

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

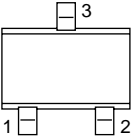
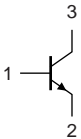
- Low current (max. 150 mA)
- Low voltage (max. 50 V).

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 ^[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

$T_{amb} = 25\text{ °C}$; 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	μA
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

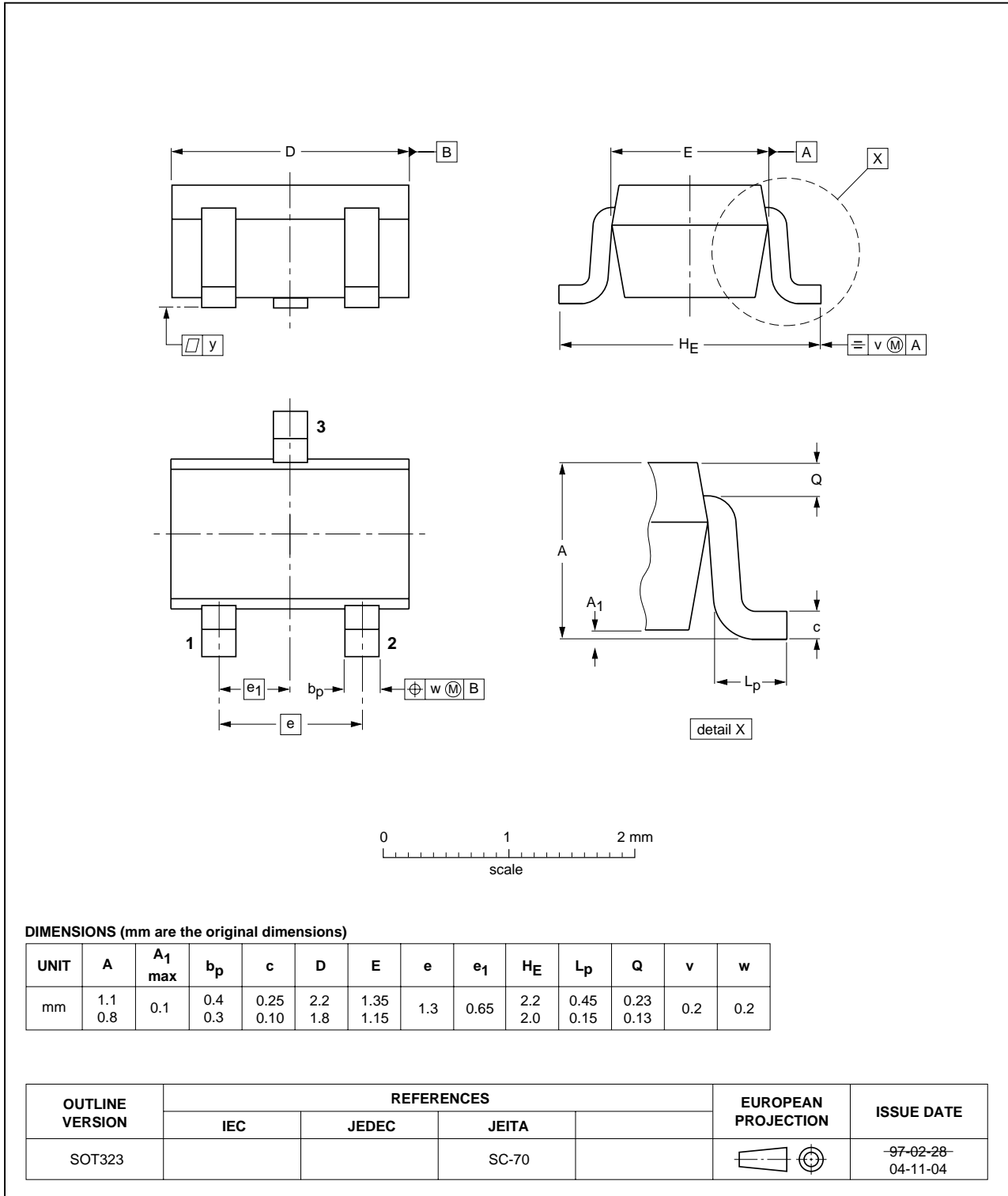


Fig 1. Package outline SOT323 (SC-70)

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"> 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.

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

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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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