

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		 sym021
2	emitter		
3	collector		

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			

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

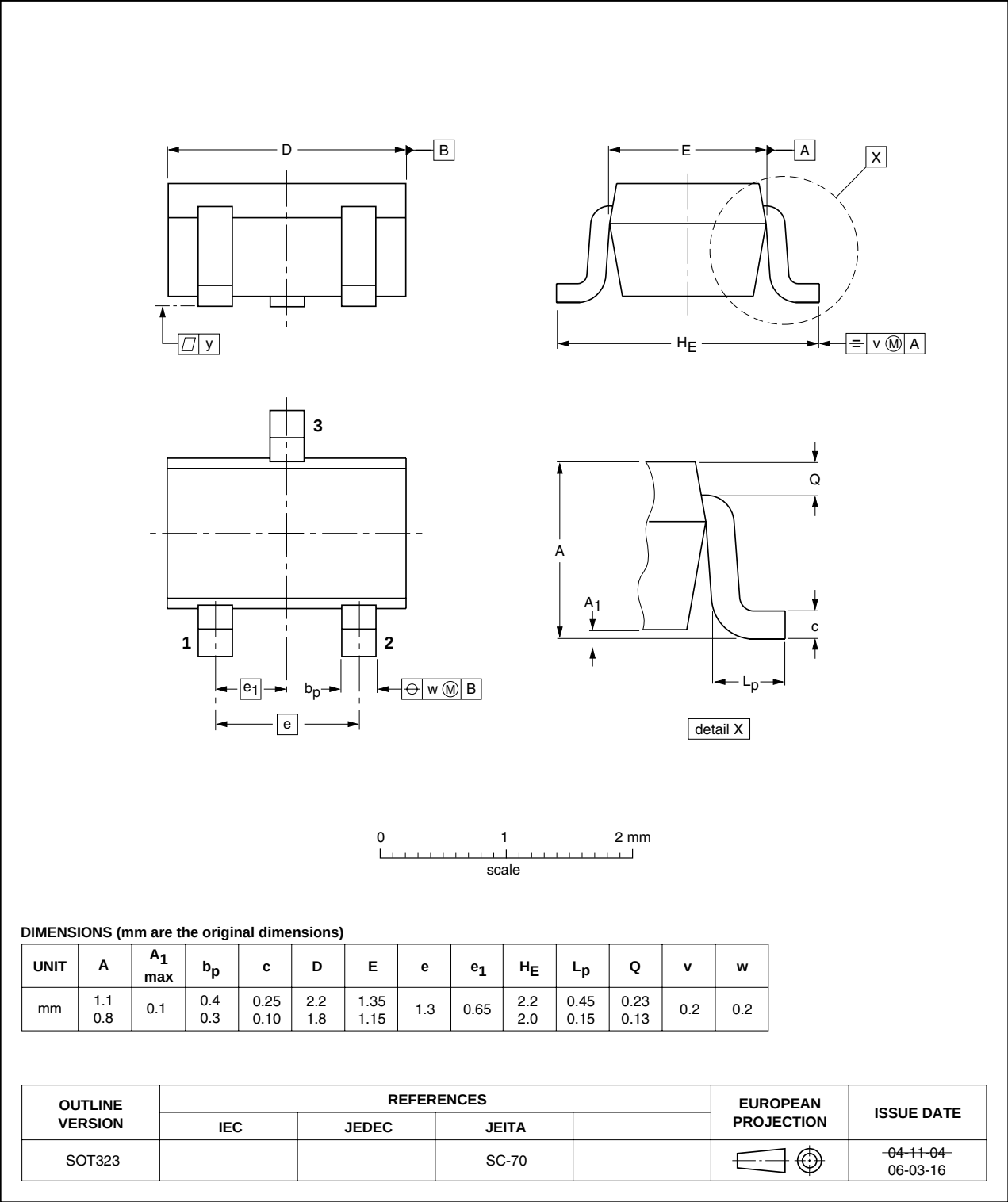


Fig 1. Package outline SOT323 (SC-70)

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:	- 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".

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