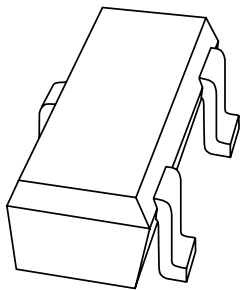


# DATA SHEET



**2PB709AW**

**PNP general purpose transistor**

Product specification

2002 Jun 26

# PNP general purpose transistor

2PB709AW

## FEATURES

- High collector current (max. 100 mA)
- Low collector-emitter saturation voltage (max. 500 mV).

## APPLICATIONS

- General purpose switching and amplification.

## DESCRIPTION

PNP transistor in an SC-70 (SOT323) plastic package.  
NPN complement: 2PD601AW

## MARKING

TYPE NUMBER	MARKING CODE <sup>(1)</sup>
2PB709AQW	N5*
2PB709ARW	N7*
2PB709ASW	N9*

### Note

- \* = p: made in Hong Kong.  
\* = t: made in Malaysia.

## PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

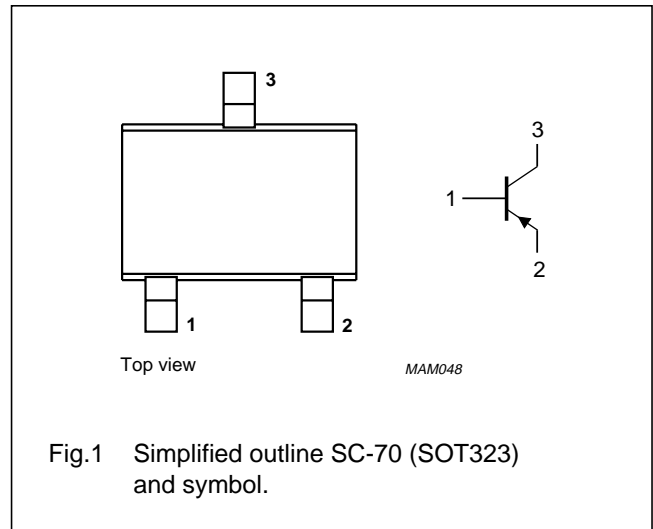


Fig.1 Simplified outline SC-70 (SOT323) and symbol.

## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter	–	–45	V
V <sub>CEO</sub>	collector-emitter voltage	open base	–	–45	V
V <sub>EBO</sub>	emitter-base voltage	open collector	–	–6	V
I <sub>C</sub>	collector current (DC)		–	–100	mA
I <sub>CM</sub>	peak collector current		–	–200	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; note 1	–	200	mW
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–	150	°C
T <sub>amb</sub>	operating ambient temperature		–65	+150	°C

### Note

1. For mounting conditions, see “Thermal considerations and footprint design for SOT323 in the General Part of Data Handbook SC18”.

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## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	625	K/W

## Note

- For mounting conditions, see "Thermal considerations and footprint design for SOT323 in the General Part of Data Handbook SC18".

## CHARACTERISTICS

$T_{amb} = 25\text{ °C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_{CBO}$	collector-base cut-off current	$I_E = 0; V_{CB} = -45\text{ V}$	–	–10	nA
		$I_E = 0; V_{CB} = -45\text{ V}; T_j = 150\text{ °C}$	–	–5	$\mu\text{A}$
$I_{EBO}$	emitter-base cut-off current	$I_C = 0; V_{EB} = -5\text{ V}$	–	–10	nA
$h_{FE}$	DC current gain 2PB709AQW 2PB709ARW 2PB709ASW	$I_C = -2\text{ mA}; V_{CE} = -10\text{ V}$	160	260	
			210	340	
			290	460	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = -100\text{ mA}; I_B = -10\text{ mA};$ note 1	–	–500	mV
$C_c$	collector capacitance	$I_E = i_e = 0; V_{CB} = -10\text{ V};$ $f = 1\text{ MHz}$	–	5	pF
$f_T$	transition frequency 2PB709AQW 2PB709ARW 2PB709ASW	$I_C = -1\text{ mA}; V_{CE} = -10\text{ V};$ $f = 100\text{ MHz}$	60	–	MHz
			70	–	MHz
			80	–	MHz

## Note

- Pulse test:  $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$ .

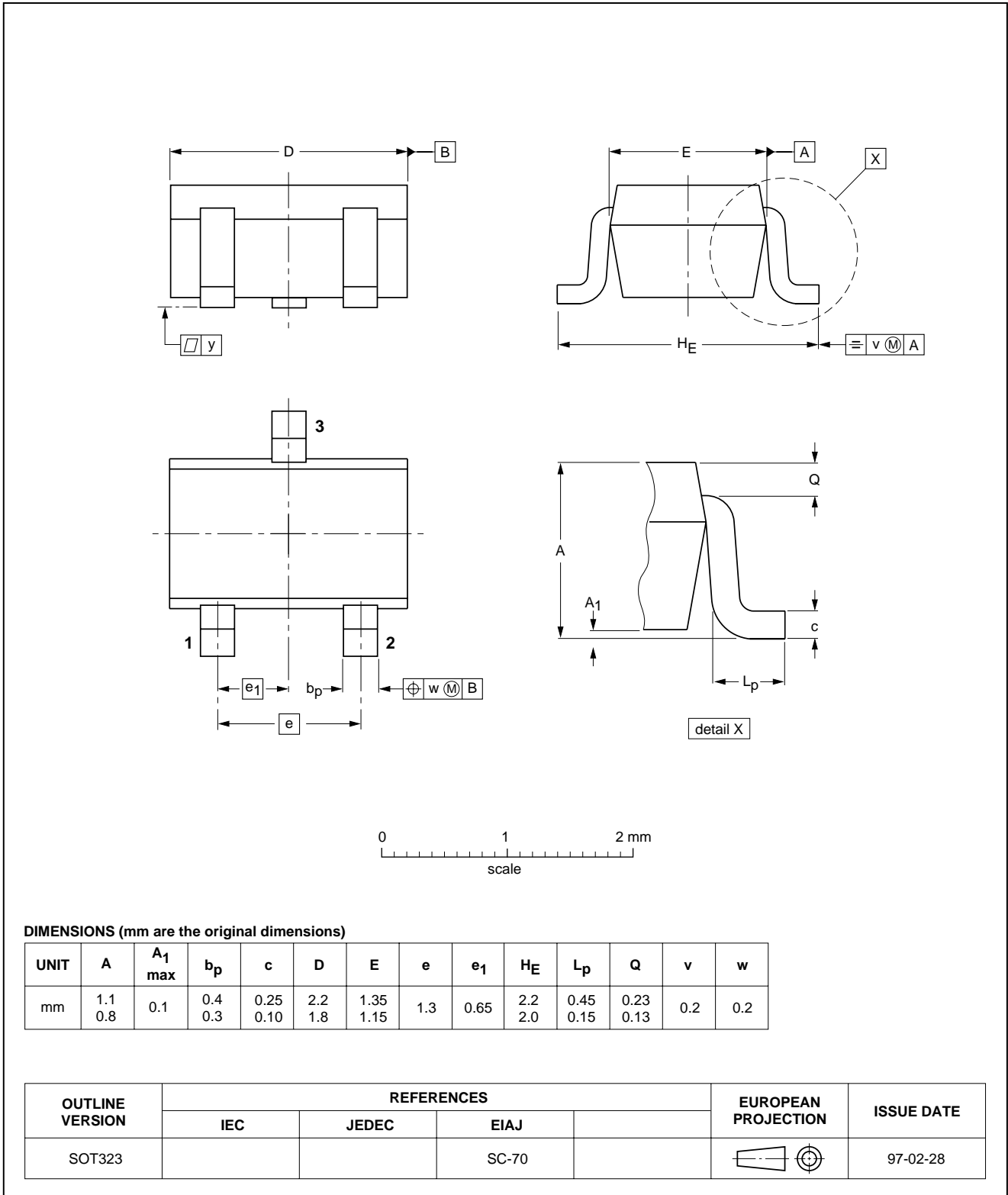
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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



## PNP general purpose transistor

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## DATA SHEET STATUS

DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	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.
Product data	Production	This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Changes will be communicated according to the Customer Product/Process Change Notification (CPCN) procedure SNW-SQ-650A.

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2. The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL <http://www.semiconductors.philips.com>.

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**NOTES**

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**NOTES**

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