

2PC4081

NPN general-purpose transistor

Rev. 06 — 17 November 2009

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

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

$T_{amb} = 25\text{ }^{\circ}\text{C}$ 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				
		$I_E = 0\text{ A}; V_{CB} = 30\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$	-	-	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

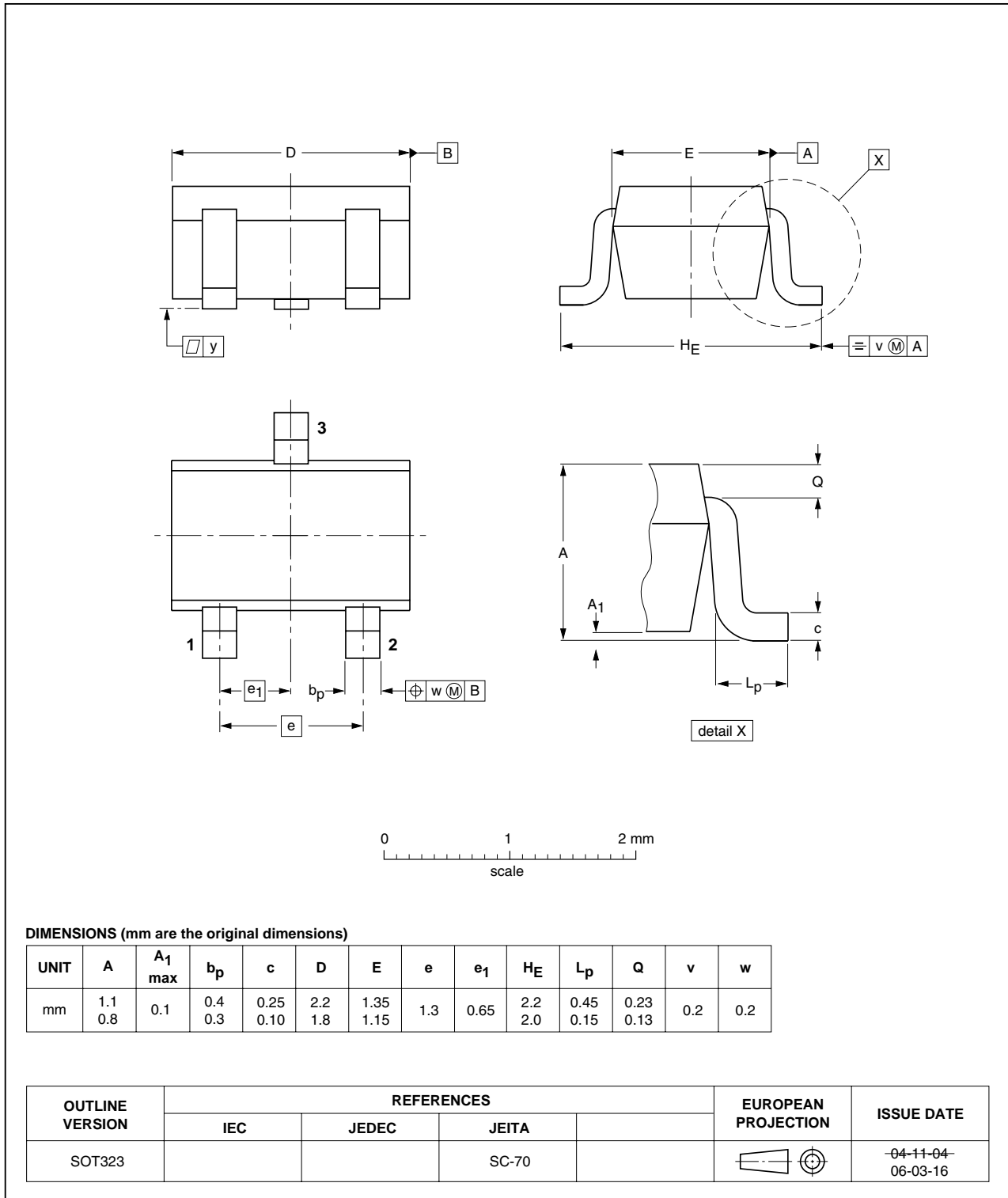


Fig 1. Package outline SOT323 (SC-70)

9. Revision history

Table 7. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
2PC4081_6	20091117	Product data sheet	-	2PC4081_5
Modifications:		<ul style="list-style-type: none">This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content.Figure 1 "Package outline SOT323 (SC-70)": updated		
2PC4081_5	20041125	Product data sheet	-	2PC4081_4
2PC4081_4	19990408	Product specification	-	2PC4081_3
2PC4081_3	19970704	Product specification	-	2PC4081_2
2PC4081_2	19931213	n.a.	-	n.a.

10. Legal information

10.1 Data sheet status

Document status ^{[1][2]}	Product status ^[3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.nxp.com>.

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