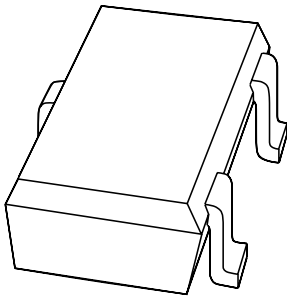


DATA SHEET



BC849W; BC850W NPN general purpose transistors

Product specification
Supersedes data of 1997 Jun 20

1999 Apr 12

NPN general purpose transistors

BC849W; BC850W

FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 45 V).

APPLICATIONS

- Low noise stages in tape recorders, hi-fi amplifiers and other audio-frequency equipment.

DESCRIPTION

NPN transistor in a SOT323 plastic package.
PNP complements: BC859W and BC860W.

MARKING

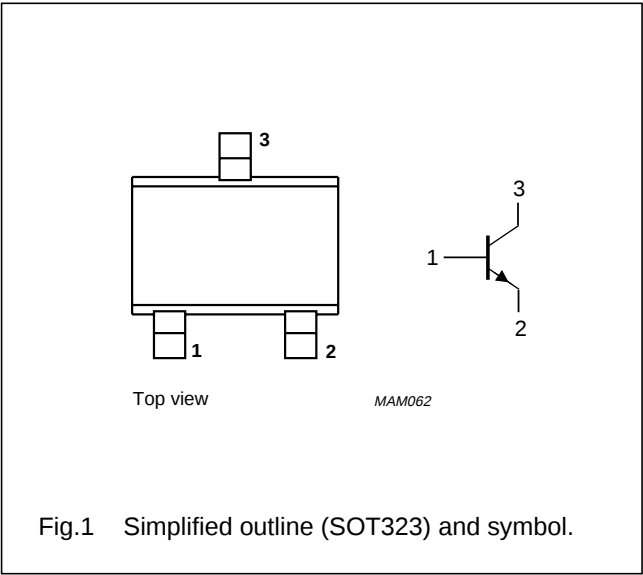
TYPE NUMBER	MARKING CODE ⁽¹⁾	TYPE NUMBER	MARKING CODE ⁽¹⁾
BC849BW	2B*	BC850BW	2F*
BC849CW	2C*	BC850CW	2G*

Note

1. * = - : 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			
	BC849W		–	30	V
	BC850W		–	50	V
V _{CEO}	collector-emitter voltage	open base			
	BC849W		–	30	V
	BC850W		–	45	V
V _{EBO}	emitter-base voltage	open collector	–	5	V
I _C	collector current (DC)		–	100	mA
I _{CM}	peak collector current		–	200	mA
I _{BM}	peak base current		–	200	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note 1	–	200	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 general purpose transistors

BC849W; BC850W

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	625	K/W

Note

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

CHARACTERISTICS

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

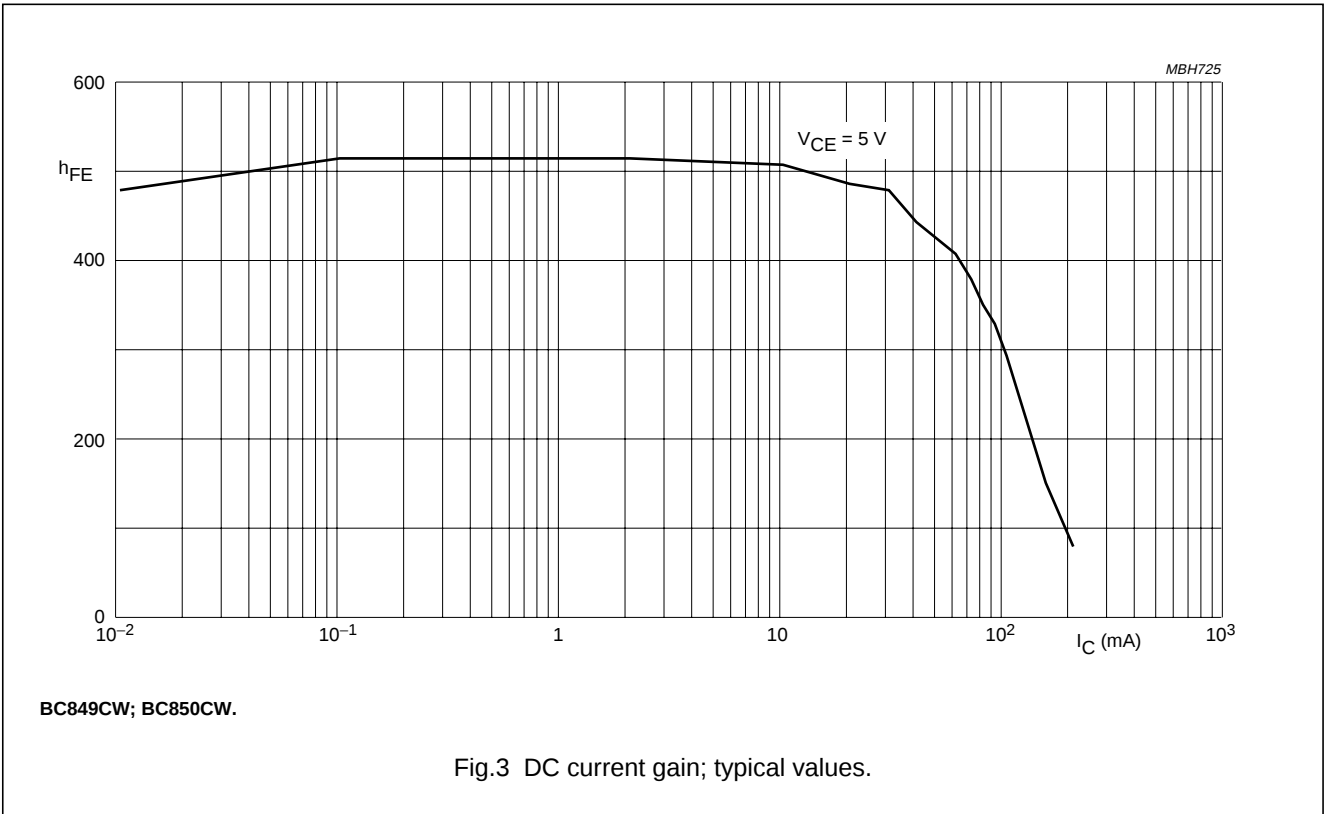
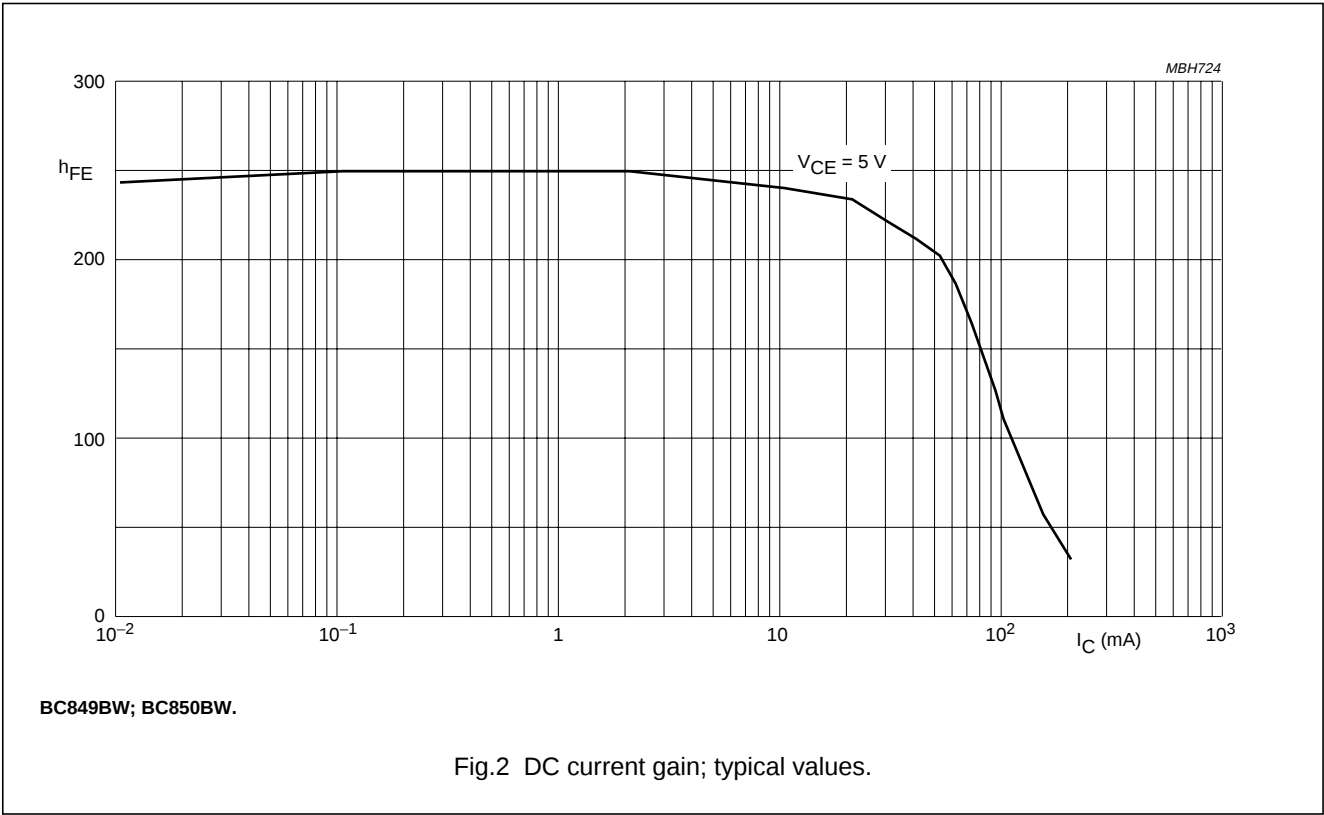
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = 30\text{ V}$	–	–	15	nA
		$I_E = 0; V_{CB} = 30\text{ V}; T_j = 150\text{ °C}$	–	–	5	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = 5\text{ V}$	–	–	100	nA
h_{FE}	DC current gain BC849BW; BC850BW BC849CW; BC850CW	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V};$ see Figs 2 and 3	200	–	450	
			420	–	800	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$	–	–	250	mV
		$I_C = 100\text{ mA}; I_B = 5\text{ mA};$ note 1	–	–	600	mV
V_{BE}	base-emitter voltage	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$	580	–	700	mV
		$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}$	–	–	770	mV
C_c	collector capacitance	$I_E = I_C = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	–	–	3	pF
C_e	emitter capacitance	$I_C = I_E = 0; V_{EB} = 500\text{ mV}; f = 1\text{ MHz}$	–	11	–	pF
f_T	transition frequency	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	100	–	–	MHz
F	noise figure	$I_C = 200\text{ }\mu\text{A}; V_{CE} = 5\text{ V}; R_S = 2\text{ k}\Omega;$ $f = 10\text{ Hz to }15.7\text{ kHz}$	–	–	4	dB
		$I_C = 200\text{ }\mu\text{A}; V_{CE} = 5\text{ V}; R_S = 2\text{ k}\Omega;$ $f = 1\text{ kHz}; B = 200\text{ Hz}$	–	–	4	dB

Note

1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$.

NPN general purpose transistors

BC849W; BC850W



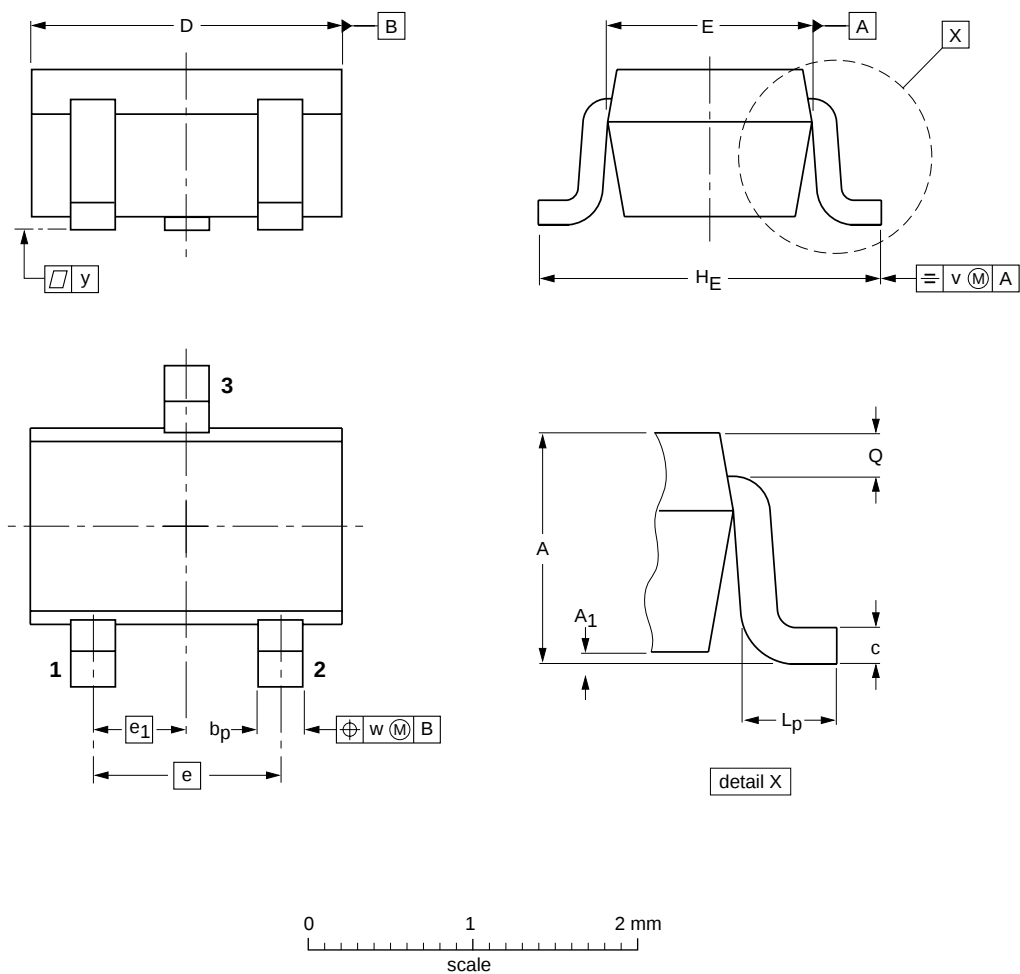
NPN general purpose transistors

BC849W; BC850W

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



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 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT323			SC-70			97-02-28

NPN general purpose transistors

BC849W; BC850W

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.	

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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 general purpose transistors

BC849W; BC850W

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