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Kind regards,

Team Nexperia

DISCRETE SEMICONDUCTORS

DATA SHEET



BC846S NPN general purpose double transistor

Product data sheet Supersedes data of 1999 May 28 1999 Sep 01



NXP Semiconductors Product data sheet

NPN general purpose double transistor

BC846S

FEATURES

- Two transistors in one package
- · Reduces number of components and board space
- No mutual interference between the transistors.

APPLICATIONS

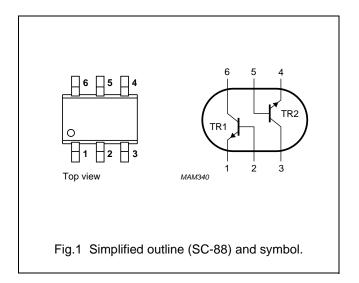
• General purpose switching and small signal amplification.

DESCRIPTION

NPN double transistor in an SC-88 (SOT363) plastic six lead package.

PINNING

PIN		DESCRIPTION
1, 4	emitter	TR1; TR2
2, 5	base	TR1; TR2
6, 3	collector	TR1; TR2



MARKING

TYPE NUMBER	MARKING CODE
BC846S	4Ft

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT		
Per transistor							
V _{CBO}	collector-base voltage	open emitter	_	80	V		
V _{CEO}	collector-emitter voltage	open base	_	65	V		
V _{EBO}	emitter-base voltage	open collector	_	6	V		
I _C	collector current (DC)		_	100	mA		
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	_	200	mW		
T _{stg}	storage temperature		-65	+150	°C		
T _j	junction temperature		_	150	°C		
T _{amb}	operating ambient temperature		-65	+150	°C		
Per device							
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note 1	_	300	mW		

Note

1. Refer to SC-88 (SOT363) standard mounting conditions.

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THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-a}	thermal resistance from junction to ambient	note 1	416	K/W

Note

1. Refer to SC-88 (SOT363) standard mounting conditions.

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
Per transistor							
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	_	_	5	μΑ	
I _{EBO}	emitter cut-off current	I _C = 0; V _{EB} = 5 V	_	_	100	nA	
h _{FE}	DC current gain	$I_C = 2 \text{ mA}; V_{CE} = 5 \text{ V}$	110	_	_		
V _{CEsat}	collector-emitter saturation	$I_C = 10 \text{ mA}; I_B = 0.5 \text{ mA}$	_	_	100	mV	
	voltage	$I_C = 100 \text{ mA}; I_B = 5 \text{ mA}; \text{ note 1}$	_	_	300	mV	
V _{BEsat}	base-emitter saturation voltage	$I_C = 10 \text{ mA}; I_B = 0.5 \text{ mA}$	_	770	_	mV	
C _c	collector capacitance	$I_E = i_e = 0$; $V_{CB} = 10 \text{ V}$; $f = 1 \text{ MHz}$	_	_	1.5	pF	
f⊤	transition frequency	I _C = 10 mA; V _{CE} = 5 V; f = 100 MHz	100	_	_	MHz	

Note

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

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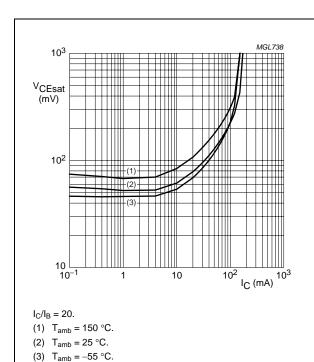
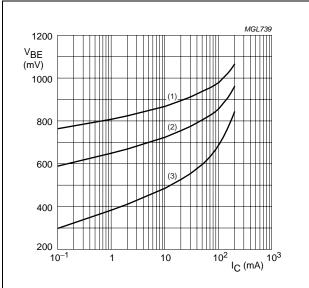


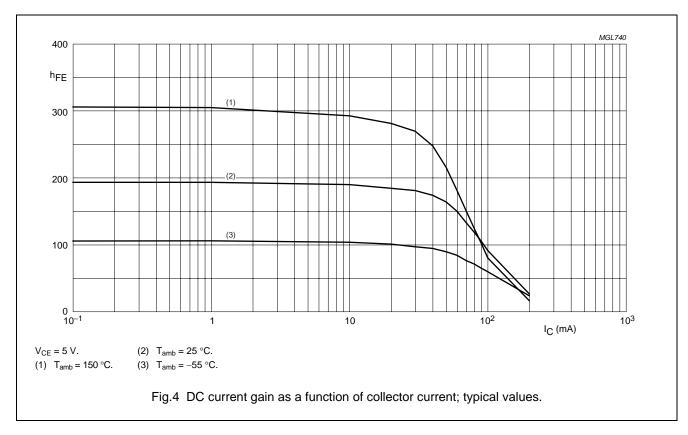
Fig.2 Collector-emitter saturation voltage as a function of collector current; typical values.



 $V_{CE} = 5 \text{ V}.$

- (1) $T_{amb} = -55 \, ^{\circ}C$.
- (2) $T_{amb} = 25 \, ^{\circ}C$.
- (3) $T_{amb} = 150 \, ^{\circ}C$.

Fig.3 Base-emitter voltage as a function of collector current; typical values.



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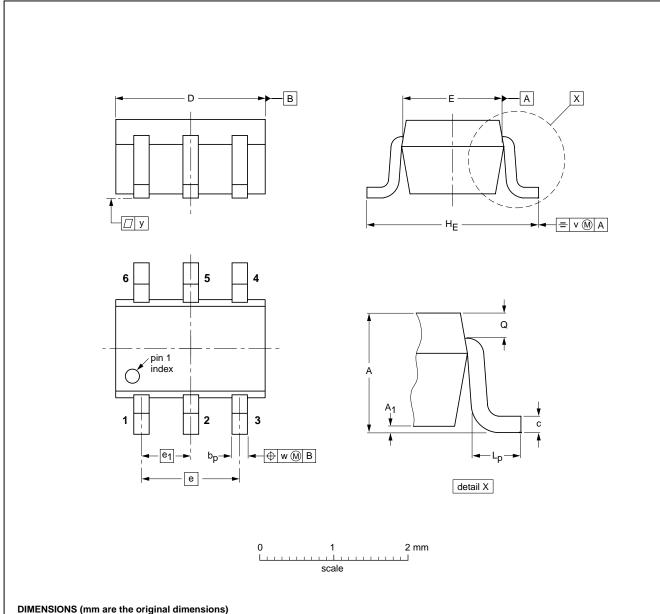
NPN general purpose double transistor

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PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT363



DIMENSIONS	(mm are	the original	dimensions)	

			-											
UNIT	A	A ₁ max	bp	С	D	E	е	e ₁	HE	Lp	Q	v	w	у
mm	1.1 0.8	0.1	0.30 0.20	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.25 0.15	0.2	0.2	0.1

OUTLINE		REFERENCES		EUROPEAN	ISSUE DATE	
VERSION	IEC	JEDEC	EIAJ		PROJECTION	ISSUE DATE
SOT363			SC-88			97-02-28

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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.

Notes

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NXP Semiconductors

Customer notification

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Printed in The Netherlands 115002/02/pp7 Date of release: 1999 Sep 01 Document order number: 9397 750 06102

