BC859BW,135 Datasheet

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DiGi Electronics Part Number	BC859BW,135-DG
Manufacturer	Nexperia USA Inc.
Manufacturer Product Number	BC859BW,135
Description	TRANS PNP 30V 0.1A SOT323
Detailed Description	Bipolar (BJT) Transistor PNP 30 V 100 mA 100MHz 200 mW Surface Mount SOT-323

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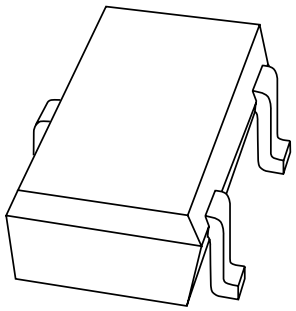
Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
BC859BW,135	Nexperia USA Inc.
Series:	Product Status:
-	Active
Transistor Type:	Current - Collector (Ic) (Max):
PNP	100 mA
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
30 V	650mV @ 5mA, 100mA
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
15nA (ICBO)	220 @ 2mA, 5V
Power - Max:	Frequency - Transition:
200 mW	100MHz
Operating Temperature:	Grade:
150°C (TJ)	Automotive
Qualification:	Mounting Type:
AEC-Q101	Surface Mount
Package / Case:	Supplier Device Package:
SC-70, SOT-323	SOT-323
Base Product Number:	
BC859	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.21.0075	

DATA SHEET



BC859W; BC860W
PNP general purpose transistors

Product data sheet
Supersedes data of 1997 Sep 03

1999 Apr 12

PNP general purpose transistors BC859W; BC860W

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

PNP transistor in a SOT323 plastic package.
NPN complements: BC849W and BC850W.

MARKING

TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE
BC859W	4D∗	BC860W	4H∗
BC859BW	4B∗	BC860BW	4F∗
BC859CW	4C∗	BC860CW	4G∗

Note

1. ∗ = - : Made in Hong Kong.
   ∗ = t : Made in Malaysia.

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

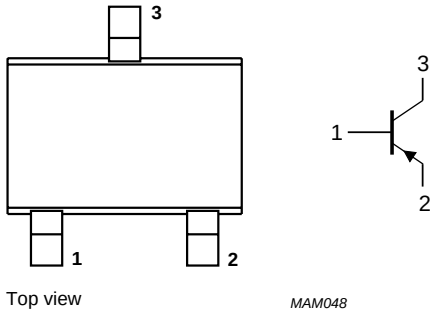


Fig.1 Simplified outline (SOT323) and symbol.

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			
	BC859W		–	−30	V
	BC860W		–	−50	V
V_{CEO}	collector-emitter voltage	open base			
	BC859W		–	−30	V
	BC860W		–	−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	$T_{amb} \leq 25$ °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.

THERMAL CHARACTERISTICS

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

Note

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

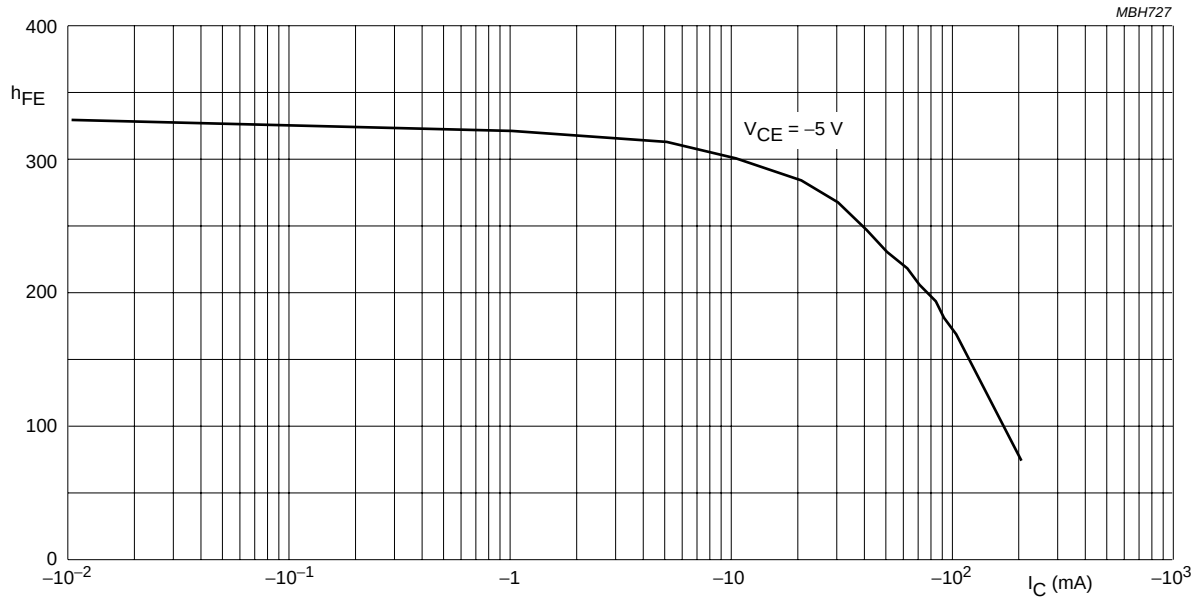
CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	I_E = 0; V_{CB} = −30 V	–	–	−15	nA
		I_E = 0; V_{CB} = −30 V; T_j = 150 °C	–	–	−4	μA
I_{EBO}	emitter cut-off current	I_C = 0; V_{EB} = −5 V	–	–	−100	nA
h_{FE}	DC current gain BC859W; BC860W BC859BW; BC860BW BC859CW; BC860CW	I_C = −2 mA; V_{CE} = −5 V; see Figs 2 and 3	 220 220 420	 – – –	 800 475 800	
V_{CEsat}	collector-emitter saturation voltage	I_C = −10 mA; I_B = −0.5 mA	–	–	−300	mV
		I_C = −100 mA; I_B = −5 mA; note 1	–	–	−650	mV
V_{BE}	base-emitter voltage	I_C = −2 mA; V_{CE} = −5 V	600	–	750	mV
		I_C = −10 mA; V_{CE} = −5 V	–	–	820	mV
C_c	collector capacitance	I_E = i_e = 0; V_{CB} = −10 V; f = 1 MHz	–	–	5	pF
C_e	emitter capacitance	I_C = i_c = 0; V_{EB} = −500 mV; f = 1 MHz	–	10	–	pF
f_T	transition frequency	I_C = −10 mA; V_{CE} = −5 V; f = 100 MHz	100	–	–	MHz
F	noise figure; BC859W; BC860W; BC859BW; BC860BW; BC859CW; BC860CW	I_C = −200 μA; V_{CE} = −5 V; R_S = 2 kΩ; f = 10 Hz to 15.7 kHz	–	–	4	dB
		I_C = −200 μA; V_{CE} = −5 V; R_S = 2 kΩ; f = 1 kHz; B = 200 Hz	–	–	4	dB

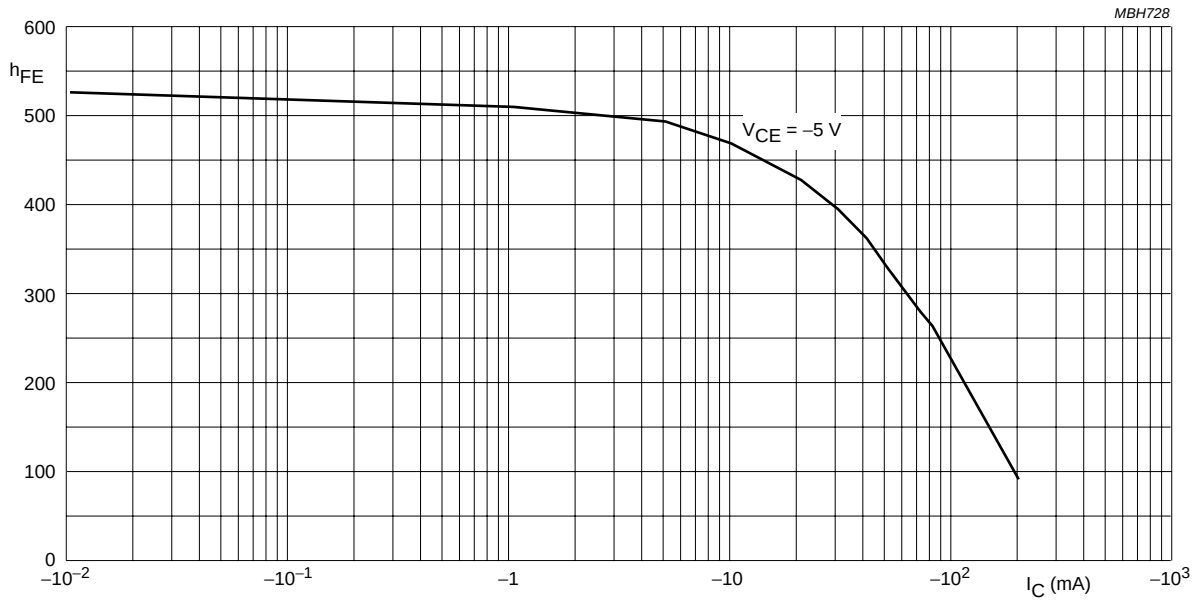
Note

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



BC859BW; BC860BW.

Fig.2 DC current gain; typical values.

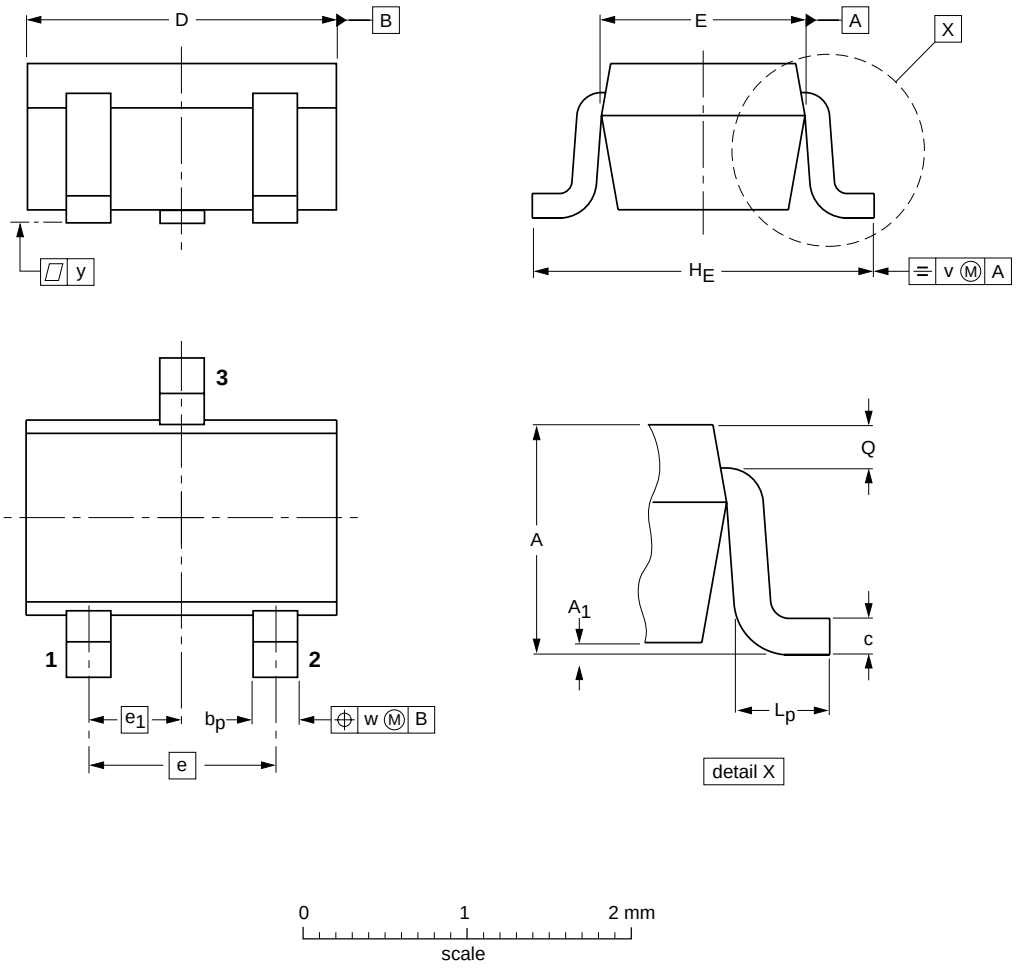


BC859CW; BC860CW.

Fig.3 DC current gain; typical values.

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

DATA SHEET STATUS

DOCUMENT STATUS[1]	PRODUCT STATUS[2]	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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NXP Semiconductors

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This data sheet was changed to reflect the new company name NXP Semiconductors. No changes were made to the content, except for the legal definitions and disclaimers.

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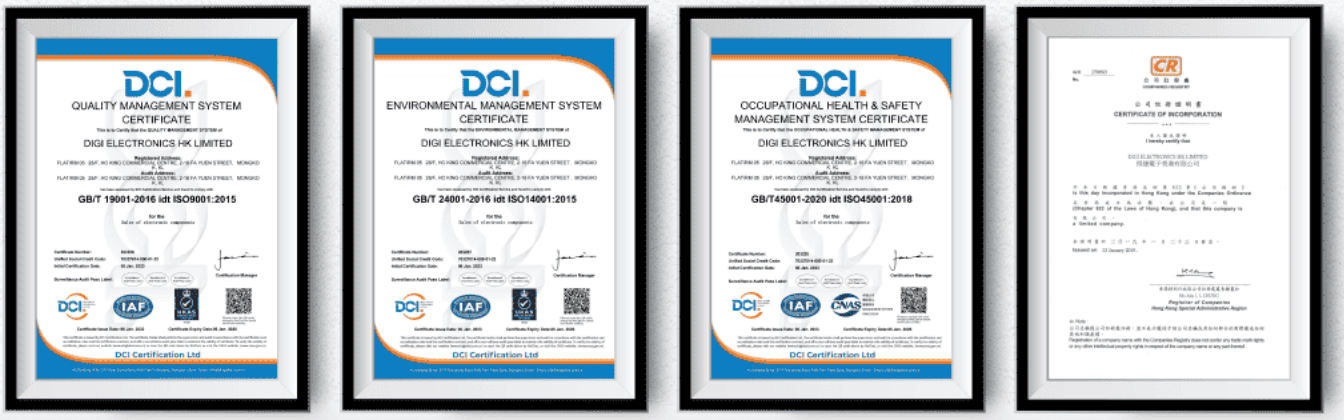

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