

PDTA323TK

PNP 500 mA, 15 V resistor-equipped transistor;
R1 = 2.2 k Ω , R2 = open

Rev. 01 — 16 June 2005

Product data sheet

1. Product profile

1.1 General description

500 mA PNP Resistor-Equipped Transistors (RET) in a small SOT346 (SC-59A) SMD plastic package.

NPN complement: PDTC323TK

1.2 Features

- Built-in bias resistors
- Simplifies circuit design
- 500 mA output current capability
- Reduces component count
- Reduces pick and place costs

1.3 Applications

- Digital application in automotive and industrial segments
- Controlling IC inputs
- Cost-saving alternative for BC807 series in digital applications
- Switching loads

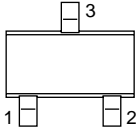
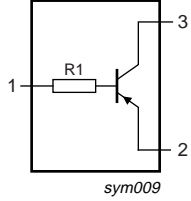
1.4 Quick reference data

Table 1: Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V _{CEO}	collector-emitter voltage	open base	-	-	-15	V
I _O	output current (DC)		-	-	-500	mA
R1	bias resistor 1 (input)		1.54	2.2	2.86	k Ω

2. Pinning information

Table 2: Pinning

Pin	Description	Simplified outline	Symbol
1	input (base)		 sym009
2	GND (emitter)		
3	output (collector)		

3. Ordering information

Table 3: Ordering information

Type number	Package		
	Name	Description	Version
PDTA323TK	SC-59A	plastic surface mounted package; 3 leads	SOT346

4. Marking

Table 4: Marking codes

Type number	Marking code
PDTA323TK	60

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	-	-30	V
V_{CEO}	collector-emitter voltage	open base	-	-15	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)		-	-500	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$	[1]	250	mW
T_{stg}	storage temperature		-65	+150	°C
T_j	junction temperature		-	150	°C
T_{amb}	ambient temperature		-65	+150	°C

[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

6. Thermal characteristics

Table 6: Thermal characteristics

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

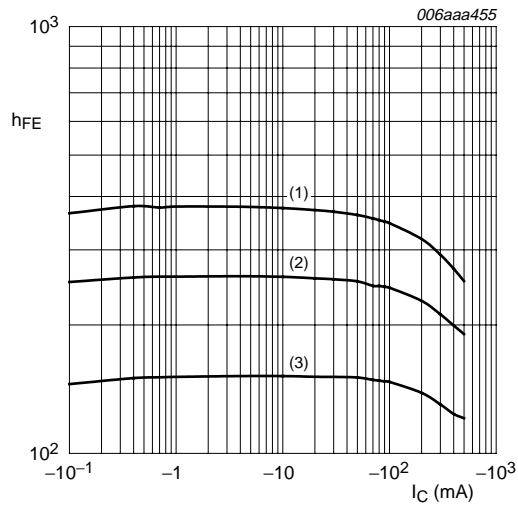
[1] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

7. Characteristics

Table 7: Characteristics

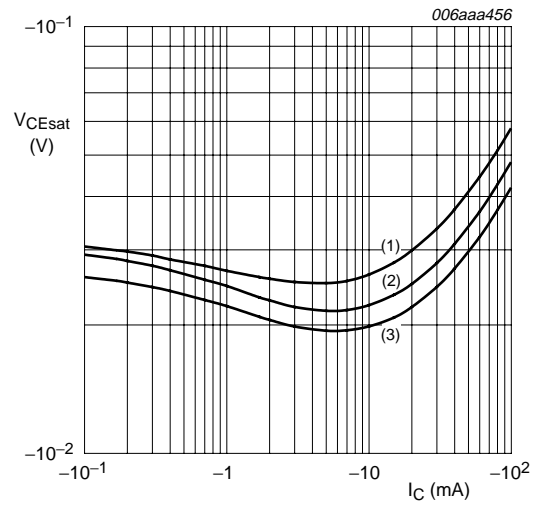
$T_{amb} = 25^{\circ}C$ unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_{CBO}	collector-base cut-off current	$V_{CB} = -30 V$; $I_E = 0 A$	-	-	-100	nA
I_{CEO}	collector-emitter cut-off current	$V_{CE} = -15 V$; $I_B = 0 A$	-	-	-0.5	μA
I_{EBO}	emitter-base cut-off current	$V_{EB} = -5 V$; $I_C = 0 A$	-	-	-100	nA
h_{FE}	DC current gain	$V_{CE} = -5 V$; $I_C = -50 mA$	100	250	-	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -50 mA$; $I_B = -2.5 mA$	-	-35	-80	mV
R1	bias resistor 1 (input)		1.54	2.2	2.86	k Ω
C_c	collector capacitance	$V_{CB} = -10 V$; $I_E = i_e = 0 A$; $f = 100 MHz$	-	11	-	pF



$V_{CE} = -5 \text{ V}$
 (1) $T_{amb} = 100 \text{ }^\circ\text{C}$
 (2) $T_{amb} = 25 \text{ }^\circ\text{C}$
 (3) $T_{amb} = -40 \text{ }^\circ\text{C}$

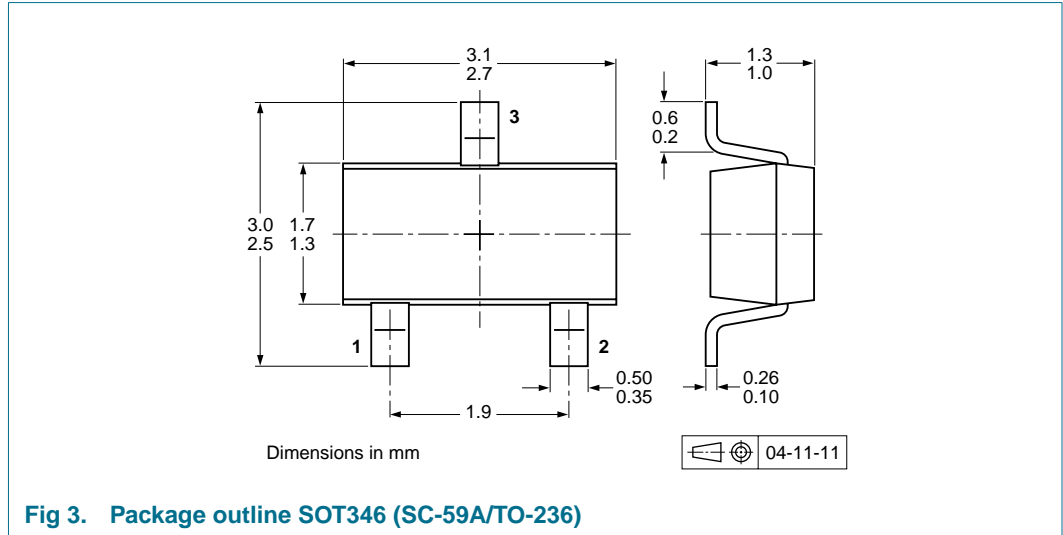
Fig 1. DC current gain as a function of collector current; typical values



$I_C/I_B = 20$
 (1) $T_{amb} = 100 \text{ }^\circ\text{C}$
 (2) $T_{amb} = 25 \text{ }^\circ\text{C}$
 (3) $T_{amb} = -40 \text{ }^\circ\text{C}$

Fig 2. Collector-emitter saturation voltage as a function of collector current; typical values

8. Package outline



9. Packing information

Table 8: Packing methods

The indicated -xxx are the last three digits of the 12NC ordering code. [\[1\]](#)

Type number	Package	Description	Packing quantity		
			3000	5000	10000
PDTA323TK	SOT346	4 mm pitch, 8 mm tape and reel	-115	-	-135

[1] For further information and the availability of packing methods, see [Section 15](#).

10. Revision history

Table 9: Revision history

Document ID	Release date	Data sheet status	Change notice	Doc. number	Supersedes
PDTA323TK_1	20050616	Product data sheet	-	9397 750 15076	-

11. 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.
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