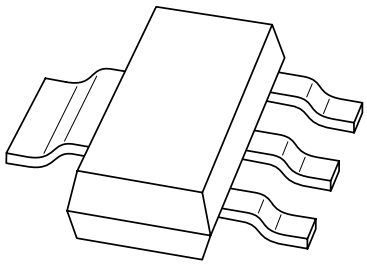
DATA SHEET



BSP122
N-channel enhancement mode vertical D-MOS transistor

Product specification
Supersedes data of 1997 Jun 23

2001 May 18

Philips
Semiconductors

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N-channel enhancement mode vertical D-MOS transistor

BSP122

FEATURES

- Direct interface to C-MOS, TTL, etc.
- High-speed switching
- No secondary breakdown.

DESCRIPTION

N-channel enhancement mode vertical D-MOS transistor in a SOT223 package and intended for use as a line current interruptor in telephone sets and for applications 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 (DC)	200	V
I_D	drain current (DC)	550	mA
R_{DSon}	drain-source on-state resistance	2.5	Ω
V_{GSth}	gate-source threshold voltage	2	V

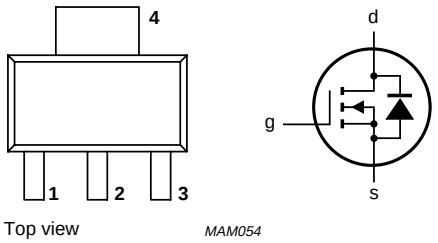


Fig.1 Simplified outline (SOT223) and symbol.

LIMITING VALUES

In accordance with the Absolute Maximum System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{DS}	drain-source voltage (DC)		–	200	V
V_{GSO}	gate-source voltage (DC)	open drain	–	±20	V
I_D	drain current (DC)		–	550	mA
I_{DM}	peak drain current		–	3	A
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note 1	–	1.5	W
T_{stg}	storage temperature		–55	+150	°C
T_j	junction temperature		–	150	°C

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 cm^2.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient; note 1	83.3	K/W

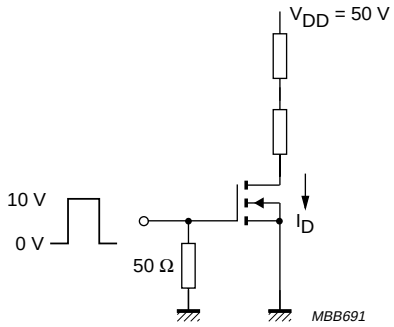
Note

1. Transistor mounted on an epoxy printed circuit board, 40 x 40 x 1.5 mm, mounting pad for the drain tab minimum 6 cm^2.

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	200	–	–	V
I_{DSS}	drain-source leakage current	V_{DS} = 160 V; V_{GS} = 0	–	–	1	μA
I_{GSS}	gate-source leakage current	V_{GS} = ±20 V; V_{DS} = 0	–	–	100	nA
V_{GSth}	gate-source threshold voltage	I_D = 1 mA; V_{GS} = V_{DS}	0.4	–	2	V
R_{DSon}	drain-source on-resistance	I_D = 750 mA; V_{GS} = 10 V	–	1.7	2.5	Ω
		I_D = 20 mA; V_{GS} = 2.4 V	–	3	–	Ω
$\|Y_{fs}\|$	transfer admittance	I_D = 750 mA; V_{DS} = 25 V	400	900	–	mS
C_{iss}	input capacitance	V_{DS} = 25 V; V_{GS} = 0; f = 1 MHz	–	100	–	pF
C_{oss}	output capacitance	V_{DS} = 25 V; V_{GS} = 0; f = 1 MHz	–	20	–	pF
C_{rss}	reverse transfer capacitance	V_{DS} = 25 V; V_{GS} = 0; f = 1 MHz	–	10	–	pF
Switching times (see Figs 2 and 3)						
t_{on}	turn-on time	I_D = 750 mA; V_{DD} = 50 V; V_{GS} = 0 to 10 V	–	10	20	ns
t_{off}	turn-off time	I_D = 750 mA; V_{DD} = 50 V; V_{GS} = 0 to 10 V	–	45	60	ns



V_{DD} = 50 V.

Fig.2 Switching times test circuit.

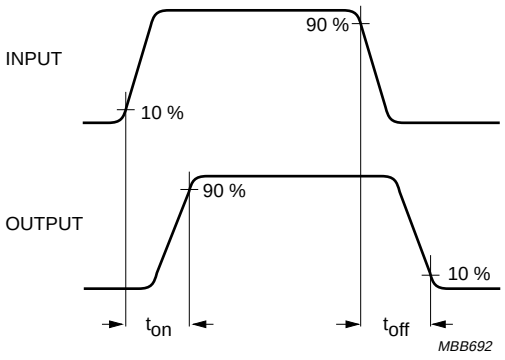
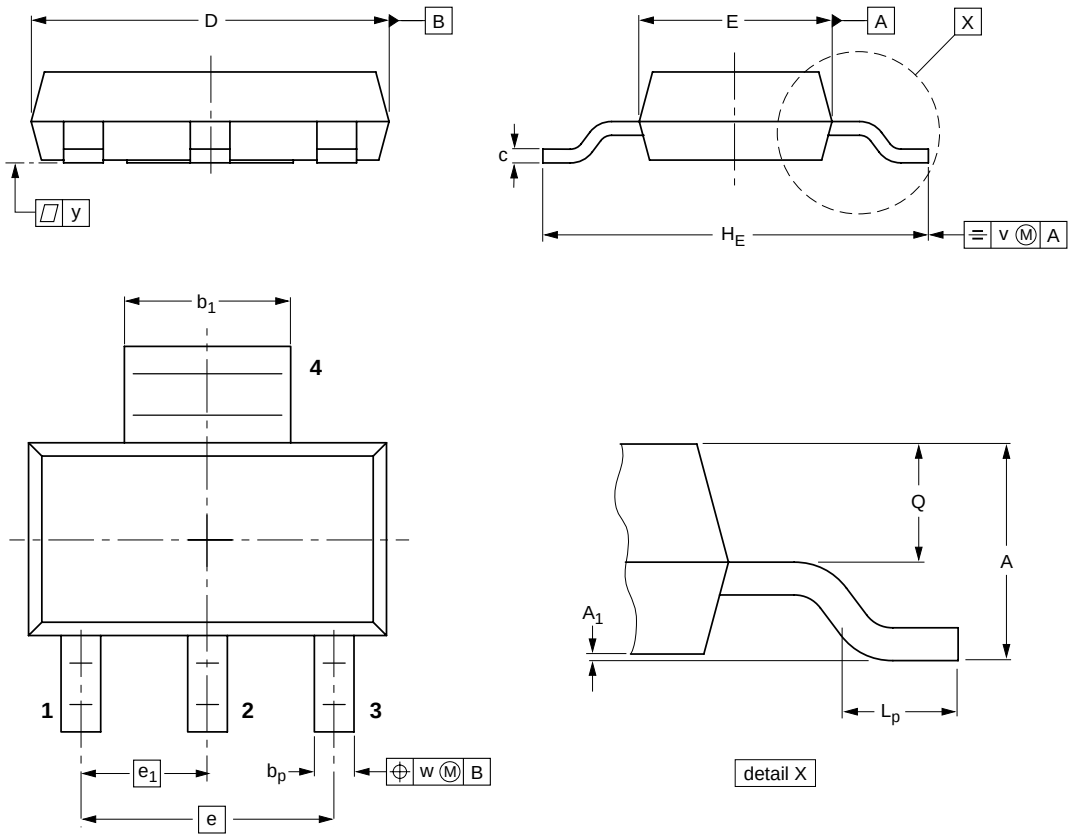


Fig.3 Input and output waveforms.

PACKAGE OUTLINE

Plastic surface mounted package; collector pad for good heat transfer; 4 leads **SOT223**



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1	b_p	b_1	c	D	E	e	e_1	H_E	L_p	Q	v	w	y
mm	1.8 1.5	0.10 0.01	0.80 0.60	3.1 2.9	0.32 0.22	6.7 6.3	3.7 3.3	4.6	2.3	7.3 6.7	1.1 0.7	0.95 0.85	0.2	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT223			SC-73			~~97-02-28~~ 99-09-13

DATA SHEET STATUS

DATA SHEET STATUS[1]	PRODUCT STATUS[2]	DEFINITIONS
Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
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Printed in The Netherlands 613510/03/pp8 Date of release: 2001 May 18 Document order number: 9397 750 08246

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