

# BC849BW,115 Datasheet



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DiGi Electronics Part Number	BC849BW,115-DG
Manufacturer	<a href="#">Nexperia USA Inc.</a>
Manufacturer Product Number	BC849BW,115
Description	TRANS NPN 30V 0.1A SOT323
Detailed Description	Bipolar (BJT) Transistor NPN 30 V 100 mA 100MHz 200 mW Surface Mount SOT-323



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## Purchase and inquiry

**Manufacturer Product Number:**

BC849BW,115

**Series:**

-

**Transistor Type:**

NPN

**Voltage - Collector Emitter Breakdown (Max):**

30 V

**Current - Collector Cutoff (Max):**

15nA (ICBO)

**Power - Max:**

200 mW

**Operating Temperature:**

150°C (TJ)

**Qualification:**

AEC-Q101

**Package / Case:**

SC-70, SOT-323

**Base Product Number:**

BC849

**Manufacturer:**

Nexperia USA Inc.

**Product Status:**

Active

**Current - Collector (Ic) (Max):**

100 mA

**Vce Saturation (Max) @ Ib, Ic:**

600mV @ 5mA, 100mA

**DC Current Gain (hFE) (Min) @ Ic, Vce:**

200 @ 2mA, 5V

**Frequency - Transition:**

100MHz

**Grade:**

Automotive

**Mounting Type:**

Surface Mount

**Supplier Device Package:**

SOT-323

## Environmental & Export classification

**RoHS Status:**

ROHS3 Compliant

**REACH Status:**

REACH Unaffected

**HTSUS:**

8541.21.0075

**Moisture Sensitivity Level (MSL):**

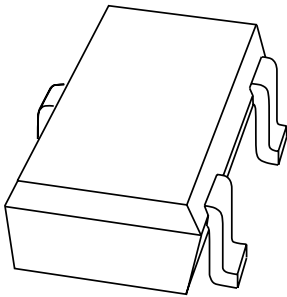
1 (Unlimited)

**ECCN:**

EAR99

**DISCRETE SEMICONDUCTORS**

# DATA SHEET



## **BC849W; BC850W** NPN general purpose transistors

Product data sheet  
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 <sup>(1)</sup>	TYPE NUMBER	MARKING CODE <sup>(1)</sup>
BC849BW	2B*	BC850BW	2F*
BC849CW	2C*	BC850CW	2G*

## Note

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

## PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

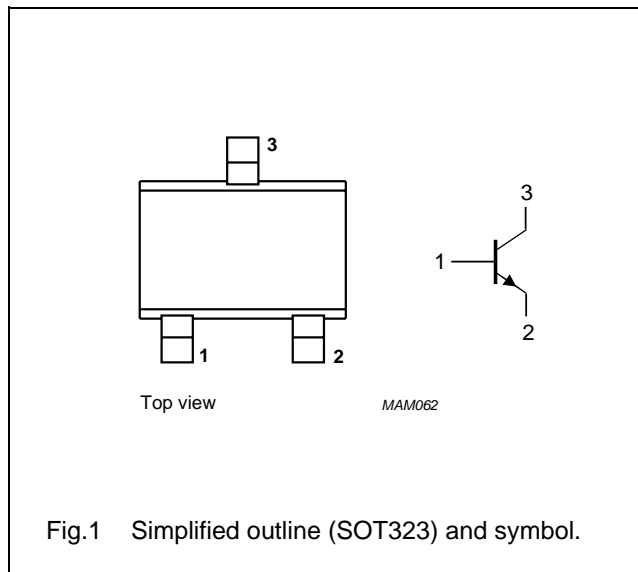


Fig.1 Simplified outline (SOT323) and symbol.

## 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	$T_{amb} \leq 25\text{ °C}$ ; 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.

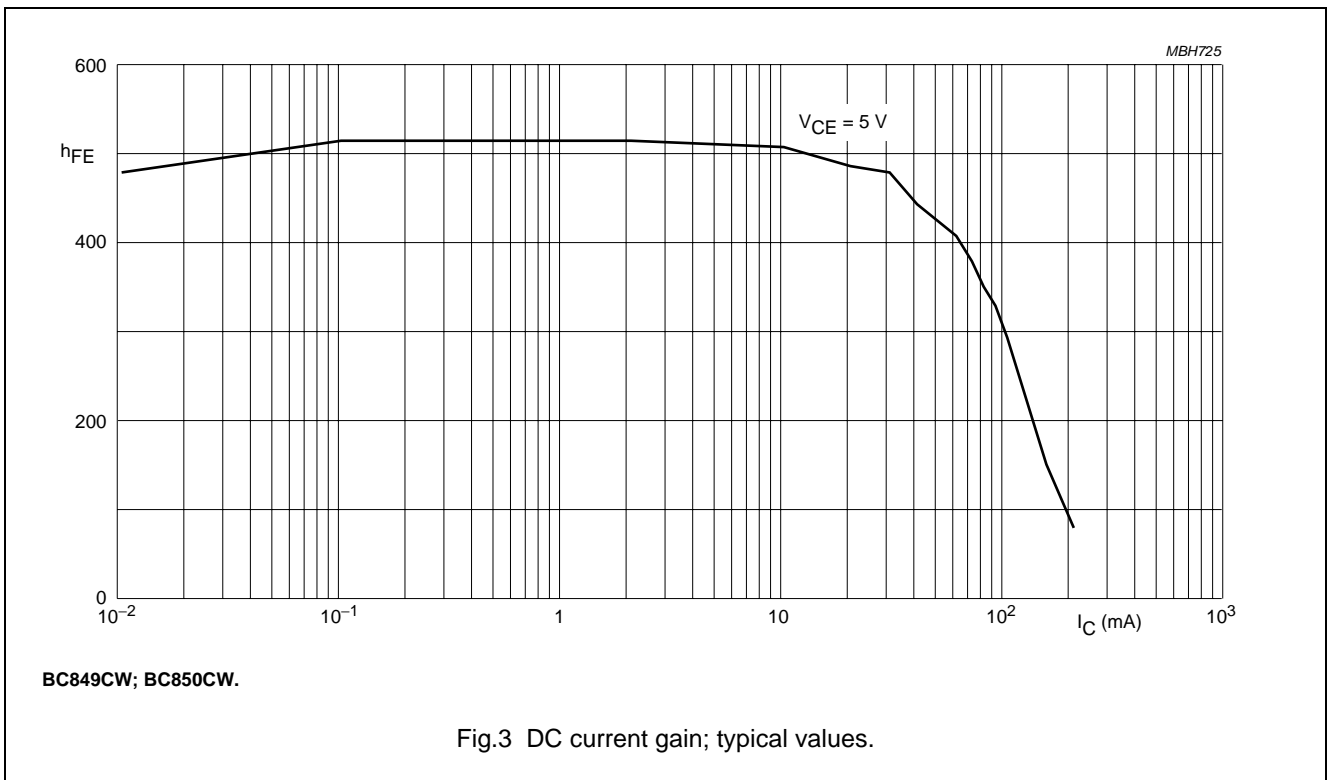
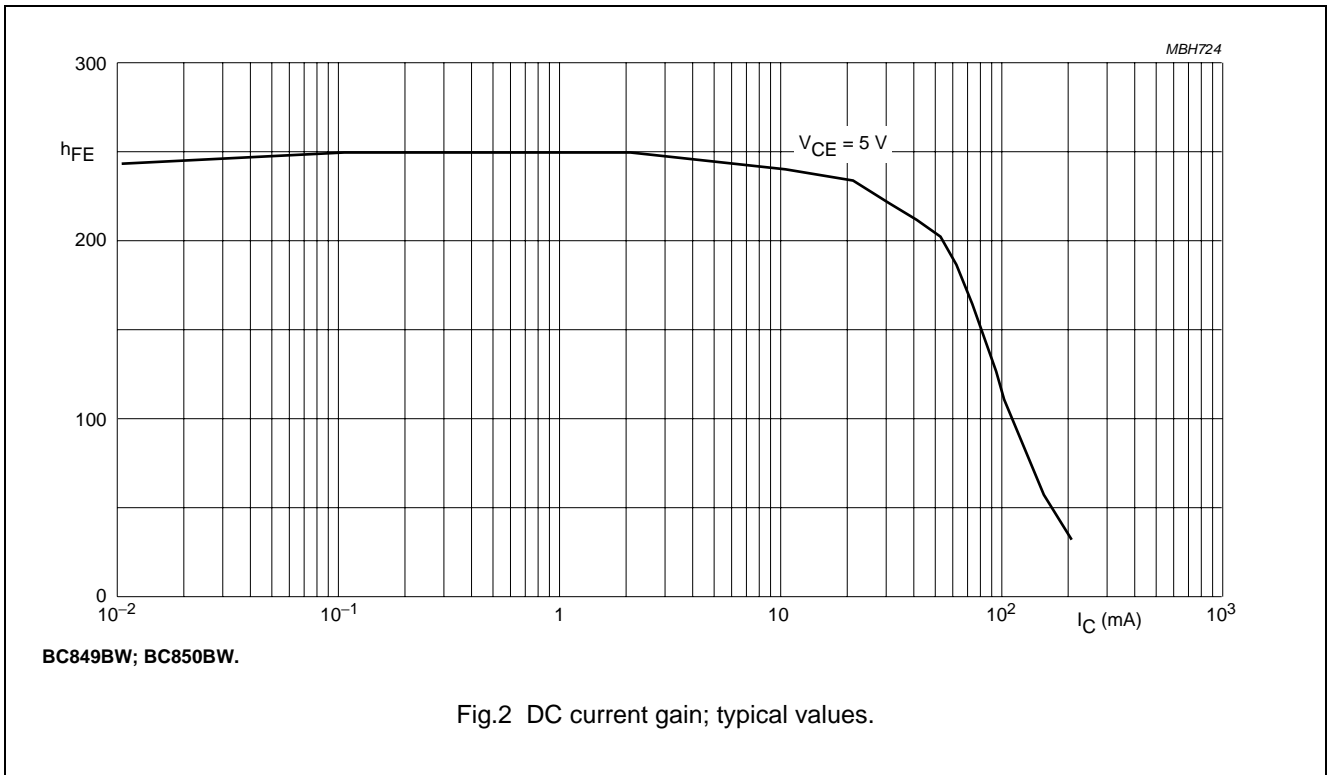
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_{CBO}$	collector cut-off current	$I_E = 0; V_{CB} = 30\text{ V}$	–	–	15	nA
		$I_E = 0; V_{CB} = 30\text{ V}; T_j = 150\text{ °C}$	–	–	5	$\mu\text{A}$
$I_{EBO}$	emitter cut-off current	$I_C = 0; V_{EB} = 5\text{ V}$	–	–	100	nA
$h_{FE}$	DC current gain 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	$I_E = i_e = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	–	–	3	pF
$C_e$	emitter capacitance	$I_C = i_c = 0; V_{EB} = 500\text{ mV}; f = 1\text{ MHz}$	–	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



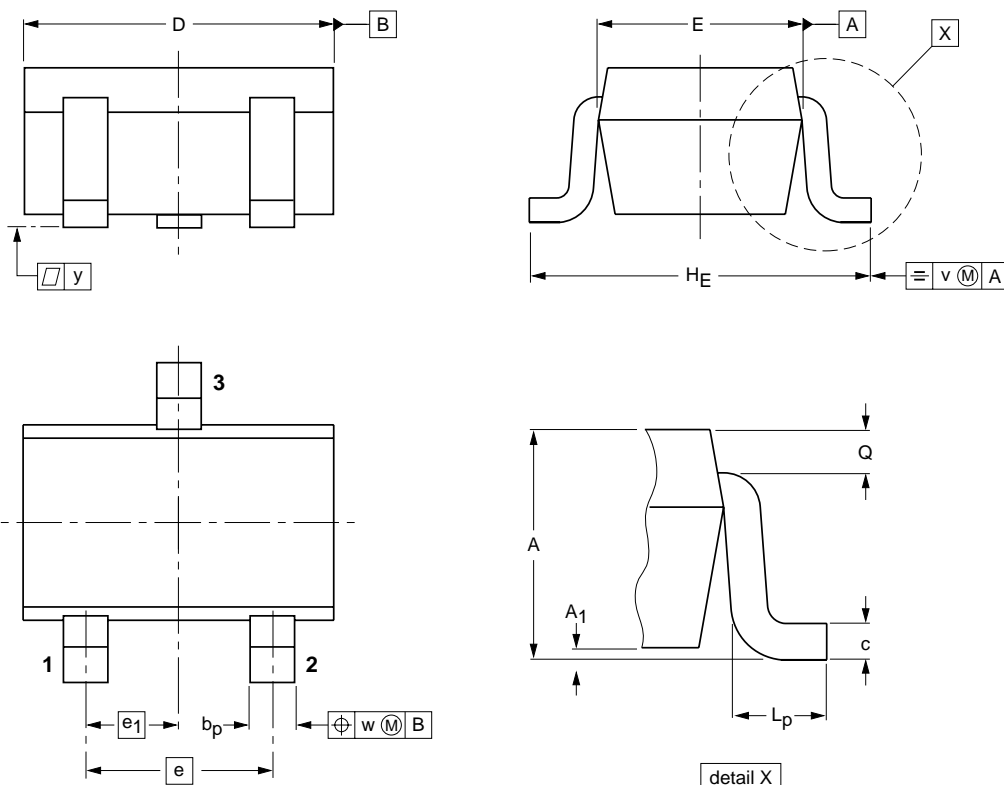
NPN general purpose transistors

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	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****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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