1. Product profile

1.1 General description

PNP transistor in a SOT416 (SC-75) plastic package. The NPN complement is 2PC4617.
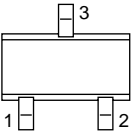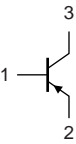
1.2 Features

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

1.3 Applications

■ General-purpose switching and amplification in communication, Electronic Data Processing (EDP) and consumer applications.

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		Version
	Name	Description	
2PA1774Q	SC-75	plastic surface mounted package; 3 leads	SOT416
2PA1774R			
2PA1774S			

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4. Marking

Table 3: **Marking codes**

Type number	Marking code
2PA1774Q	YQ
2PA1774R	YR
2PA1774S	YS

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			-	−100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\ °C$	[1]	-	150	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]	-	-	833	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	[1]				
	2PA1774Q			120	-	270	
	2PA1774R			180	-	390	
	2PA1774S			270	-	560	
V_{CEsat}	collector-emitter saturation voltage	I_C = −50 mA; I_B = −5 mA	[1]	-	-	−200	mV
C_c	collector capacitance	I_E = i_e = 0 A; V_{CB} = −12 V; f = 1 MHz		-	-	2.2	pF
f_T	transition frequency	I_E = −2 mA; V_{CE} = −12 V; f = 100 MHz	[1]	100	-	-	MHz

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

8. Package outline

Plastic surface mounted package; 3 leads

SOT416
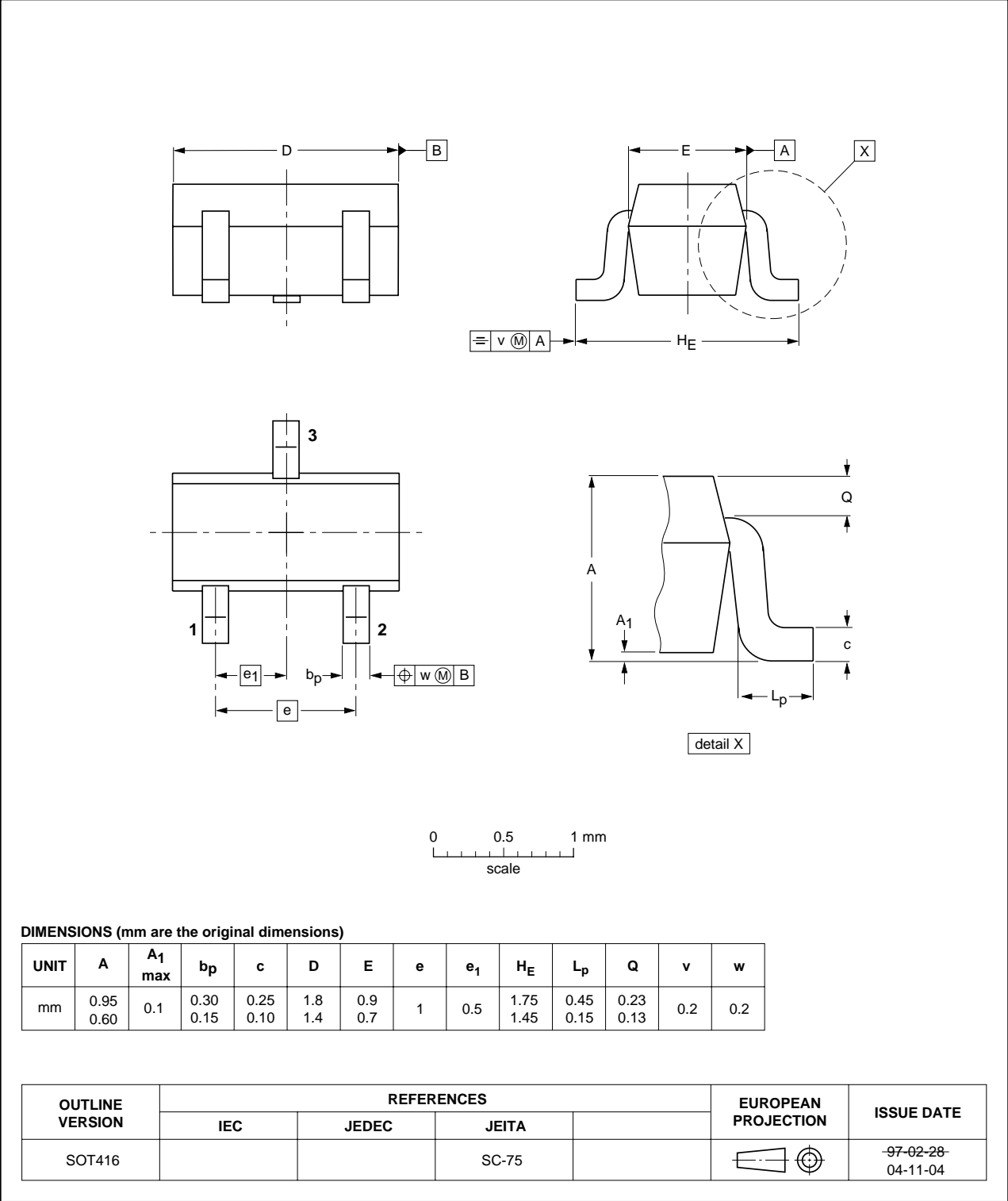

DIMENSIONS (mm are the original dimensions)

UNIT	A	A₁ max	bp	c	D	E	e	e₁	H_E	L_p	Q	v	w
mm	0.95 0.60	0.1	0.30 0.15	0.25 0.10	1.8 1.4	0.9 0.7	1	0.5	1.75 1.45	0.45 0.15	0.23 0.13	0.2	0.2

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT416			SC-75			97-02-28 04-11-04

Fig 1. Package outline SOT416 (SC-75)

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9. Revision history

Table 7: **Revision history**

Document ID	Release date	Data sheet status	Change notice	Doc. number	Supersedes
2PA1774_4	20041124	Product data sheet	-	9397 750 14083	2PA1774_3
Modifications:	• 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 –6 V • Table 4: I_C value changed to –150 mA.				
2PA1774_3	20001212	Product specification	-	9397 750 07835	2PA1774_2
2PA1774_2	19990601	Preliminary specification	-	9397 750 05957	2PA1774_1
2PA1774_1	19970709	Preliminary specification	-	9397 750 02196	-

10. Data sheet status

Level	Data sheet status [1]	Product status [2] [3]	Definition
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.
II	Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
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[1]   Please consult the most recently issued data sheet before initiating or completing a design.

[2]   The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL http://www.semiconductors.philips.com.

[3]   For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

11. Definitions

Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

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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