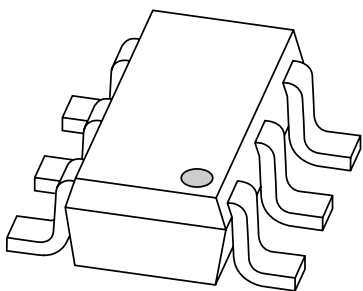


DATA SHEET



BC817DPN NPN/PNP general purpose transistor

Product specification
Supersedes data of 2002 Aug 09

2002 Nov 22

NPN/PNP general purpose transistor

BC817DPN

FEATURES

- High current (500 mA)
- 600 mW total power dissipation
- Replaces two SOT23 packaged transistors on same PCB area.

APPLICATIONS

- General purpose switching and amplification
- Complementary driver
- Half and full bridge driver.

DESCRIPTION

NPN/PNP transistor pair in a SOT457 (SC-74) plastic package.

MARKING

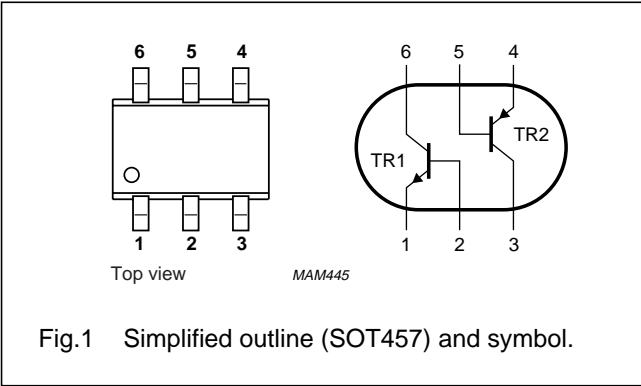
TYPE NUMBER	MARKING CODE
BC817DPN	N4

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
V_{CEO}	collector-emitter voltage	45	V
I_C	collector current (DC)	500	mA
I_{CM}	peak collector current	1	A

PINNING

PIN	DESCRIPTION
1, 4	emitter TR1; TR2
2, 5	base TR1; TR2
6, 3	collector TR1; TR2



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per transistor; for the PNP transistor with negative polarity					
V_{CBO}	collector-base voltage	open emitter	–	50	V
V_{CEO}	collector-emitter voltage	open base	–	45	V
V_{EBO}	emitter-base voltage	open collector	–	5	V
I_C	collector current (DC)		–	500	mA
I_{CM}	peak collector current		–	1	A
I_{BM}	peak base current		–	200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	–	370	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C
Per device					
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	–	600	mW

Note

1. Device mounted on a printed-circuit board; single sided copper; tinplated; mounting pad for collector 1 cm².

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THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	208	K/W

Note

1. Device mounted on a printed-circuit board; single sided copper; tinplated; mounting pad for collector 1 cm².

CHARACTERISTICS

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

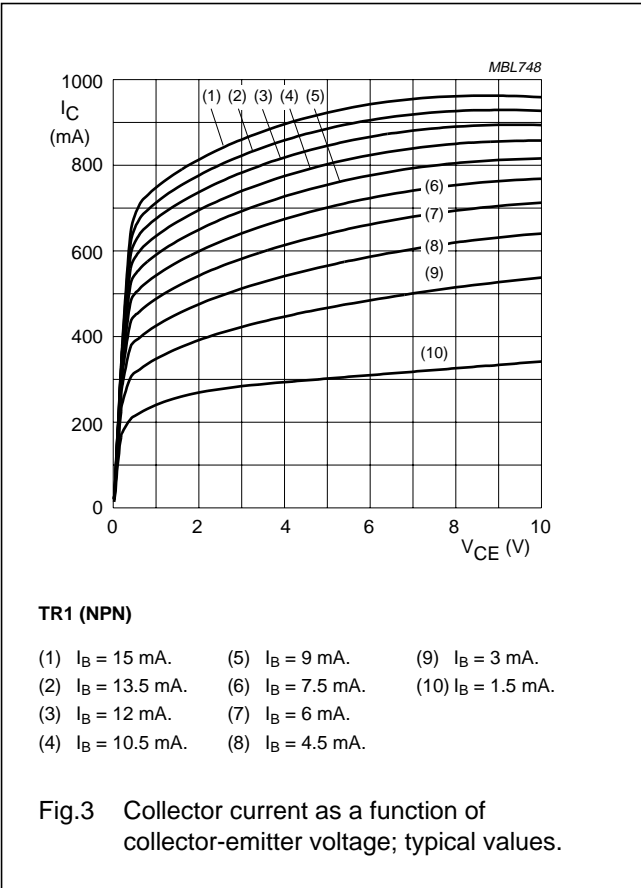
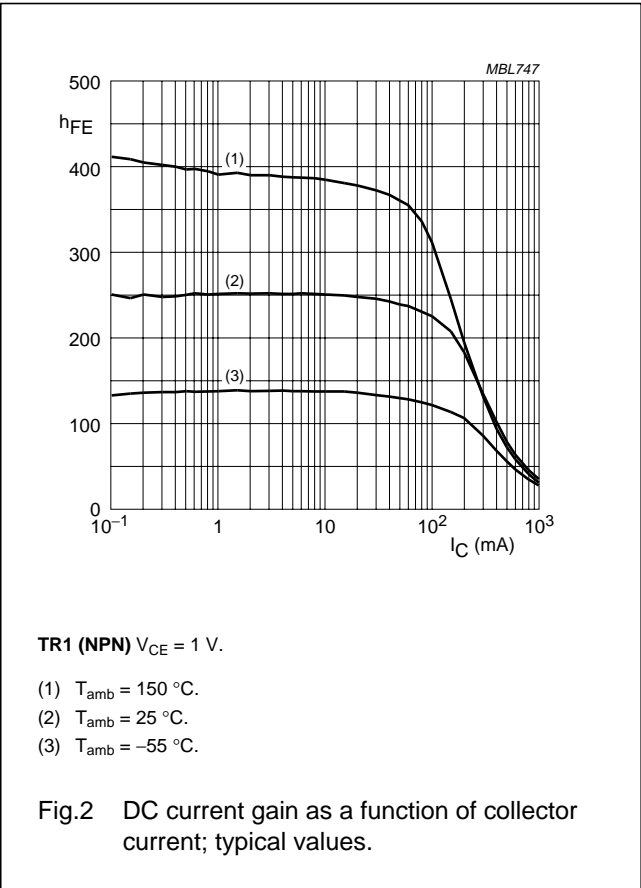
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Per transistor unless otherwise specified; for the PNP transistor with negative polarity						
I_{CBO}	collector-base cut-off current	$V_{CB} = 20\text{ V}; I_E = 0$	–	–	100	nA
		$V_{CB} = 20\text{ V}; I_E = 0; T_j = 150\text{ °C}$	–	–	5	μA
I_{EBO}	emitter-base cut-off current	$V_{EB} = 5\text{ V}; I_C = 0$	–	–	100	nA
h_{FE}	DC current gain	$V_{CE} = 1\text{ V}; I_C = 100\text{ mA}; \text{note 1}$	160	–	400	
		$V_{CE} = 1\text{ V}; I_C = 500\text{ mA}; \text{note 1}$	40	–	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 500\text{ mA}; I_B = 50\text{ mA}; \text{note 1}$	–	–	700	mV
V_{BE}	base-emitter voltage	$V_{CE} = 1\text{ V}; I_C = 500\text{ mA}; \text{notes 1 and 2}$	–	–	1.2	V
NPN transistor						
C_c	collector capacitance	$V_{CB} = 10\text{ V}; I_E = I_e = 0; f = 1\text{ MHz}$	–	5	–	pF
f_T	transition frequency	$V_{CE} = 5\text{ V}; I_C = 10\text{ mA}; f = 100\text{ MHz}$	100	–	–	MHz
PNP transistor						
C_c	collector capacitance	$V_{CB} = -10\text{ V}; I_E = I_e = 0; f = 1\text{ MHz}$	–	9	–	pF
f_T	transition frequency	$V_{CE} = -5\text{ V}; I_C = -10\text{ mA}; f = 100\text{ MHz}$	80	–	–	MHz

Notes

1. Pulse test: $t_p \leq 300\text{ μs}; \delta \leq 0.02$.
2. V_{BE} decreases by approximately -2 mV/K with increasing temperature.

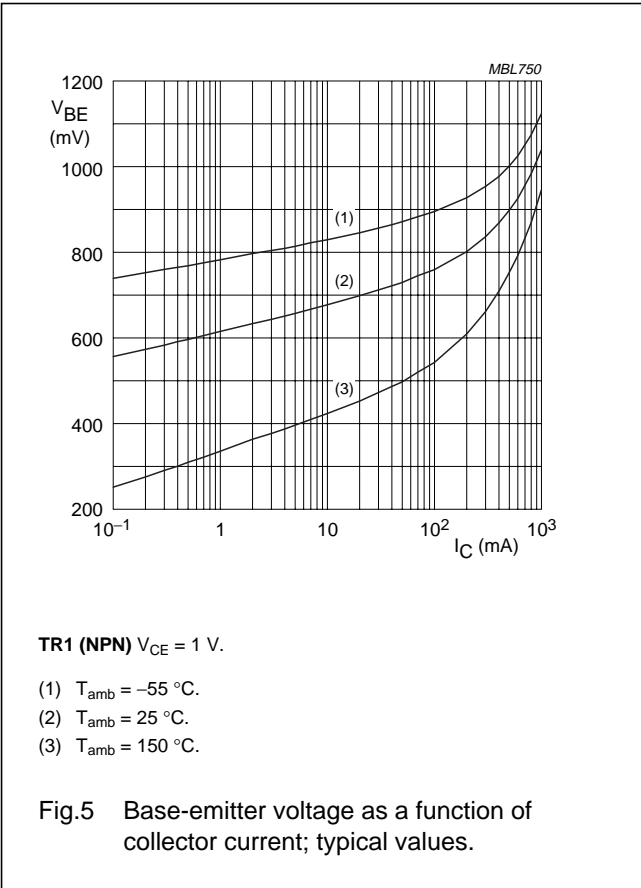
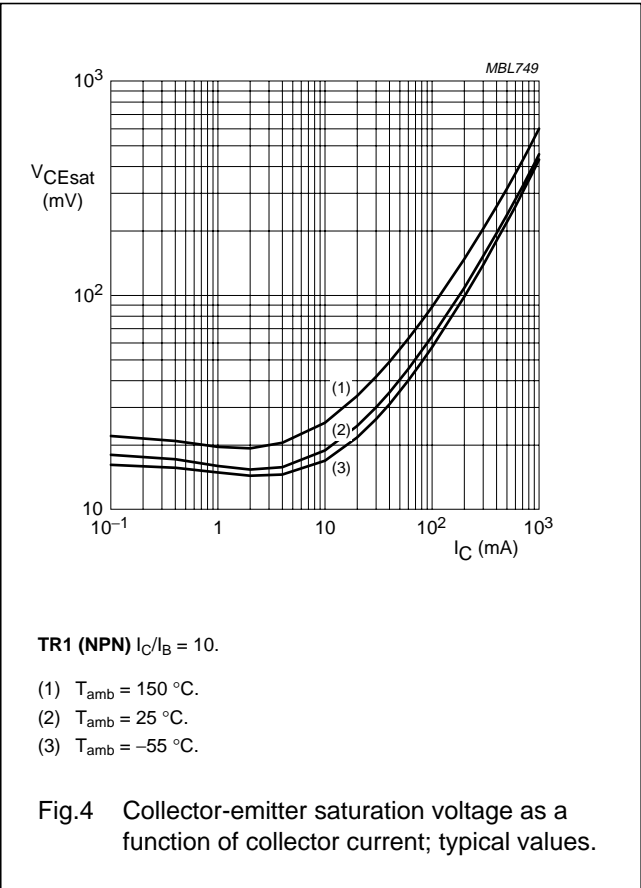
NPN/PNP general purpose transistor

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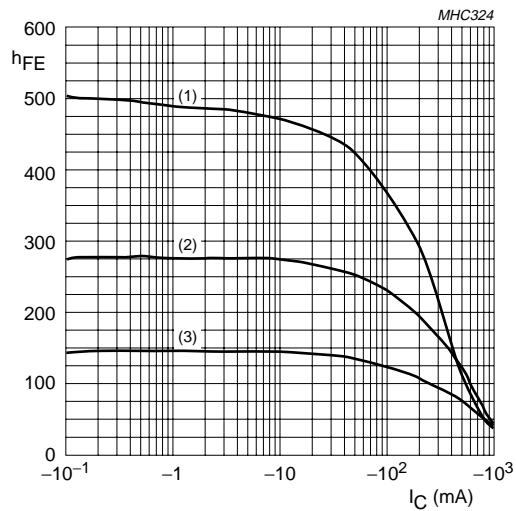
NPN/PNP general purpose transistor

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NPN/PNP general purpose transistor

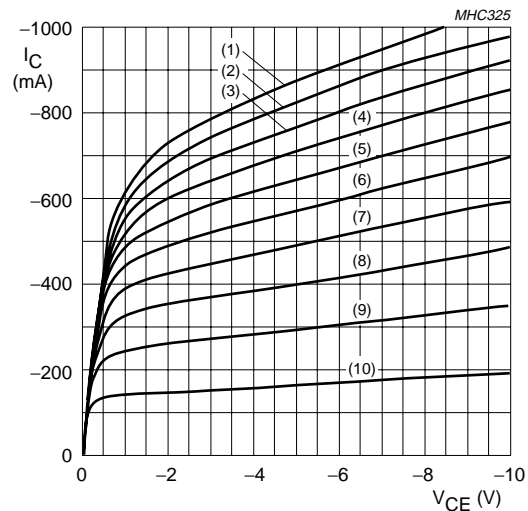
BC817DPN



TR2 (PNP) $V_{CE} = -1\text{ V}$.

- (1) $T_{amb} = 150\text{ }^{\circ}\text{C}$.
- (2) $T_{amb} = 25\text{ }^{\circ}\text{C}$.
- (3) $T_{amb} = -55\text{ }^{\circ}\text{C}$.

Fig.6 DC current gain as a function of collector current; typical values.



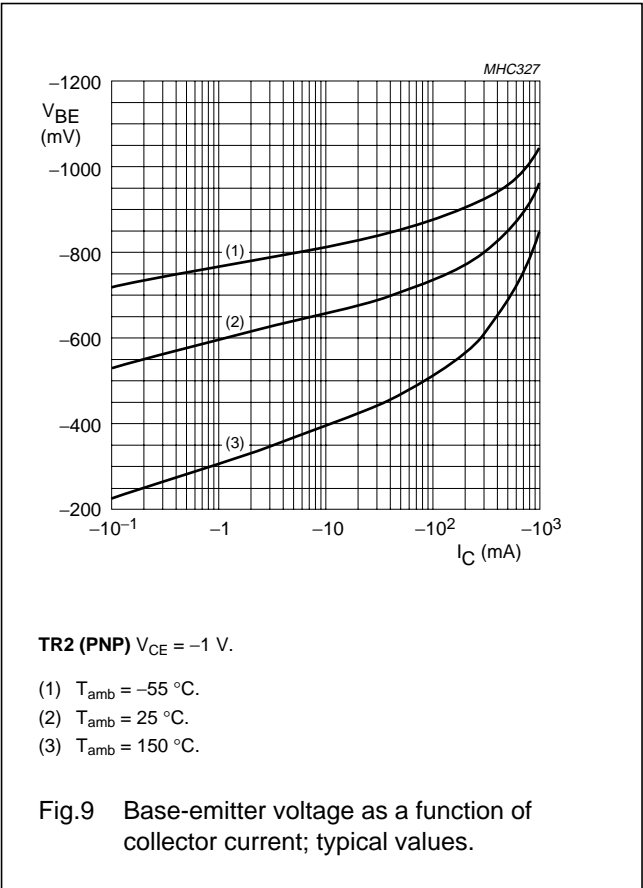
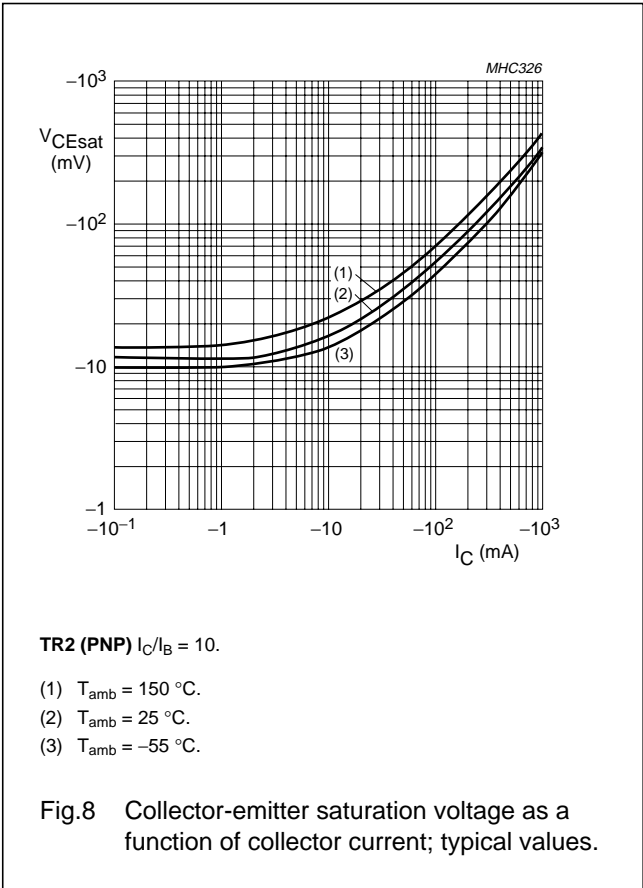
TR2 (PNP)

- | | | |
|------------------------------|------------------------------|-------------------------------|
| (1) $I_B = -7\text{ mA}$. | (5) $I_B = -4.2\text{ mA}$. | (9) $I_B = -1.4\text{ mA}$. |
| (2) $I_B = -6.3\text{ mA}$. | (6) $I_B = -3.5\text{ mA}$. | (10) $I_B = -0.7\text{ mA}$. |
| (3) $I_B = -5.6\text{ mA}$. | (7) $I_B = -2.8\text{ mA}$. | |
| (4) $I_B = -4.9\text{ mA}$. | (8) $I_B = -2.1\text{ mA}$. | |

Fig.7 Collector current as a function of collector-emitter voltage; typical values.

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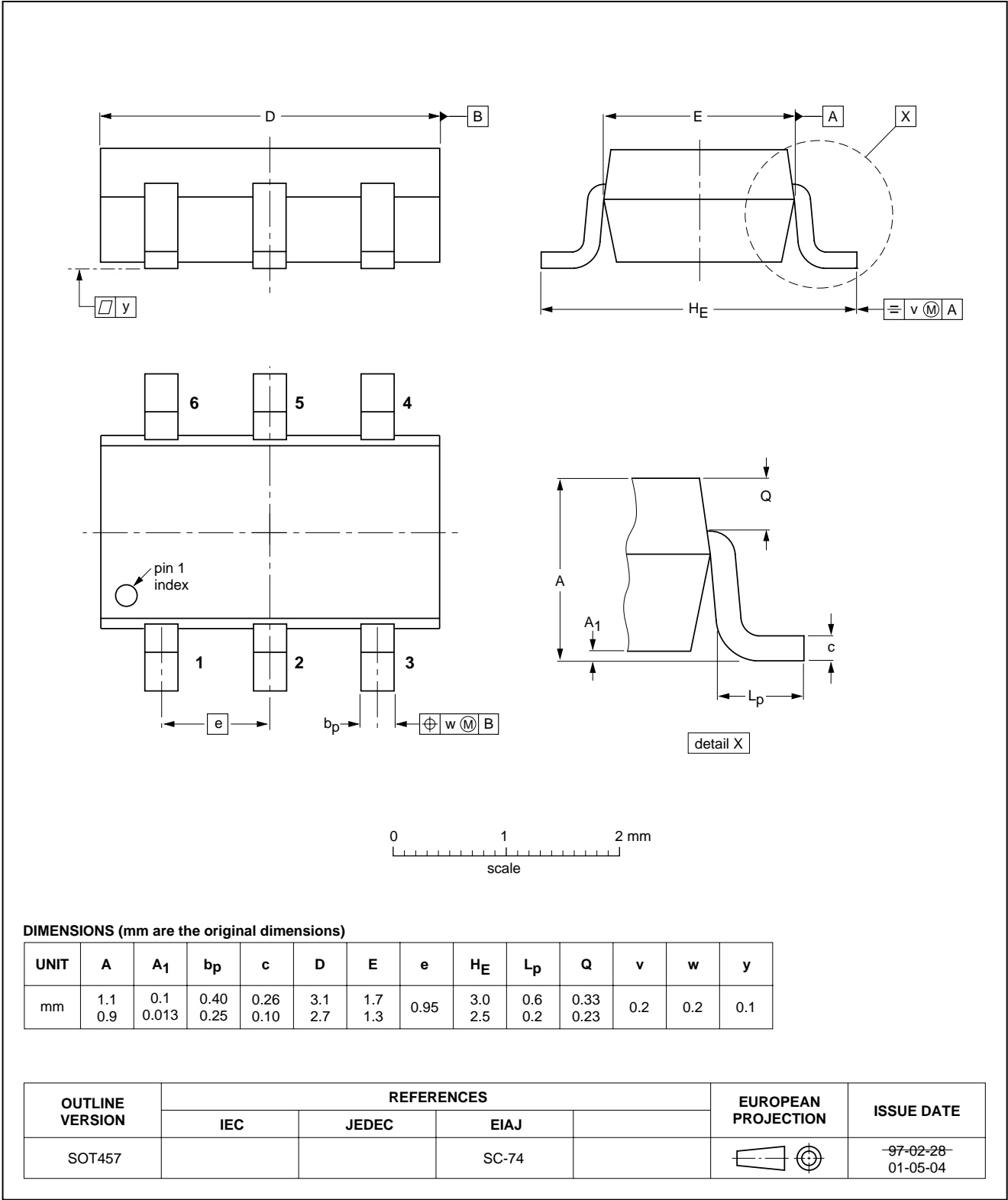
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PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT457



NPN/PNP general purpose transistor

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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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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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NOTES

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NOTES

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