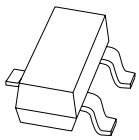


PDTA123YT

PNP resistor-equipped transistor; R1 = 2.2 kΩ, R2 = 10 kΩ

Rev. 02 — 11 June 2004 Objective data

1. Product profile

1.1 General description

PNP resistor-equipped transistor. NPN complement: PDTC123YT.

1.2 Features

- Built-in bias resistors
- Simplifies circuit design
- Reduces component count
- Reduces pick and place costs.

1.3 Applications

- General-purpose switching and amplification
- Inverter and interface circuits
- Circuit driver.

1.4 Quick reference data

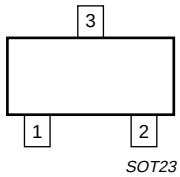
Table 1: Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{CEO}	collector-emitter voltage		-	-	–50	V
I_O	output current (DC)		-	-	–100	mA
R1	bias resistor		-	2.2	-	kΩ
R2	bias resistor		-	10	-	kΩ

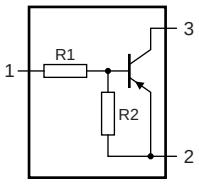
2. Pinning information

Table 2: Discrete pinning

Pin	Description	Simplified outline	Symbol
1	base		
2	emitter		
3	collector		



SOT23



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3. Ordering information

Table 3: Ordering information

Type number	Package		
	Name	Description	Version
PDTA123YT	-	plastic surface mounted package; 3 leads	SOT23

4. Marking

Table 4: Marking

Type number	Marking code [1]
PDTA123YT	*AD

[1] * = p: made in Hong Kong.
* = t: made in Malaysia.
* = W: made in China.

5. Limiting values

Table 5: 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		-	–50	V
V_{CEO}	collector-emitter voltage	open base		-	–50	V
V_{EBO}	emitter-base voltage	open collector		-	–5	V
V_I	input voltage					
	positive			-	+5	V
	negative			-	–12	V
I_O	output current (DC)			-	–100	mA
I_{CM}	peak collector current			-	–100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C	[1]	-	250	mW
T_{stg}	storage temperature			–65	+150	°C
T_j	junction temperature			-	150	°C
T_{amb}	operating ambient temperature			–65	+150	°C

[1] Refer to standard mounting conditions.

6. Thermal characteristics

Table 6: Thermal characteristics

Symbol	Parameter	Conditions		Value	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	500	K/W

[1] Refer to standard mounting conditions.

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7. Characteristics

Table 7: Characteristics

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_{CBO}	collector-base cut-off current	V_{CB} = –50 V; I_E = 0 A	-	-	–100	nA
I_{CEO}	collector-emitter cut-off current	V_{CE} = –30 V; I_B = 0 A	-	-	–1	µA
		V_{CE} = –30 V; I_B = 0 A; T_j = 150 °C	-	-	–50	µA
I_{EBO}	emitter-base cut-off current	V_{EB} = –5 V; I_C = 0 A	-	-	–700	µA
h_{FE}	DC current gain	V_{CE} = –5 V; I_C = –5 mA	35	-	-	
V_{CEsat}	collector-emitter saturation voltage	I_C = –10 mA; I_B = –0.5 mA	-	-	–150	mV
$V_{i(off)}$	input-off voltage	V_{CE} = –5 V; I_C = –100 µA	-	–0.75	–0.3	V
$V_{i(on)}$	input-on voltage	V_{CE} = –300 mV; I_C = –20 mA	–2.5	–1.15	-	V
R1	input resistor		1.54	2.2	2.86	kΩ
$R2/R1$	resistor ratio		3.6	4.5	5.5	
C_c	collector capacitance	V_{CB} = –10 V; I_E = I_e = 0 A; f = 1 MHz	-	-	2	pF

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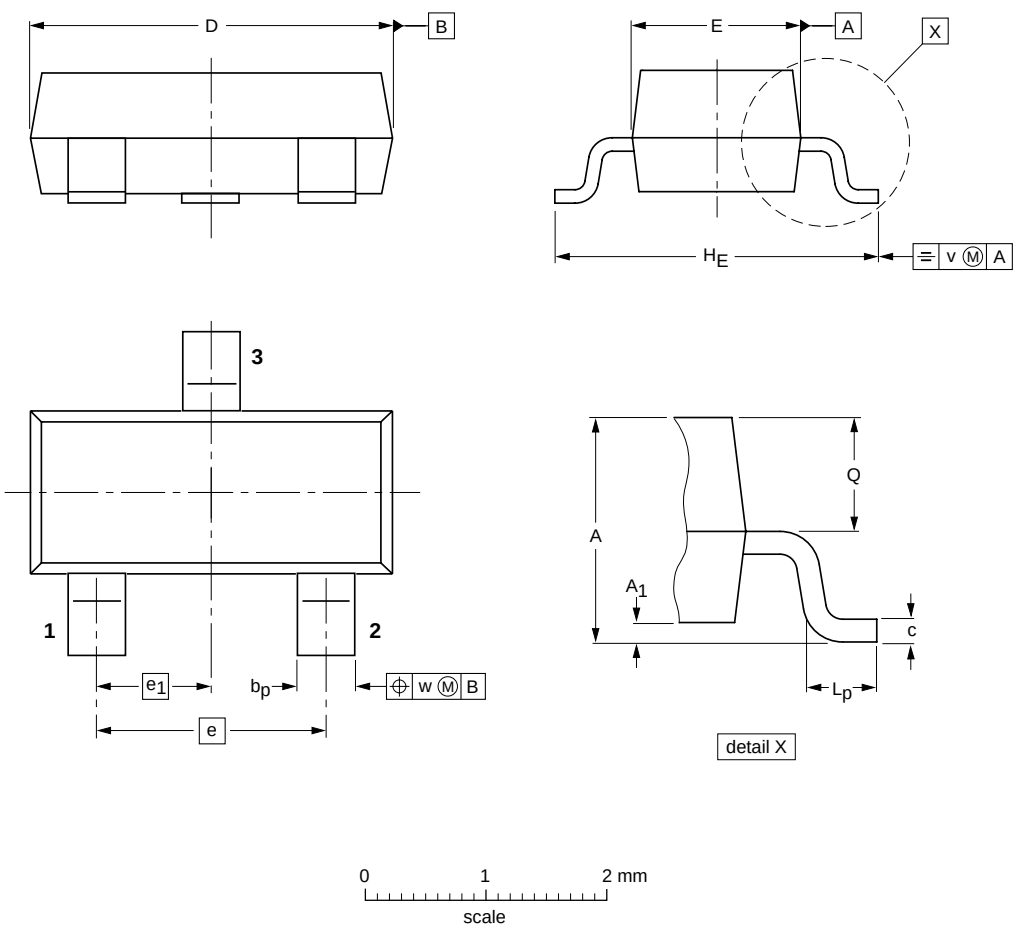
8. Package outline

Plastic surface mounted package; 3 leads **SOT23**



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 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT23		TO-236AB				~~97-02-28~~ 99-09-13

Fig 1. Package outline.

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9. Revision history

Table 8: Revision history

Document ID	Release date	Data sheet status	Change notice	Order number	Supersedes
PDTA123YT_2	20040611	Objective data	-	9397 750 13217	PDTA123YT_1
Modifications:	• $C_{c(max)}$ = 2 pF (was **<tbd>**); see Table 7 “Characteristics” • $V_{i(off)(typ)}$ = −0.75 V (was **<tbd>**); see Table 7 “Characteristics” • $V_{i(on)(typ)}$ = −1.15 V (was **<tbd>**); see Table 7 “Characteristics”				
PDTA123YT_1	20040325	Objective data	-	9397 750 12549	-

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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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[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.

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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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14. Contents

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