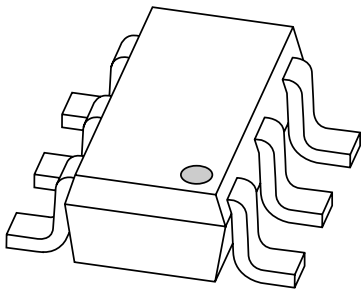


# DATA SHEET



## **BC817DPN** NPN/PNP general purpose transistor

Product data sheet  
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

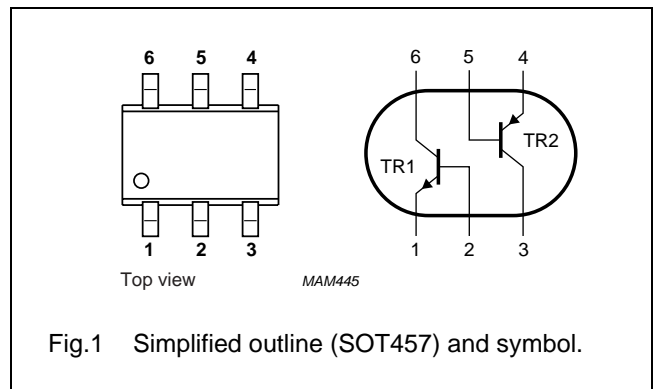
TYPE NUMBER	MARKING CODE
BC817DPN	N4

### QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
$V_{CE0}$	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
<b>Per transistor; for the PNP transistor with negative polarity</b>					
$V_{CB0}$	collector-base voltage	open emitter	–	50	V
$V_{CE0}$	collector-emitter voltage	open base	–	45	V
$V_{EB0}$	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
<b>Per device</b>					
$P_{tot}$	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 cm<sup>2</sup>.

## NPN/PNP general purpose transistor

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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 cm<sup>2</sup>.

## CHARACTERISTICS

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

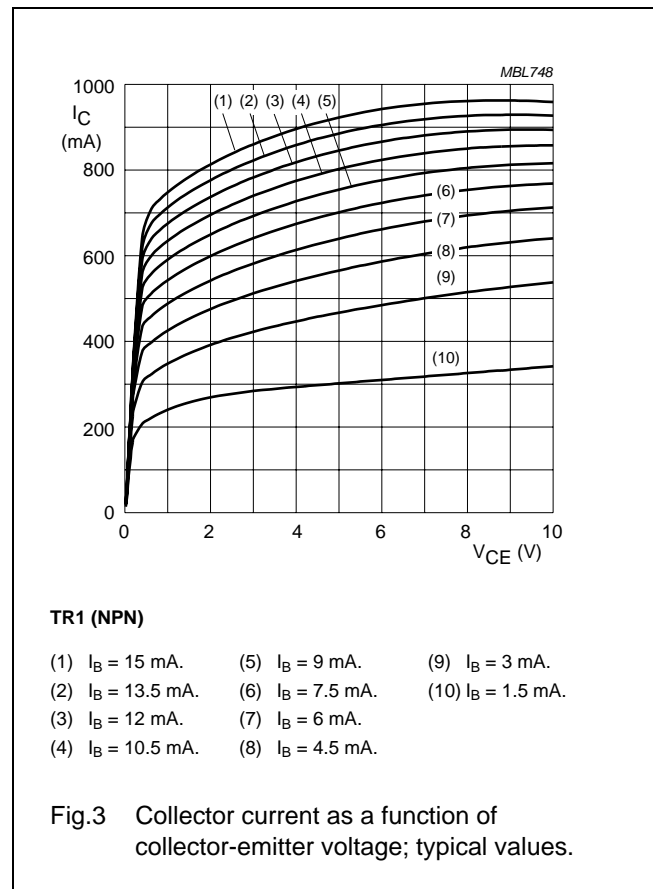
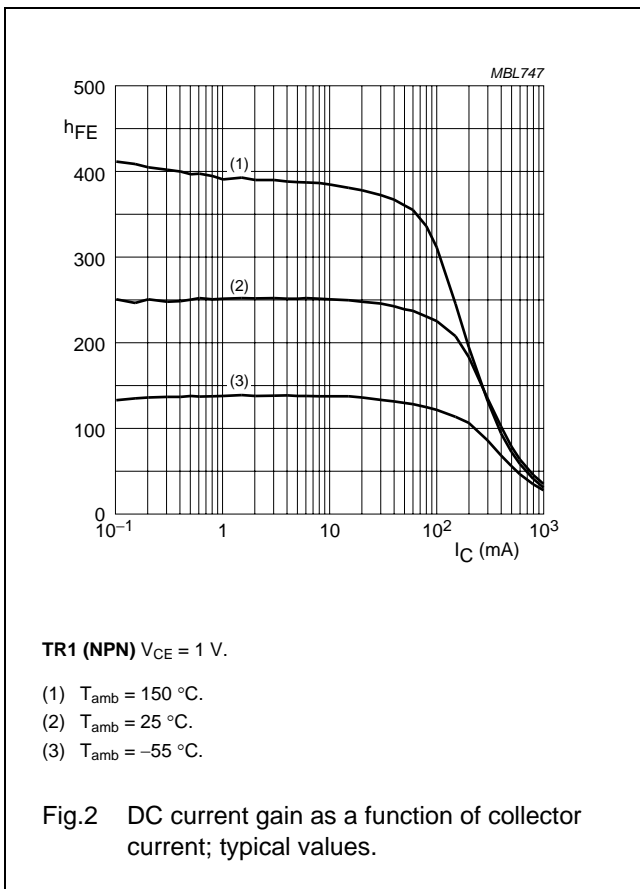
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
<b>Per transistor unless otherwise specified; for the PNP transistor with negative polarity</b>						
$I_{CBO}$	collector-base cut-off current	$V_{CB} = 20\text{ V}; I_E = 0$	–	–	100	nA
		$V_{CB} = 20\text{ V}; I_E = 0; T_j = 150\text{ °C}$	–	–	5	μA
$I_{EBO}$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

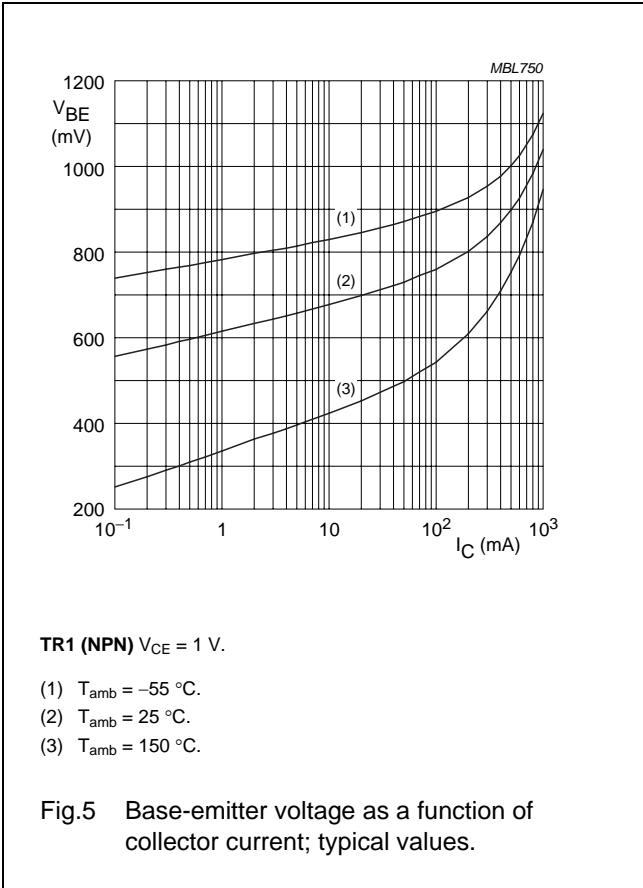
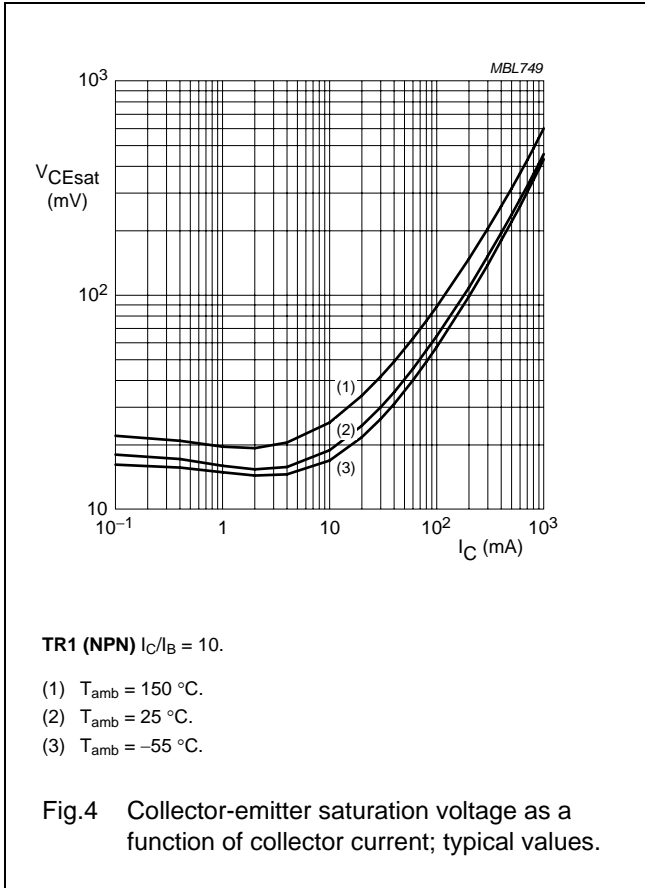
NPN/PNP general purpose transistor

BC817DPN



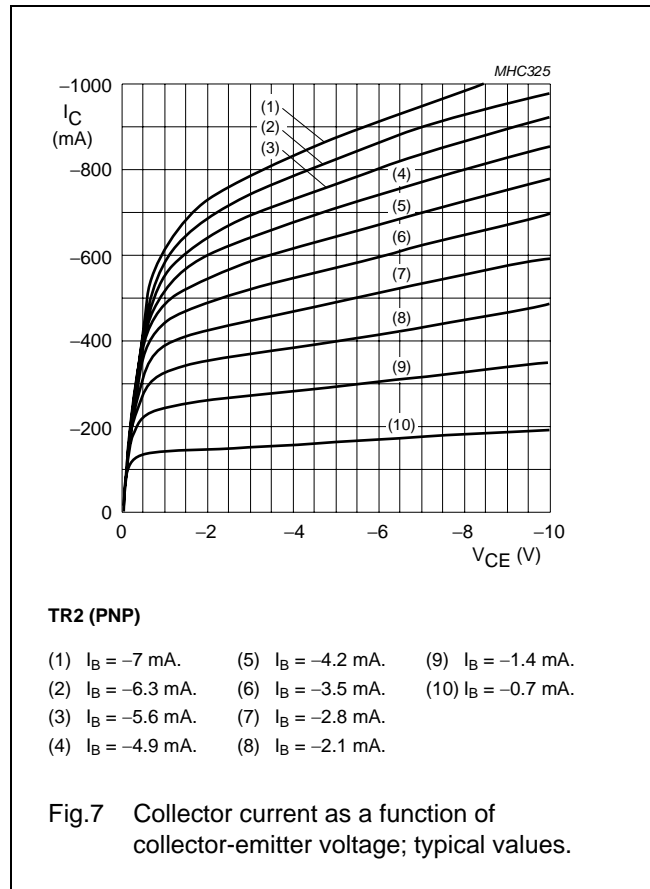
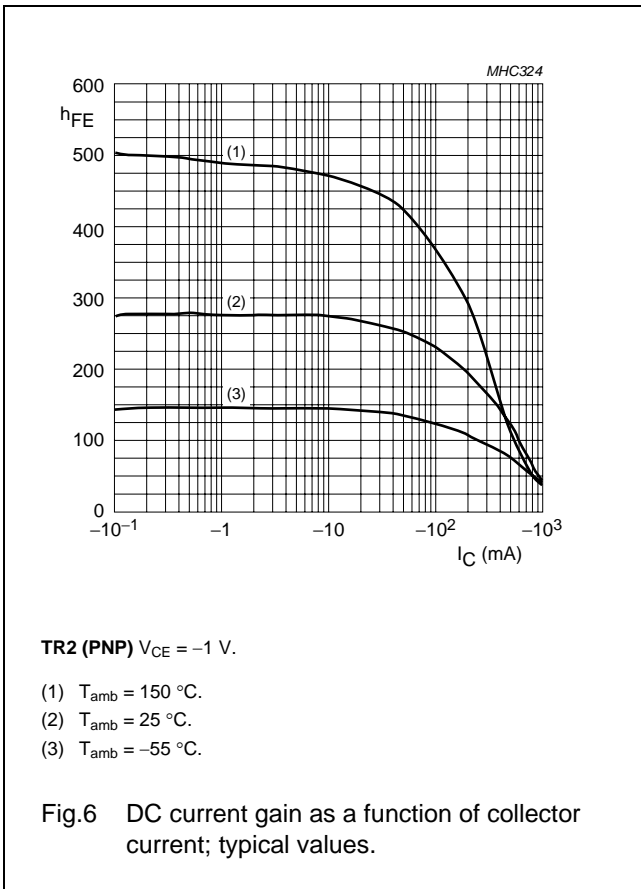
NPN/PNP general purpose transistor

BC817DPN



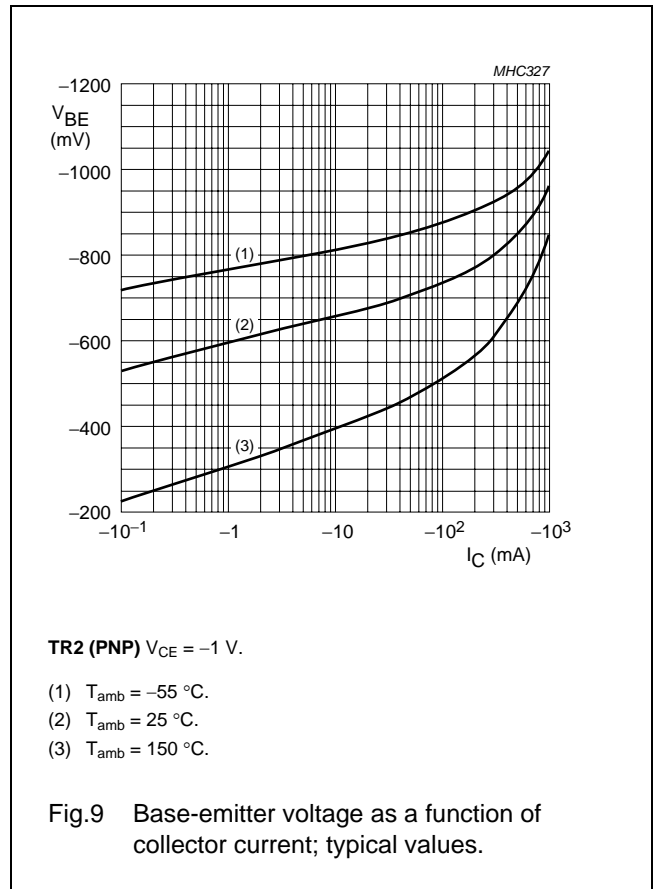
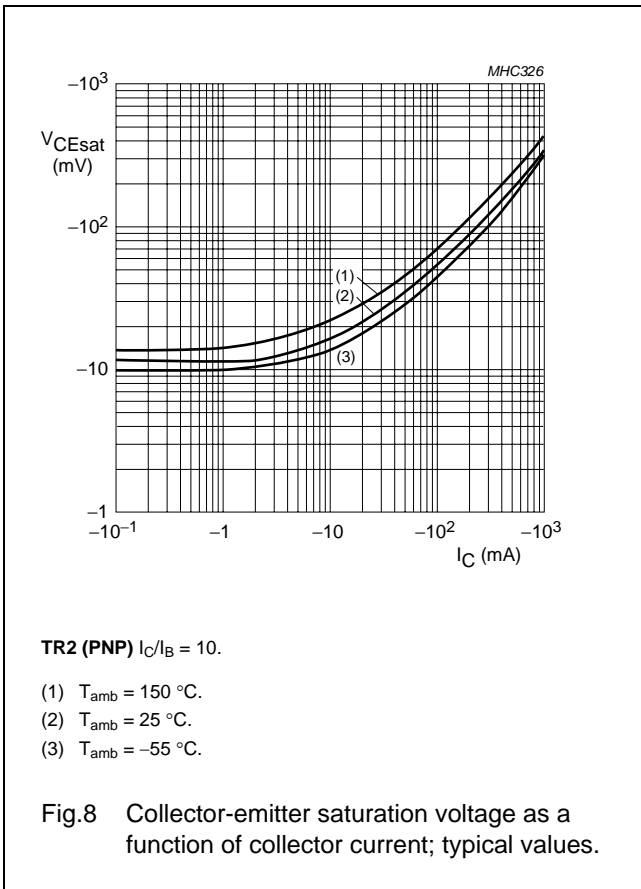
NPN/PNP general purpose transistor

BC817DPN



NPN/PNP general purpose transistor

BC817DPN



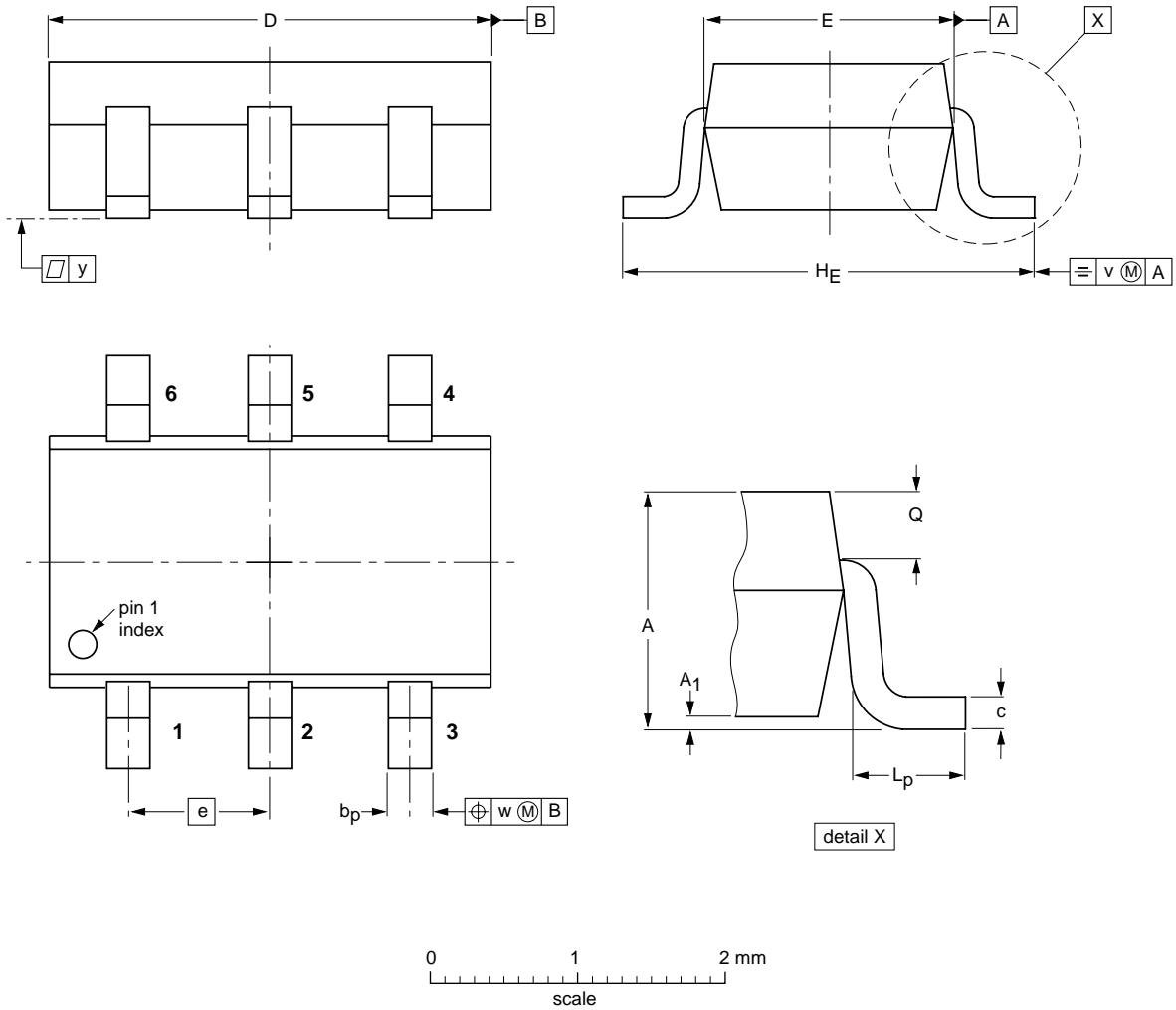
NPN/PNP general purpose transistor

BC817DPN

PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT457



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub>	b <sub>p</sub>	c	D	E	e	H <sub>E</sub>	L <sub>p</sub>	Q	v	w	y
mm	1.1 0.9	0.1 0.013	0.40 0.25	0.26 0.10	3.1 2.7	1.7 1.3	0.95	3.0 2.5	0.6 0.2	0.33 0.23	0.2	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT457			SC-74			97-02-28 01-05-04



## NPN/PNP general purpose transistor

BC817DPN

## DATA SHEET STATUS

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

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