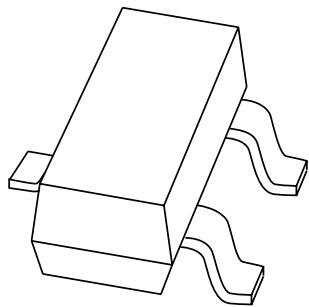


DATA SHEET



PMBTA13; PMBTA14 NPN Darlington transistors

Product specification
Supersedes data of 1997 Apr 18

1999 Apr 29

NPN Darlington transistors

PMBTA13; PMBTA14

FEATURES

- High current (max. 500 mA)
- Low voltage (max. 30 V)
- High DC current gain (min. 10000).

APPLICATIONS

- High input impedance preamplifiers.

DESCRIPTION

NPN Darlington transistor in a SOT23 plastic package.
PNP complement: PMBTA64.

MARKING

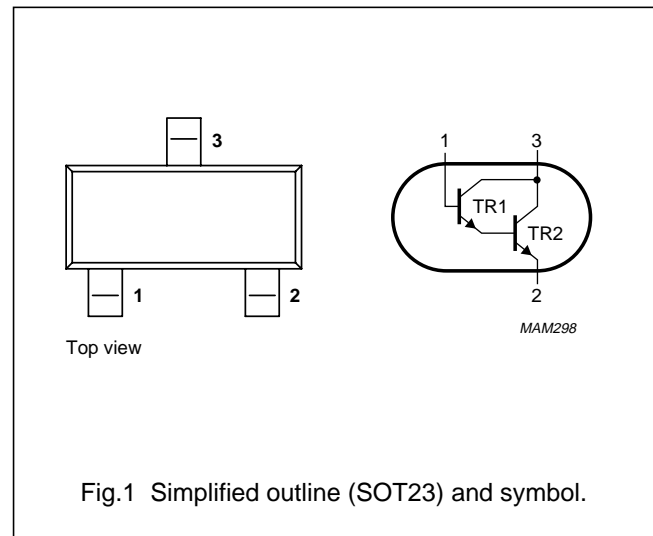
TYPE NUMBER	MARKING CODE ⁽¹⁾
PMBTA13	*1M
PMBTA14	*1N

Note

- * = p : Made in Hong Kong.
* = t : Made in Malaysia.

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	30	V
V_{CES}	collector-emitter voltage	$V_{BE} = 0$	–	30	V
V_{EBO}	emitter-base voltage	open collector	–	10	V
I_C	collector current (DC)		–	500	mA
I_{CM}	peak collector current		–	800	mA
I_B	base current (DC)		–	200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	–	250	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

Note

1. Transistor mounted on an FR4 printed-circuit board.

NPN Darlington transistors

PMBTA13; PMBTA14

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	500	K/W

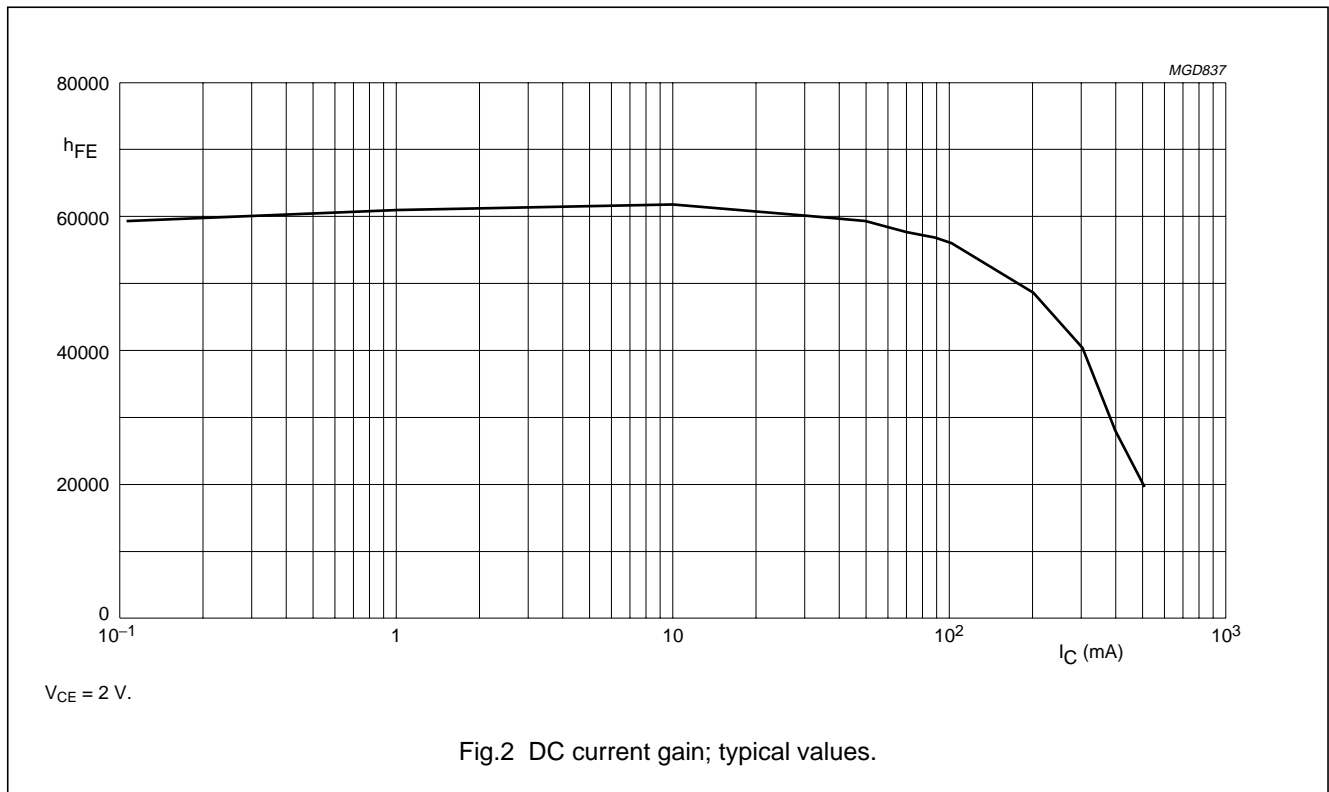
Note

1. Transistor mounted on an FR4 printed-circuit board.

CHARACTERISTICS

$T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = 30\text{ V}$	–	100	nA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = 10\text{ V}$	–	100	nA
h_{FE}	DC current gain	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V};$ (see Fig.2)	5000	–	
	PMBTA13				
	PMBTA14	10000	–		
	DC current gain	$I_C = 100\text{ mA}; V_{CE} = 5\text{ V};$ (see Fig.2)	10000	–	
PMBTA13					
PMBTA14	20000	–			
V_{CEsat}	collector-emitter saturation voltage	$I_C = 100\text{ mA}; I_B = 0.1\text{ mA}$	–	1.5	V
V_{BEon}	base-emitter on-state voltage	$I_C = 100\text{ mA}; V_{CE} = 5\text{ V}$	–	1.4	V
f_T	transition frequency	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	125	–	MHz



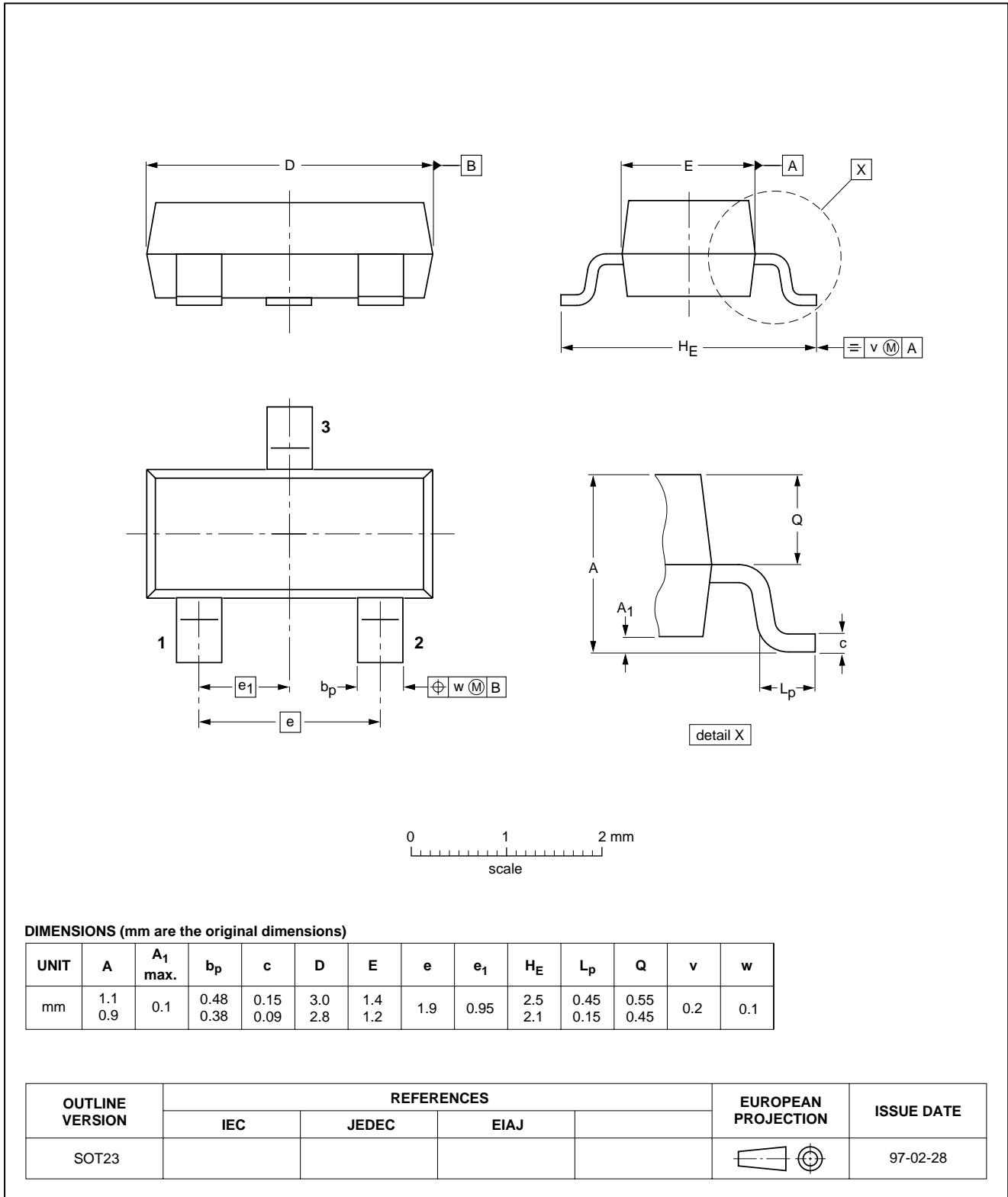
NPN Darlington transistors

PMBTA13; PMBTA14

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



NPN Darlington transistors

PMBTA13; PMBTA14

DEFINITIONS

Data Sheet Status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). 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.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale

NPN Darlington transistors

PMBTA13; PMBTA14

NOTES

NPN Darlington transistors

PMBTA13; PMBTA14

NOTES

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