

2PC4081

NPN general-purpose transistor

Rev. 05 — 25 November 2004

Product data sheet

1. Product profile

1.1 General description

NPN transistor in a SOT323 (SC-70) plastic package. The PNP complement is 2PA1576.

1.2 Features

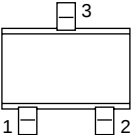
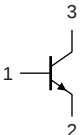
- Low current (max. 150 mA)
- Low voltage (max. 50 V).

1.3 Applications

- General-purpose switching
- Small signal amplification.

2. Pinning information

Table 1: Pinning

Pin	Description	Simplified outline	Symbol
1	base		
2	emitter		
3	collector		

sym021

3. Ordering information

Table 2: Ordering information

Type number	Package		
	Name	Description	Version
2PC4081Q	SC-70	plastic surface mounted package; 3 leads	SOT323
2PC4081R			
2PC4081S			

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4. Marking

Table 3: Marking codes

Type number	Marking code ^[1]
2PC4081Q	Z*Q
2PC4081R	Z*R
2PC4081S	Z*S

[1] * = -: made in Hong Kong.
* = t: made in Malaysia.

5. Limiting values

Table 4: 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	-	7	V
I_C	collector current (DC)		-	150	mA
I_{CM}	peak collector current		-	200	mA
I_{BM}	peak base current		-	200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$	^[1] -	200	mW
T_{stg}	storage temperature		-65	+150	°C
T_j	junction temperature		-	150	°C
T_{amb}	ambient temperature		-65	+150	°C

[1] Transistor mounted on an FR4 printed-circuit board, single-sided copper, tin-plated and standard footprint.

6. Thermal characteristics

Table 5: Thermal characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient		^[1] -	-	625	K/W

[1] Transistor mounted on an FR4 printed-circuit board, single-sided copper, tin-plated and standard footprint.

7. Characteristics

Table 6: Characteristics
T_{amb} = 25 °C; unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I _{CBO}	collector-base cut-off current	I _E = 0 A; V _{CB} = 30 V	-	-	100	nA
		I _E = 0 A; V _{CB} = 30 V; T _j = 150 °C	-	-	5	μA
I _{EBO}	emitter-base cut-off current	I _C = 0 A; V _{EB} = 4 V	-	-	100	nA
h _{FE}	DC current gain	I _C = 1 mA; V _{CE} = 6 V				
		2PC4081Q	120	-	270	
		2PC4081R	180	-	390	
		2PC4081S	270	-	560	
V _{CEsat}	collector-emitter saturation voltage	I _C = 50 mA; I _B = 5 mA	[1]	-	400	mV
C _c	collector capacitance	I _E = i _e = 0 A; V _{CB} = 12 V; f = 1 MHz	-	2	3.5	pF
f _T	transition frequency	I _C = 2 mA; V _{CE} = 12 V; f = 100 MHz	100	-	-	MHz

[1] Pulse test: t_p ≤ 300 μs; δ ≤ 0.02.

8. Package outline

Plastic surface mounted package; 3 leads

SOT323

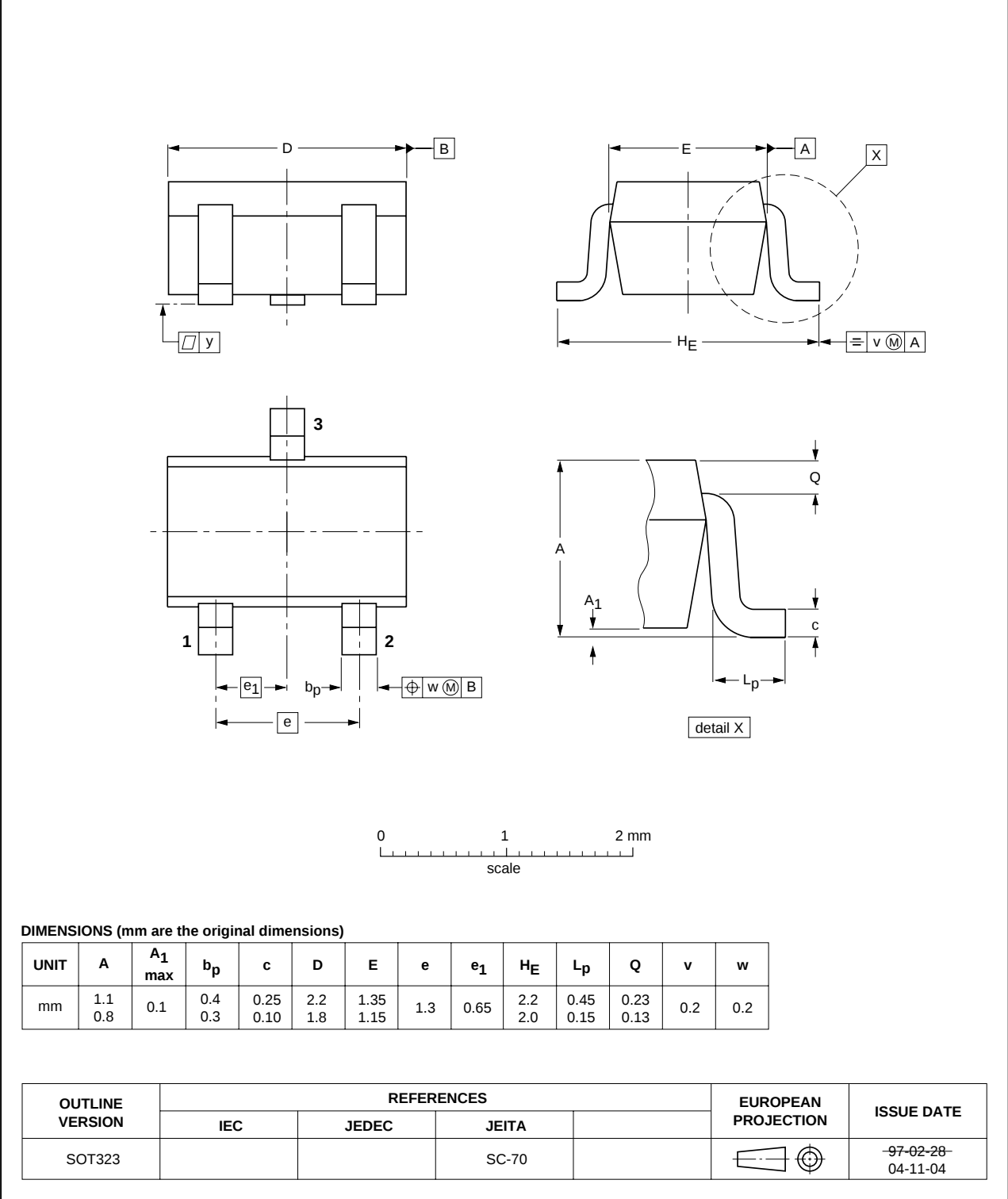


Fig 1. Package outline SOT323 (SC-70)

9. Revision history

Table 7: Revision history

Document ID	Release date	Data sheet status	Change notice	Doc. number	Supersedes
2PC4081_5	20041125	Product data sheet	-	9397 750 14084	2PC4081_4
Modifications:					
• The format of this data sheet has been redesigned to comply with the new presentation and information standard of Philips Semiconductors. • Section 1.2: maximum low current and maximum low voltage upgraded • Table 4: V_{CBO} value changed to 60 V • Table 4: V_{CEO} value changed to 50 V • Table 4: V_{EBO} value changed to 7 V • Table 4: I_C value changed to 150 mA.					
2PC4081_4	19990408	Product specification	-	9397 750 05524	2PC4081_3
2PC4081_3	19970704	Product specification	-	9397 750 02584	2PC4081_2
2PC4081_2	19931213	n.a.	-	n.a.	n.a.

10. Data sheet status

Level	Data sheet status ^[1]	Product status ^{[2] [3]}	Definition
I	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.
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[3] For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

11. Definitions

Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. 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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Date of release: 25 November 2004
Document number: 9397 750 14084

Published in The Netherlands