: see Austria

India: Philips INDIA Ltd, Shivsagar Estate, A Block, Dr. Annie Besant Rd.
Worli, MUMBAI 400 018, Tel. +91 22 4938 541, Fax. +91 22 4938 722

Indonesia: see Singapore

Ireland: Newstead, Clonskeagh, DUBLIN 14,
Tel. +353 1 7640 000, Fax. +353 1 7640 200

Israel: RAPAC Electronics, 7 Kehilat Saloniki St, PO Box 18053,
TEL AVIV 61180, Tel. +972 3 645 0444, Fax. +972 3 649 1007

Italy: PHILIPS SEMICONDUCTORS, Piazza IV Novembre 3,
20124 MILANO, Tel. +39 2 6752 2531, Fax. +39 2 6752 2557

Japan: Philips Bldg 13-37, Kohnan 2-chome, Minato-ku, TOKYO 108,
Tel. +81 3 3740 5130, Fax. +81 3 3740 5077

Korea: Philips House, 260-199 Itaewon-dong, Yongsan-ku, SEOUL,
Tel. +82 2 709 1412, Fax. +82 2 709 1415

Malaysia: No. 76 Jalan Universiti, 46200 PETALING JAYA, SELANGOR,
Tel. +60 3 750 5214, Fax. +60 3 757 4880

Mexico: 5900 Gateway East, Suite 200, EL PASO, TEXAS 79905,
Tel. +9-5 800 234 7381

Middle East: see Italy

Netherlands: Postbus 90050, 5600 PB EINDHOVEN, Bldg. VB,
Tel. +31 40 27 82785, Fax. +31 40 27 88399

New Zealand: 2 Wagener Place, C.P.O. Box 1041, AUCKLAND,
Tel. +64 9 849 4160, Fax. +64 9 849 7811

Norway: Box 1, Manglerud 0612, OSLO,
Tel. +47 22 74 8000, Fax. +47 22 74 8341

Philippines: Philips Semiconductors Philippines Inc.,
106 Valero St. Salcedo Village, P.O. Box 2108 MCC, MAKATI,
Metro MANILA, Tel. +63 2 816 6380, Fax. +63 2 817 3474

Poland: Ul. Lukiska 10, PL 04-123 WARSZAWA,
Tel. +48 22 612 2831, Fax. +48 22 612 2327

Portugal: see Spain

Romania: see Italy

Russia: Philips Russia, Ul. Usatcheva 35A, 119048 MOSCOW,
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Singapore: Lorong 1, Toa Payoh, SINGAPORE 1231,
Tel. +65 350 2538, Fax. +65 251 6500

Slovakia: see Austria

Slovenia: see Italy

South Africa: S.A. PHILIPS Pty Ltd., 195-215 Main Road Martindale,
2092 JOHANNESBURG, P.O. Box 7430 Johannesburg 2000,
Tel. +27 11 470 5911, Fax. +27 11 470 5494

South America: Rua do Rocio 220, 5th floor, Suite 51,
04552-903 São Paulo, SÃO PAULO - SP, Brazil,
Tel. +55 11 821 2333, Fax. +55 11 829 1849

Spain: Balmes 22, 08007 BARCELONA,
Tel. +34 3 301 6312, Fax. +34 3 301 4107

Sweden: Kottbygatan 7, Akalla, S-16485 STOCKHOLM,
Tel. +46 8 632 2000, Fax. +46 8 632 2745

Switzerland: Allmendstrasse 140, CH-8027 ZÜRICH,
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Taiwan: Philips Semiconductors, 6F, No. 96, Chien Kuo N. Rd., Sec. 1,
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Turkey: Talatpasa Cad. No. 5, 80640 GÜLTEPE/ISTANBUL,
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Ukraine: PHILIPS UKRAINE, 4 Patrice Lumumba str., Building B, Floor 7,
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United Kingdom: Philips Semiconductors Ltd., 276 Bath Road, Hayes,
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United States: 811 East Arques Avenue, SUNNYVALE, CA 94088-3409,
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Yugoslavia: PHILIPS, Trg N. Pasica 5/v, 11000 BEOGRAD,
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