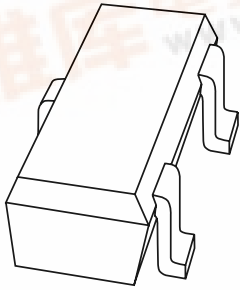


**DISCRETE SEMICONDUCTORS**

# DATA SHEET



**2PD601AW**

**NPN general purpose transistor**

Preliminary specification

2002 Jun 26

# NPN general purpose transistor

# 2PD601AW

### FEATURES

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

### APPLICATIONS

- General purpose switching and amplification.

### DESCRIPTION

NPN transistor in an SC-70 (SOT323) plastic package.  
PNP complement: 2PB709AW.

### MARKING

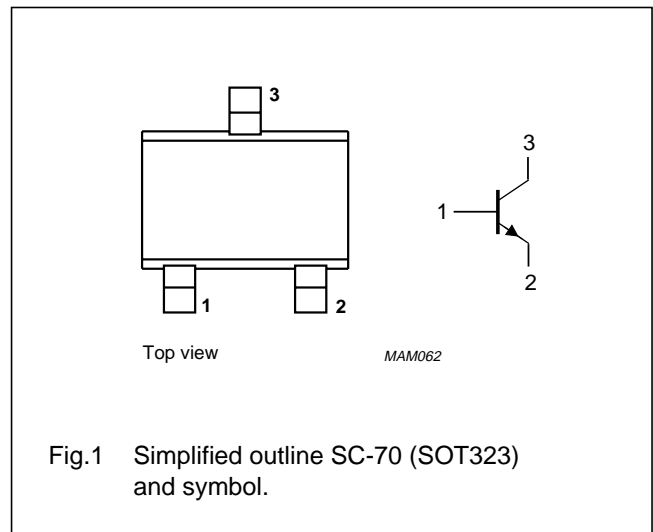
TYPE NUMBER	MARKING CODE <sup>(1)</sup>
2PD601AQW	*6D
2PD601ARW	*6E
2PD601ASW	*6F

### Note

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

### PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{CBO}$	collector-base voltage	open emitter	–	60	V
$V_{CEO}$	collector-emitter voltage	open base	–	50	V
$V_{EBO}$	emitter-base voltage	open collector	–	6	V
$I_C$	collector current (DC)		–	100	mA
$I_{CM}$	peak collector current		–	200	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$ ; note 1	–	200	mW
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	150	°C
$T_{amb}$	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	$I_E = 0; V_{CB} = 60\text{ V}$	–	10	nA
		$I_E = 0; V_{CB} = 60\text{ V}; T_j = 150\text{ °C}$	–	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	$I_C = 100\text{ mA}; V_{CE} = 2\text{ V}; \text{note 1}$	90	–	
	DC current gain	$I_C = 2\text{ mA}; V_{CE} = 10\text{ V}$	160	260	
	2PD601AQW		210	340	
	2PD601ARW		290	460	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = 100\text{ mA}; I_B = 10\text{ mA}; \text{note 1}$	–	500	mV
$C_c$	collector capacitance	$I_E = i_e = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	–	3.5	pF
$f_T$	transition frequency	$I_C = 2\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz}$	100	–	MHz
	2PD601AQW		120	–	MHz
	2PD601ARW		140	–	MHz
	2PD601ASW				

## Note

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

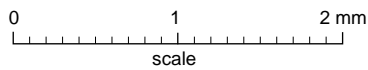
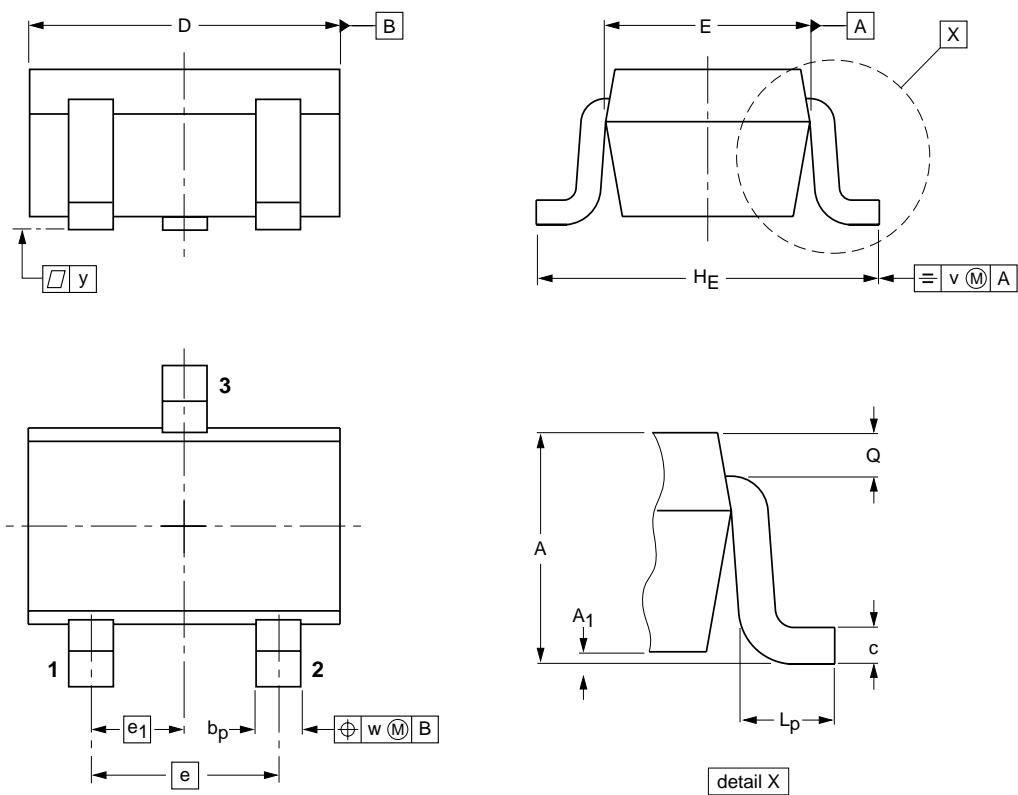
NPN general purpose transistor

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT323			SC-70			97-02-28

## NPN 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.

## Notes

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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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These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

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**NOTES**

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**NOTES**

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