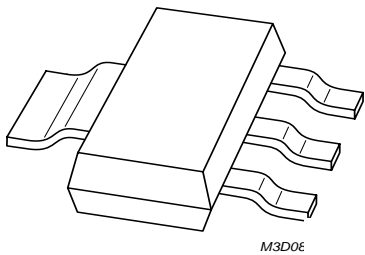


DATA SHEET



BSP41; BSP43 NPN medium power transistors

Product data sheet
Supersedes data of 1997 Sep 05

1999 Apr 26

NPN medium power transistors

BSP41; BSP43

FEATURES

- High current (max. 1 A)
- Low voltage (max. 80 V).

APPLICATIONS

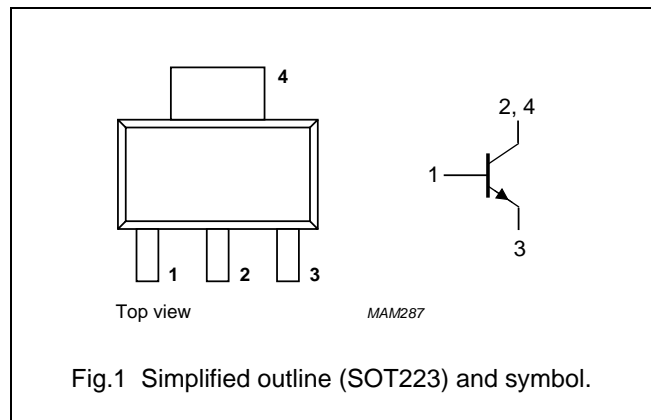
- Telephony and general industrial applications
- Thick and thin-film circuits.

DESCRIPTION

NPN medium power transistor in a SOT223 plastic package. PNP complements: BSP31; BSP32 and BSP33.

PINNING

PIN	DESCRIPTION
1	base
2,4	collector
3	emitter



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{CB0}	collector-base voltage	open emitter			
	BSP41		–	70	V
	BSP43		–	90	V
V _{CEO}	collector-emitter voltage	open base			
	BSP41		–	60	V
	BSP43		–	80	V
V _{EBO}	emitter-base voltage	open collector	–	5	V
I _C	collector current (DC)		–	1	A
I _{CM}	peak collector current		–	2	A
I _{BM}	peak base current		–	0.2	A
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note 1	–	1.3	W
T _{stg}	storage temperature		–65	+150	°C
T _j	junction temperature		–	150	°C
T _{amb}	operating ambient temperature		–65	+150	°C

Note

1. Device mounted on a printed-circuit board, single sided copper, tinplated, mounting pad for collector 1 cm². For other mounting conditions, see “Thermal considerations for SOT223 in the General Part of associated Handbook”.

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THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	93	K/W
$R_{th\ j-s}$	thermal resistance from junction to soldering point		12	K/W

Note

1. Device mounted on a printed-circuit board, single sided copper, tinplated, mounting pad for collector 1 cm². For other mounting conditions, see "Thermal considerations for SOT223 in the General Part of associated Handbook".

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = 60\text{ V}$	–	100	nA
		$I_E = 0; V_{CB} = 60\text{ V}; T_j = 150\text{ °C}$	–	50	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = 5\text{ V}$	–	100	nA
h_{FE}	DC current gain	$I_C = 100\text{ μA}; V_{CE} = 5\text{ V}; \text{note 1}$	30	–	
		$I_C = 100\text{ mA}; V_{CE} = 5\text{ V}; \text{note 1}$	100	300	
		$I_C = 500\text{ mA}; V_{CE} = 5\text{ V}; \text{note 1}$	50	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 150\text{ mA}; I_B = 15\text{ mA}; \text{note 1}$	–	0.25	V
		$I_C = 500\text{ mA}; I_B = 50\text{ mA}; \text{note 1}$	–	0.5	V
V_{BEsat}	base-emitter saturation voltage	$I_C = 150\text{ mA}; I_B = 15\text{ mA}; \text{note 1}$	–	1	V
		$I_C = 500\text{ mA}; I_B = 50\text{ mA}; \text{note 1}$	–	1.2	V
f_T	transition frequency	$I_C = 50\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz}$	100	–	MHz

Note

1. Pulse test: $t_p \leq 300\text{ μs}; \delta \leq 0.01$.

NPN medium power transistors

BSP41; BSP43

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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2. The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.nxp.com>.

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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.

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Printed in The Netherlands

115002/00/04/pp6

Date of release: 1999 Apr 26

Document order number: 9397 750 05771

