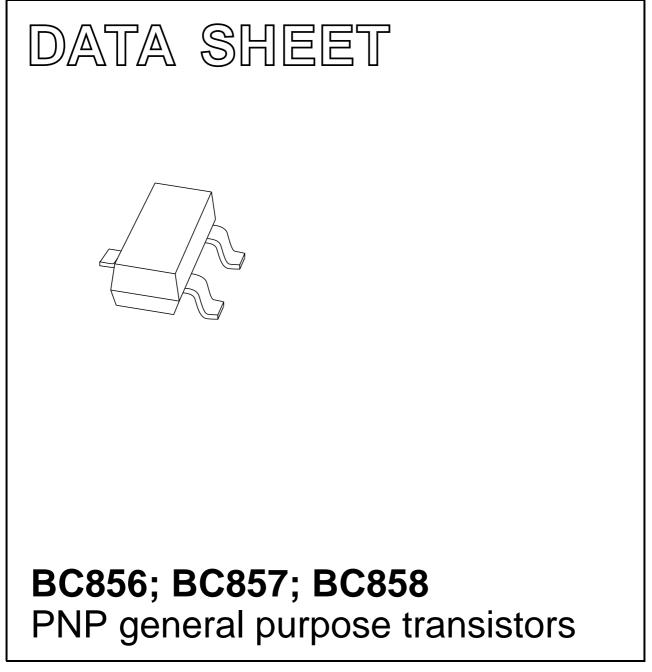
DISCRETE SEMICONDUCTORS



Product data sheet Supersedes data of 2003 Apr 09 2004 Jan 16



BC856; BC857; BC858

PNP general purpose transistors

FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 65 V).

APPLICATIONS

• General purpose switching and amplification.

DESCRIPTION

PNP transistor in a SOT23 plastic package. NPN complements: BC846, BC847 and BC848.

MARKING

TYPE NUMBER	MARKING CODE ⁽¹⁾
BC856	3D*
BC856A	3A*
BC856B	3B*
BC857	3H*
BC857A	3E*
BC857B	3F*
BC857C	3G*
BC858B	3K*

Note

- 1. * = p: made in Hong Kong.
 - * = t: made in Malaysia.
 - * = W: made in China.

ORDERING INFORMATION

PACKAGE TYPE NUMBER DESCRIPTION VERSION NAME BC856 plastic surface mounted package; 3 leads SOT23 _ BC857 plastic surface mounted package; 3 leads SOT23 _ BC858 plastic surface mounted package; 3 leads SOT23 _

PINNING

PIN	DESCRIPTION	
1	base	
2	emitter	
3	collector	

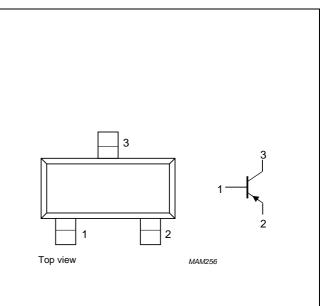


Fig.1 Simplified outline (SOT23) and symbol.

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LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{CBO}	collector-base voltage	open emitter			
	BC856		-	-80	V
	BC857		_	-50	V
	BC858		-	-30	V
V _{CEO}	collector-emitter voltage	open base			
	BC856		_	-65	V
	BC857		_	-45	V
	BC858		-	-30	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	$T_{amb} \le 25 \ ^{\circ}C$; note 1	-	250	mW
T _{stg}	storage temperature		-65	+150	°C
Tj	junction temperature		-	150	°C
T _{amb}	operating ambient temperature		-65	+150	°C

Note

1. Transistor mounted on an FR4 printed-circuit board, standard footprint.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	TYPICAL	UNIT	
R _{th(j-a)}	thermal resistance from junction to ambient	in free air; note 1	500	K/W	

Note

1. Transistor mounted on an FR4 printed-circuit board, standard footprint.

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CHARACTERISTICS

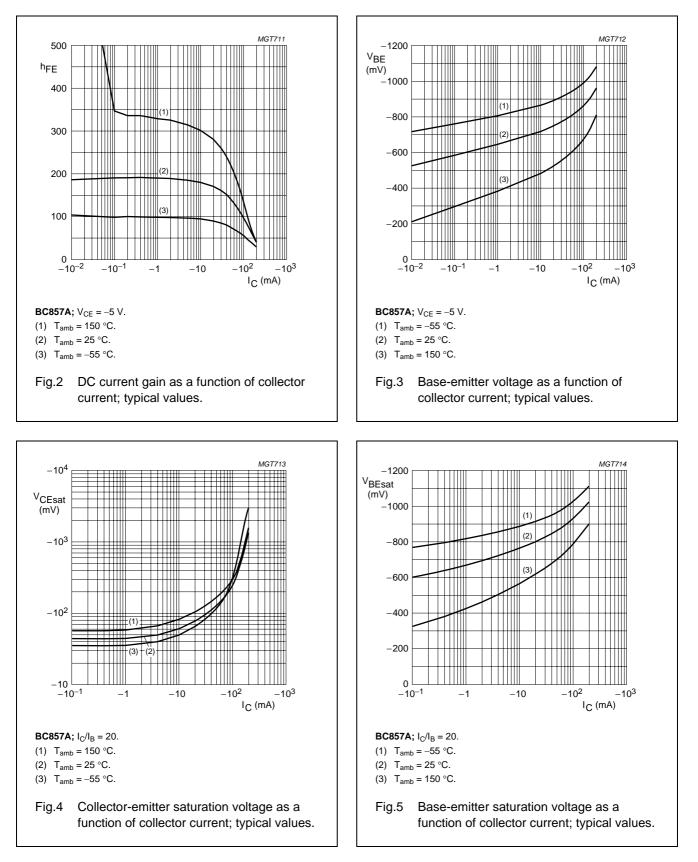
 T_{amb} = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I _{CBO}	collector-base cut-off current	$V_{CB} = -30 \text{ V}; I_E = 0$	-	-1	-15	nA
		$V_{CB} = -30 \text{ V}; I_E = 0;$ $T_j = 150 \text{ °C}$	-	-	-4	μΑ
I _{EBO}	emitter-base cut-off current	$V_{EB} = -5 \text{ V}; \text{ I}_{C} = 0$	_	_	-100	nA
h _{FE}	DC current gain BC856	$I_{C} = -2 \text{ mA}; V_{CE} = -5 \text{ V}$	125		475	
	BC857		125	_	800	
	BC856A; BC857A BC856B; BC857B; BC858B		125 220	-	250 475	
	BC857C		420	_	800	
V _{CEsat}	collector-emitter saturation voltage	$I_{C} = -10 \text{ mA}; I_{B} = -0.5 \text{ mA}$	_	-75	-300	mV
		$I_{C} = -100 \text{ mA}; I_{B} = -5 \text{ mA};$ note 1	-	-250	-650	mV
V _{BEsat}	base-emitter saturation voltage	$I_{\rm C} = -10 \text{ mA}; I_{\rm B} = -0.5 \text{ mA}$	-	-700	-	mV
		$I_{\rm C} = -100 \text{ mA}; I_{\rm B} = -5 \text{ mA};$ note 1	-	-850	-	mV
V _{BE}	base-emitter voltage	$I_{C} = -2 \text{ mA}; V_{CE} = -5 \text{ V}$	-600	-650	-750	mV
		$I_{C} = -10 \text{ mA}; V_{CE} = -5 \text{ V}$	-	-	-820	mV
C _c	collector capacitance	$\label{eq:VCB} \begin{array}{l} V_{CB} = -10 \ \text{V}; \ \textbf{I}_{E} = \textbf{I}_{e} = 0; \\ \textbf{f} = 1 \ \text{MHz} \end{array}$	-	4.5	-	pF
f _T	transition frequency	$V_{CE} = -5 \text{ V}; I_C = -10 \text{ mA};$ f = 100 MHz	100	_	-	MHz
F	noise figure	$ I_C = -200 \ \mu\text{A}; \ V_{CE} = -5 \ V; \\ R_S = 2 \ k\Omega; \ f = 1 \ k\text{Hz}; \\ B = 200 \ \text{Hz} $	_	2	10	dB

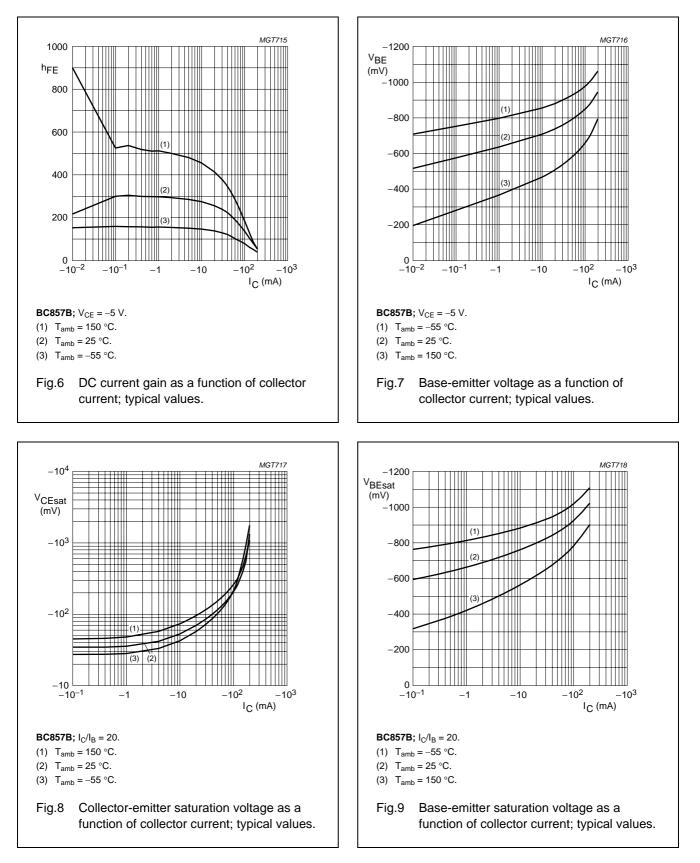
Note

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

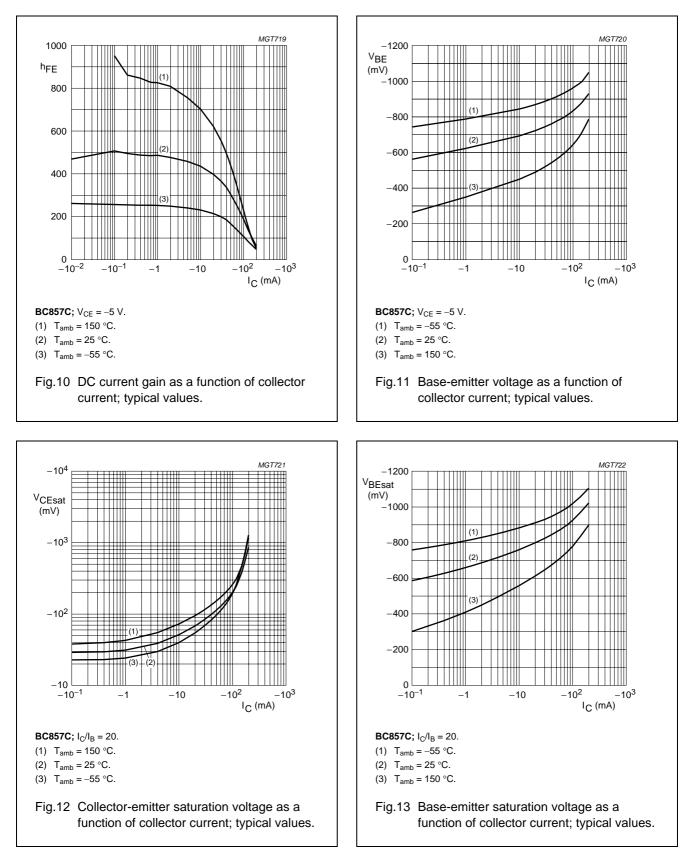
BC856; BC857; BC858



BC856; BC857; BC858

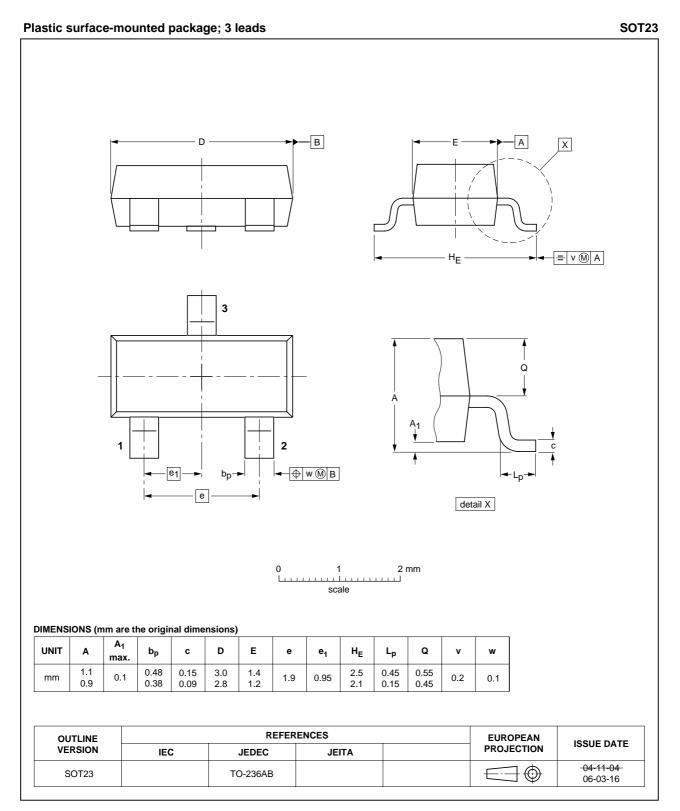


BC856; BC857; BC858



BC856; BC857; BC858

PACKAGE OUTLINE



BC856; BC857; BC858

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

Customer notification

This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content, except for package outline drawings which were updated to the latest version.

Contact information

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Printed in The Netherlands

R75/06/pp10

Date of release: 2004 Jan 16

Document order number: 9397 750 12397

