

DATA SHEET

BSP108

N-channel enhancement mode
vertical D-MOS transistor

Product specification
File under Discrete Semiconductors, SC13b

April 1995

N-channel enhancement mode vertical D-MOS transistor

BSP108

DESCRIPTION

N-channel enhancement mode vertical D-MOS transistor in a miniature SOT223 envelope and intended for use in relay, high-speed and line-transformer drivers.

FEATURES

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

QUICK REFERENCE DATA

Drain-source voltage	V_{DS}	max.	80 V
Gate-source voltage (open drain)	$\pm V_{GSO}$	max.	20 V
Drain current (DC)	I_D	max.	500 mA
Total power dissipation up to $T_{amb} = 25\text{ }^\circ\text{C}$	P_{tot}	max.	1.5 W
Drain-source ON-resistance		typ.	2.0 Ω
		max.	3.0 Ω
	$I_D = 500\text{ mA}; V_{GS} = 10\text{ V}$	$R_{DS(on)}$	
Transfer admittance			
	$I_D = 500\text{ mA}; V_{DS} = 15\text{ V}$	$ Y_{fs} $	min. 150 mS
			typ. 300 mS

PINNING - SOT223

- 1 = gate
- 2 = drain
- 3 = source
- 4 = drain

Marking code

BSP108

PIN CONFIGURATION

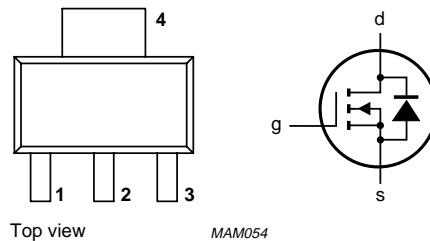


Fig.1 Simplified outline and symbol.

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RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)

Drain-source voltage	V_{DS}	max.	80 V
Gate-source voltage (open drain)	$\pm V_{GSO}$	max.	20 V
Drain current (DC)	I_D	max.	500 mA
Drain current (peak)	I_{DM}	max.	1.0 A
Total power dissipation up to $T_{amb} = 25\text{ °C}$ (note 1)	P_{tot}	max.	1.5 W
Storage temperature range	T_{stg}		-65 to + 150 °C
Junction temperature	T_j	max.	150 °C

THERMAL RESISTANCE

From junction to ambient (note 1)	$R_{th\ j-a}$	=	83.3 K/W
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Note

- Device mounted on an epoxy printed-circuit board 40 mm × 40 mm × 1.5 mm; mounting pad for the collector lead min. 6 cm².

CHARACTERISTICS

 $T_j = 25\text{ °C}$ unless otherwise specified

Drain-source breakdown voltage $I_D = 10\ \mu\text{A}; V_{GS} = 0$	$V_{(BR)\ DSS}$	min.	80 V
Gate threshold voltage $I_D = 1\ \text{mA}; V_{GS} = V_{DS}$	$V_{GS\ (th)}$	min. max.	1.5 V 3.5 V
Gate-source leakage current $\pm V_{GS} = 20\ \text{V}; V_{DS} = 0$	I_{GSS}	max.	100 nA
Drain-source leakage current $V_{DS} = 60\ \text{V}; V_{GS} = 0$	I_{DSS}	max.	1.0 μA
Drain-source ON-resistance $I_D = 500\ \text{mA}; V_{GS} = 10\ \text{V}$	$R_{DS(on)}$	typ. max.	2.0 Ω 3.0 Ω
Transfer admittance $I_D = 500\ \text{mA}; V_{DS} = 15\ \text{V}$	$ Y_{fs} $	min. typ.	150 mS 300 mS
Input capacitance at $f = 1\ \text{MHz};$ $V_{DS} = 10\ \text{V}; V_{GS} = 0$	C_{iss}	typ. max.	45 pF 60 pF
Output capacitance at $f = 1\ \text{MHz};$ $V_{DS} = 10\ \text{V}; V_{GS} = 0$	C_{oss}	typ. max.	30 pF 45 pF

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Feedback capacitance at $f = 1 \text{ MHz}$;

$V_{DS} = 10 \text{ V}$; $V_{GS} = 0$

C_{rss}	typ.	8 pF
	max.	12 pF

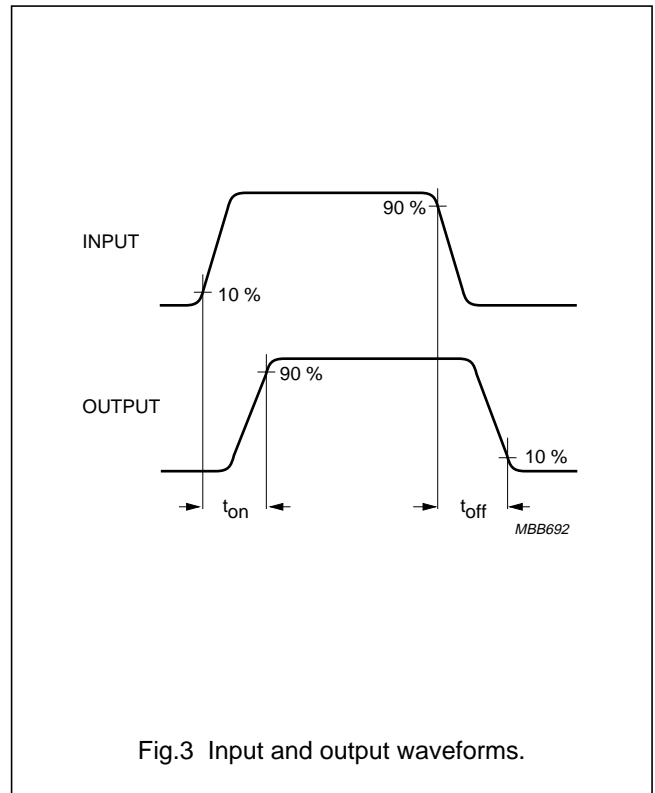
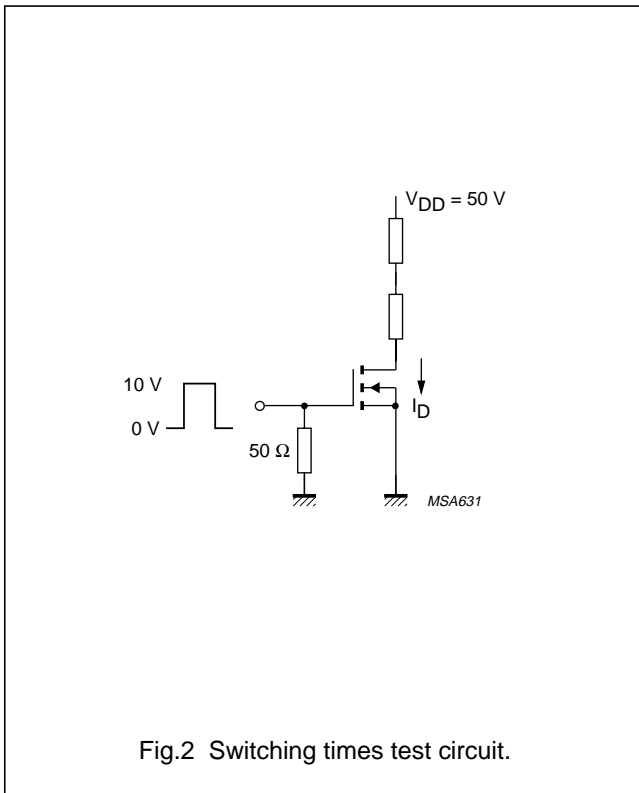
Switching times (see Figs 2 and 3)

$I_D = 500 \text{ mA}$; $V_{DD} = 50 \text{ V}$

$V_{GS} = 0 \text{ to } 10 \text{ V}$

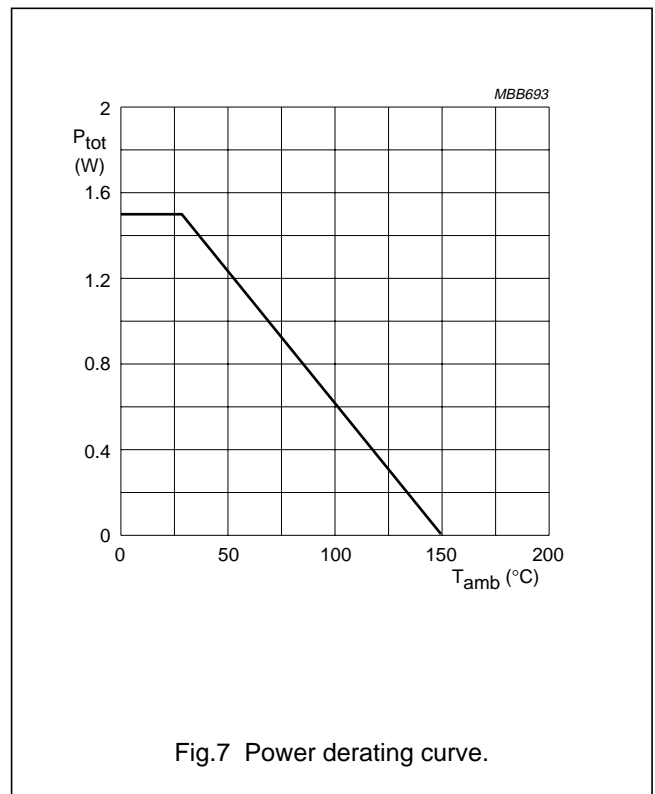
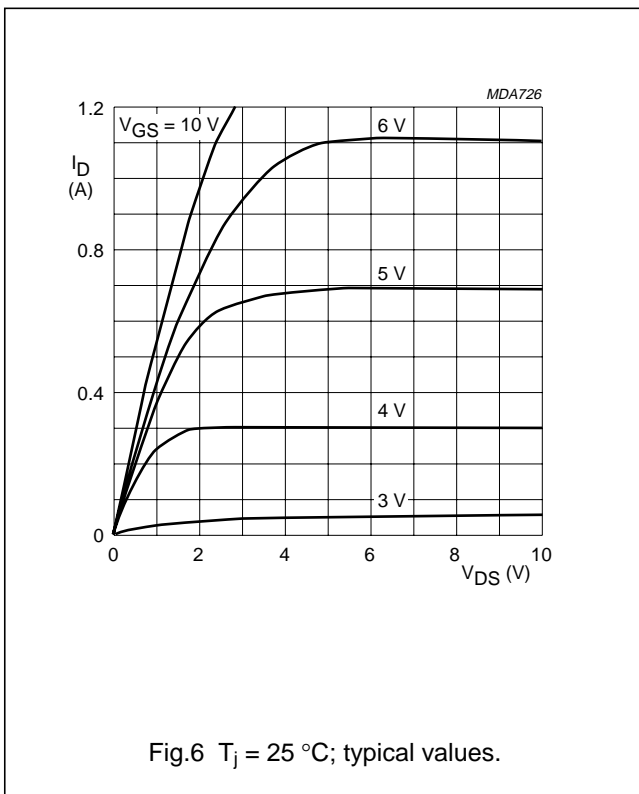
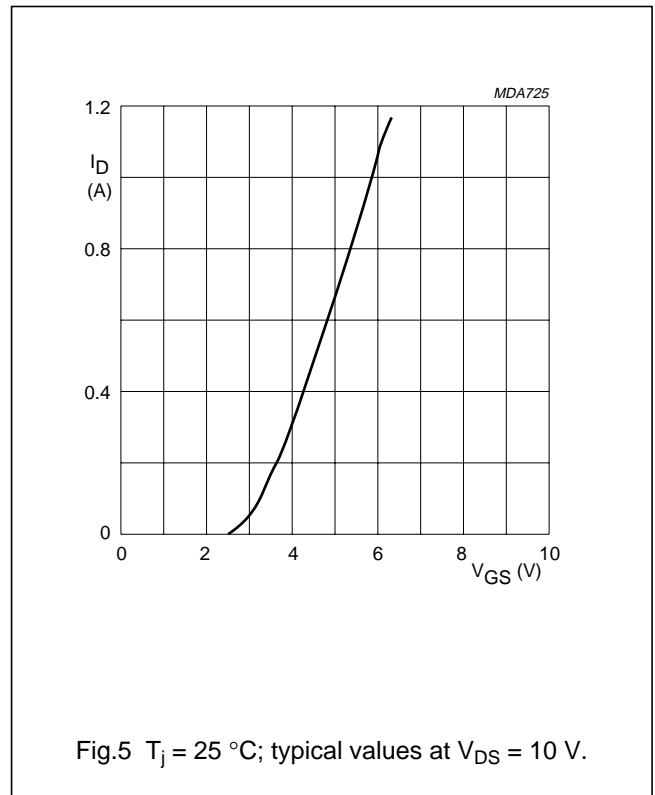
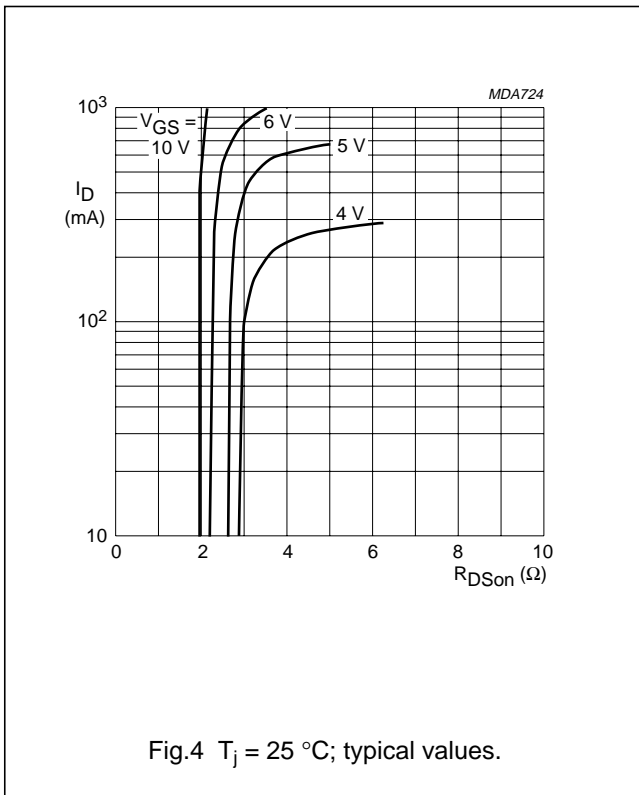
t_{on}	typ.	4 ns
	max.	8 ns

t_{off}	typ.	10 ns
	max.	15 ns



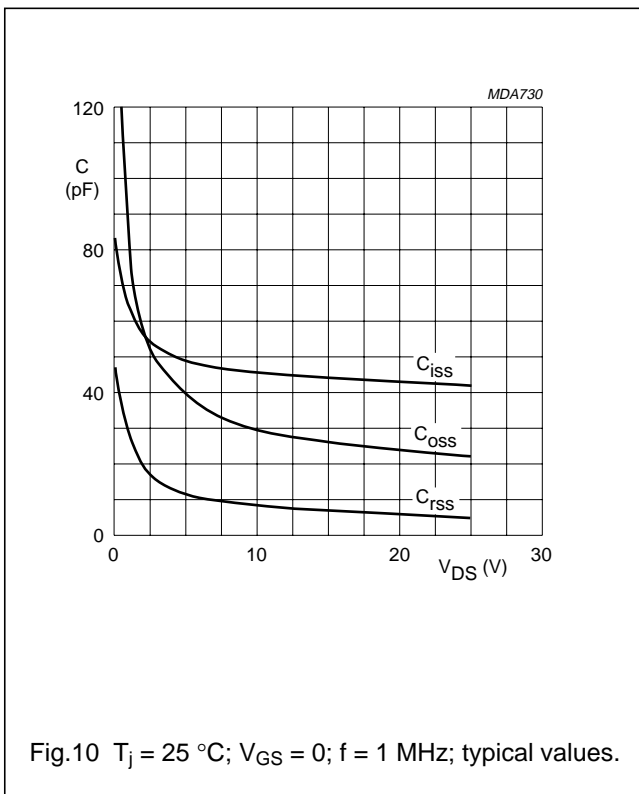
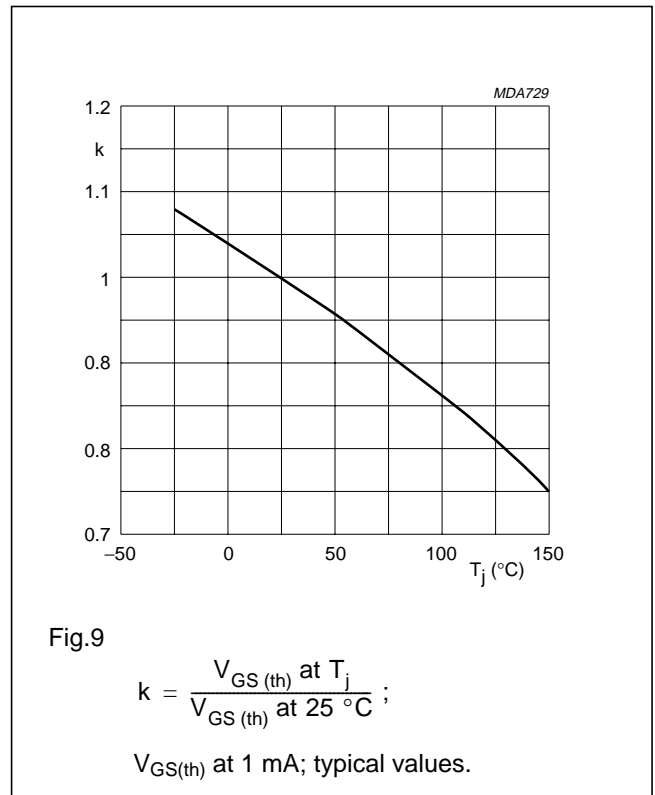
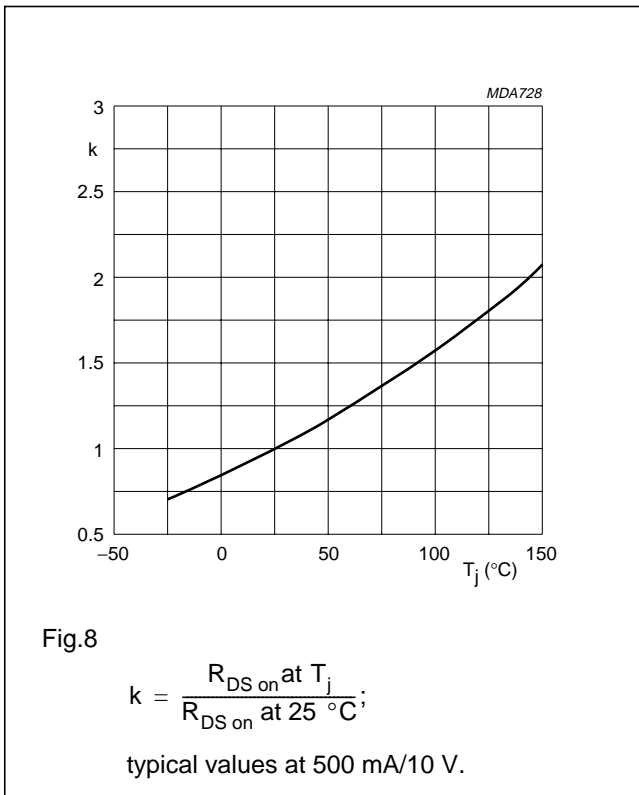
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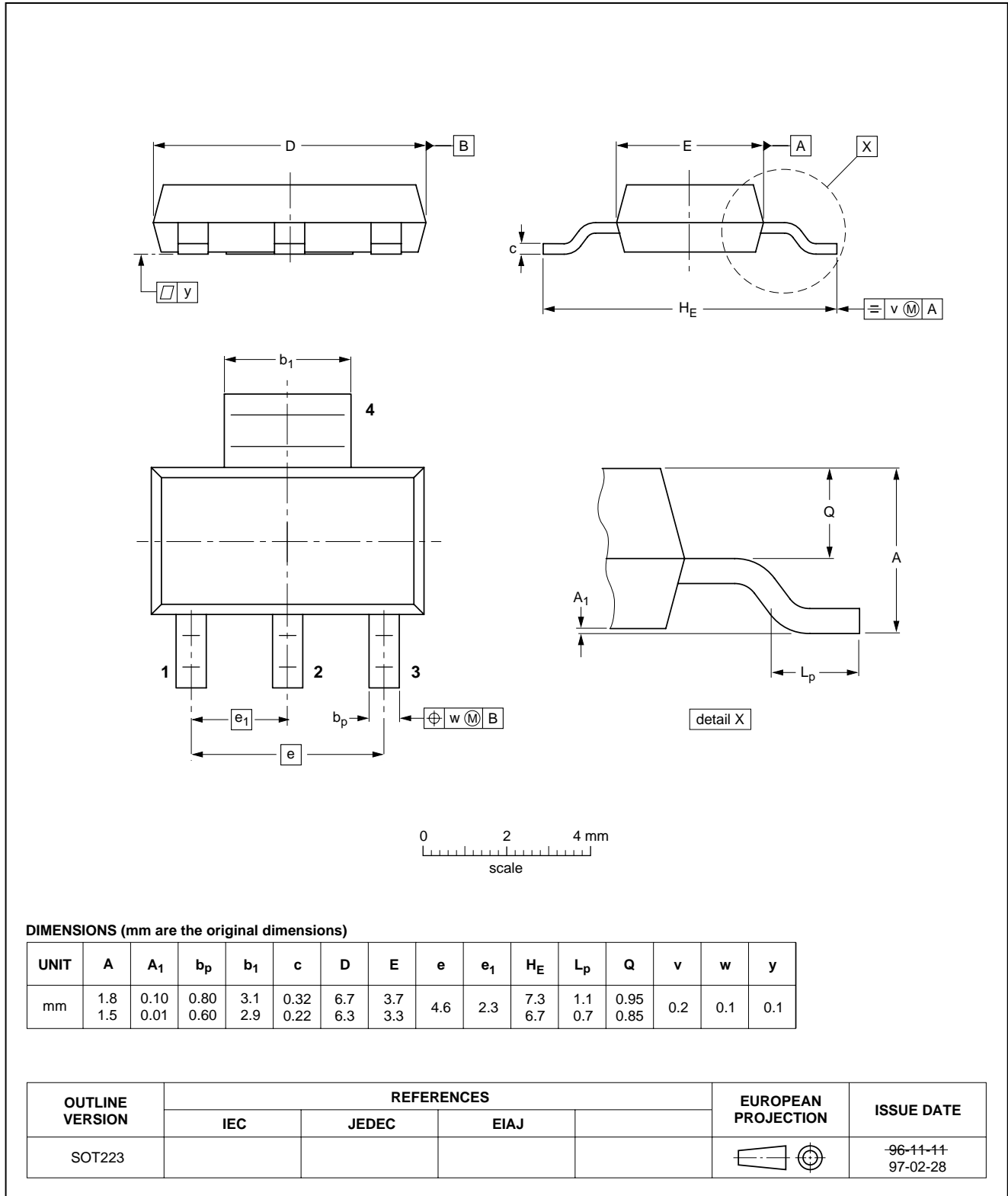
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PACKAGE OUTLINE

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

SOT223



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BSP108**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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NOTES

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Printed in The Netherlands

137107/1200/01/pp12

Date of release: April 1995

Document order number: 9397 750 02468

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