

2PA1576

PNP general-purpose transistor

Rev. 06 — 17 November 2009 Product data sheet

1. Product profile

1.1 General description

PNP transistor in a SOT323 (SC-70) plastic package. The NPN complement is 2PC4081.

1.2 Features

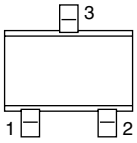
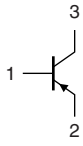
- Low current (max. 150 mA)
- Low voltage (max. 50 V)
- Low collector capacitance (typ. 2.5 pF)

1.3 Applications

- General-purpose switching and amplification

2. Pinning information

Table 1. Pinning

Pin	Description	Simplified outline	Symbol
1	base		
2	emitter		
3	collector		

sym013

3. Ordering information

Table 2. Ordering information

Type number	Package		
	Name	Description	Version
2PA1576Q	SC-70	plastic surface mounted package; 3 leads	SOT323
2PA1576R			
2PA1576S			

NXP founded by Philips

4. Marking

Table 3. Marking codes

Type number	Marking code[1]
2PA1576Q	F*Q
2PA1576R	F*R
2PA1576S	F*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		-	–6	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	$T_{amb} \leq 25$ °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.

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7. Characteristics

Table 6. Characteristics

T_{amb} = 25 °C unless otherwise specified.

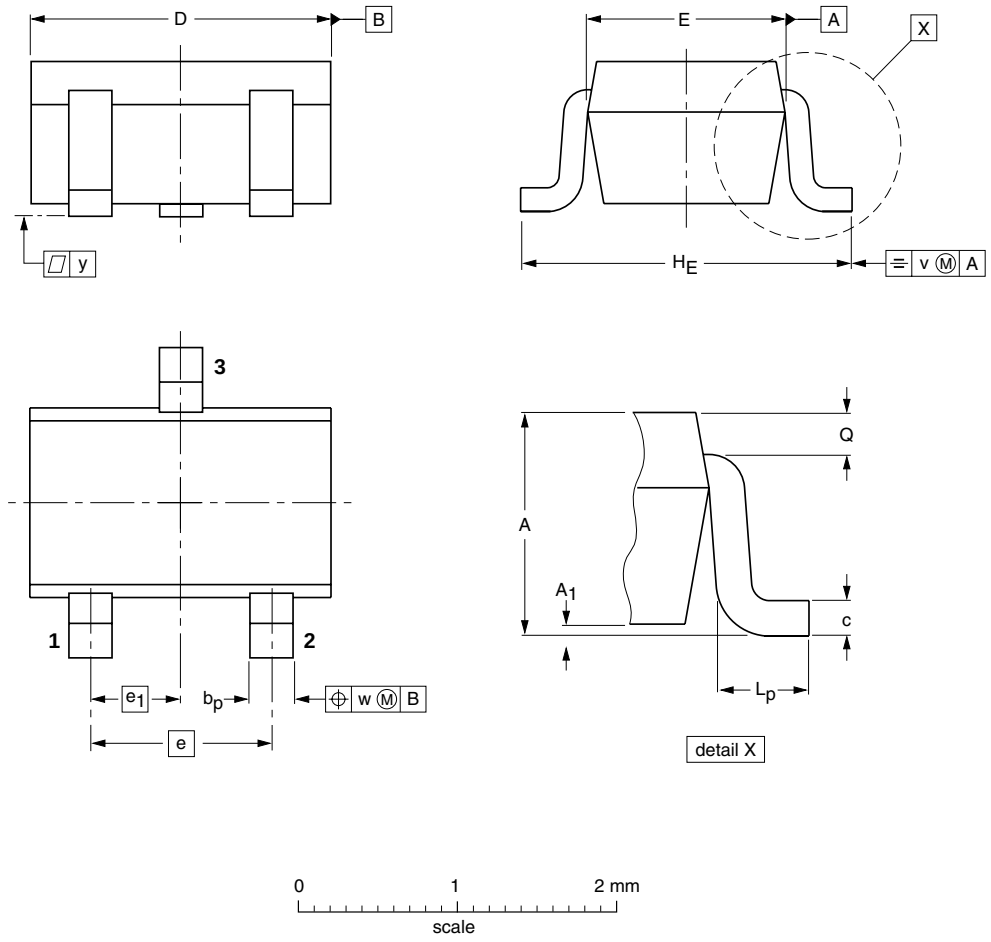
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
I_{CBO}	collector-base cut-off current	I_E = 0 A; V_{CB} = –30 V		-	-	–100	nA
		I_E = 0 A; V_{CB} = –30 V; T_j = 150 °C		-	-	–5	μA
I_{EBO}	emitter-base cut-off current	I_C = 0 A; V_{EB} = –4 V		-	-	–100	nA
h_{FE}	DC current gain	I_C = –1 mA; V_{CE} = –6 V					
	2PA1576Q			120	-	270	
	2PA1576R			180	-	390	
	2PA1576S			270	-	560	
V_{CEsat}	collector-emitter saturation voltage	I_C = –50 mA; I_B = –5 mA	[1]	-	-	–500	mV
C_c	collector capacitance	$I_E = i_e$ = 0 A; V_{CB} = –12 V; f = 1 MHz		-	2.5	3.5	pF
f_T	transition frequency	I_C = –2 mA; V_{CE} = –12 V; f = 100 MHz		100	-	-	MHz

[1] Pulse test: $t_p \leq 300$ μs; $\delta \leq 0.02$.

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8. Package outline

Plastic surface-mounted package; 3 leads **SOT323**



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT323			SC-70			~~04-11-04~~ 06-03-16

Fig 1. Package outline SOT323 (SC-70)

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9. Revision history

Table 7. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
2PA1576_6	20091117	Product data sheet	-	2PA1576_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			
2PA1576_5	20041124	Product data sheet	-	2PA1576_4
2PA1576_4	19990531	Product specification	-	2PA1576_3
2PA1576_3	19970328	Objective specification	-	2PA1576_2
2PA1576_2	19931213	n.a.	-	n.a.

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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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