

# 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

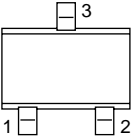
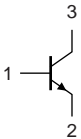
- Low current (max. 150 mA)
- Low voltage (max. 50 V).

### 1.3 Applications

- General-purpose switching
- Small signal amplification.

## 2. Pinning information

Table 1: Pinning

Pin	Description	Simplified outline	Symbol
1	base		 <i>sym021</i>
2	emitter		
3	collector		

## 3. Ordering information

Table 2: Ordering information

Type number	Package		Version
	Name	Description	
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 <sup>[1]</sup>
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	$T_{amb} \leq 25\text{ °C}$	<sup>[1]</sup> -	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		<sup>[1]</sup> -	-	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**

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit				
$I_{CBO}$	collector-base cut-off current	$I_E = 0\text{ A}$ ; $V_{CB} = 30\text{ V}$	-	-	100	nA				
		$I_E = 0\text{ A}$ ; $V_{CB} = 30\text{ V}$ ; $T_j = 150\text{ °C}$	-	-	5	$\mu\text{A}$				
$I_{EBO}$	emitter-base cut-off current	$I_C = 0\text{ A}$ ; $V_{EB} = 4\text{ V}$	-	-	100	nA				
$h_{FE}$	DC current gain	$I_C = 1\text{ mA}$ ; $V_{CE} = 6\text{ V}$								
							2PC4081Q	120	-	270
							2PC4081R	180	-	390
							2PC4081S	270	-	560
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = 50\text{ mA}$ ; $I_B = 5\text{ mA}$	[1]	-	400	mV				
$C_c$	collector capacitance	$I_E = i_e = 0\text{ A}$ ; $V_{CB} = 12\text{ V}$ ; $f = 1\text{ MHz}$	-	2	3.5	pF				
$f_T$	transition frequency	$I_C = 2\text{ mA}$ ; $V_{CE} = 12\text{ V}$ ; $f = 100\text{ MHz}$	100	-	-	MHz				

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

8. Package outline

Plastic surface mounted package; 3 leads

SOT323

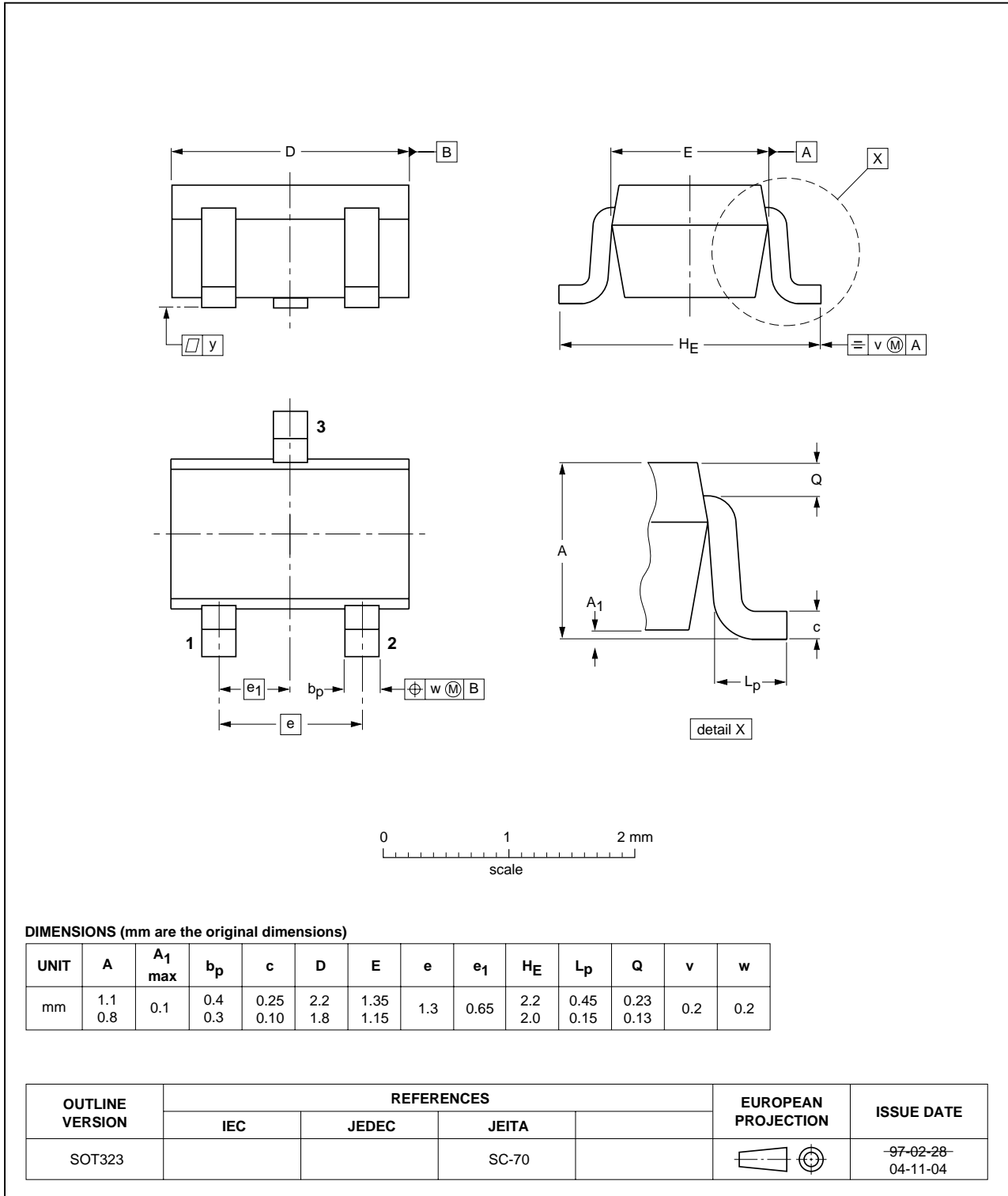


Fig 1. Package outline SOT323 (SC-70)

## 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:					
					<ul style="list-style-type: none"><li>• The format of this data sheet has been redesigned to comply with the new presentation and information standard of Philips Semiconductors.</li><li>• <a href="#">Section 1.2</a>: maximum low current and maximum low voltage upgraded</li><li>• <a href="#">Table 4</a>: <math>V_{CBO}</math> value changed to 60 V</li><li>• <a href="#">Table 4</a>: <math>V_{CEO}</math> value changed to 50 V</li><li>• <a href="#">Table 4</a>: <math>V_{EBO}</math> value changed to 7 V</li><li>• <a href="#">Table 4</a>: <math>I_C</math> value changed to 150 mA.</li></ul>
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.

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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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Date of release: 25 November 2004  
Document number: 9397 750 14084

Published in The Netherlands