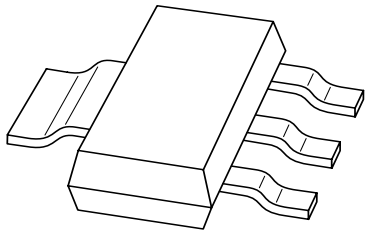


DATA SHEET



BCP51; BCP52; BCP53 PNP medium power transistors

Product specification
Supersedes data of 2001 Oct 10

2003 Feb 06

PNP medium power transistors

BCP51; BCP52; BCP53

FEATURES

- High collector current
- 1.3 W power dissipation.

APPLICATIONS

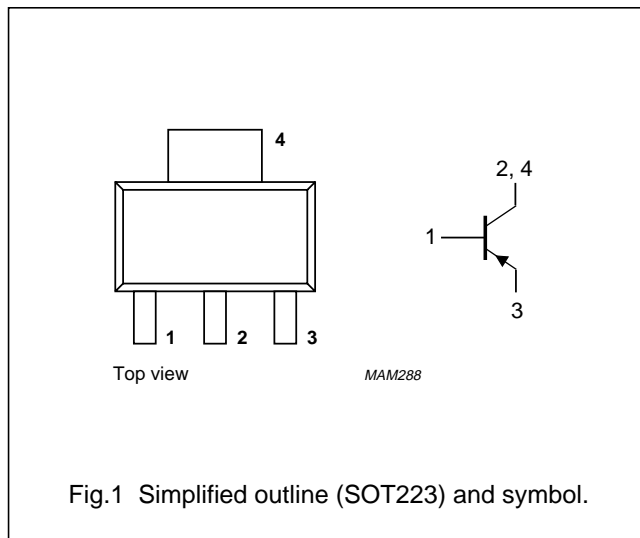
- General purpose medium power DC applications
- Low and medium frequency AC applications
- Peripheral drivers
- Linear voltage regulators and battery chargers.

DESCRIPTION

PNP medium power transistor in a SOT223 plastic package. NPN complements: BCP54, BCP55 and BCP56.

PINNING

| PIN | DESCRIPTION |
|------|-------------|
| 1 | base |
| 2, 4 | collector |
| 3 | emitter |



QUICK REFERENCE DATA

| SYMBOL | PARAMETER | MAX. | UNIT |
|-----------|---------------------------|------|------|
| V_{CE0} | collector-emitter voltage | -80 | V |
| I_C | collector current (DC) | -1 | A |
| I_{CM} | peak collector current | -1.5 | A |

PNP medium power transistors

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LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|------------------|-------------------------------|----------------------------------|------|------|------|
| V _{CBO} | collector-base voltage | open emitter | | | |
| | BCP51 | | – | –45 | V |
| | BCP52 | | – | –60 | V |
| | BCP53 | | – | –100 | V |
| V _{CEO} | collector-emitter voltage | open base | | | |
| | BCP51 | | – | –45 | V |
| | BCP52 | | – | –60 | V |
| | BCP53 | | – | –80 | V |
| V _{EBO} | emitter-base voltage | open collector | – | –5 | V |
| I _C | collector current (DC) | | – | –1 | A |
| I _{CM} | peak collector current | | – | –1.5 | 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

- 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*”.

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---------------------|---|------------|-------|------|
| R _{th j-a} | thermal resistance from junction to ambient | note 1 | 95 | K/W |
| R _{th j-s} | thermal resistance from junction to soldering point | | 14 | K/W |

Note

- 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*”.

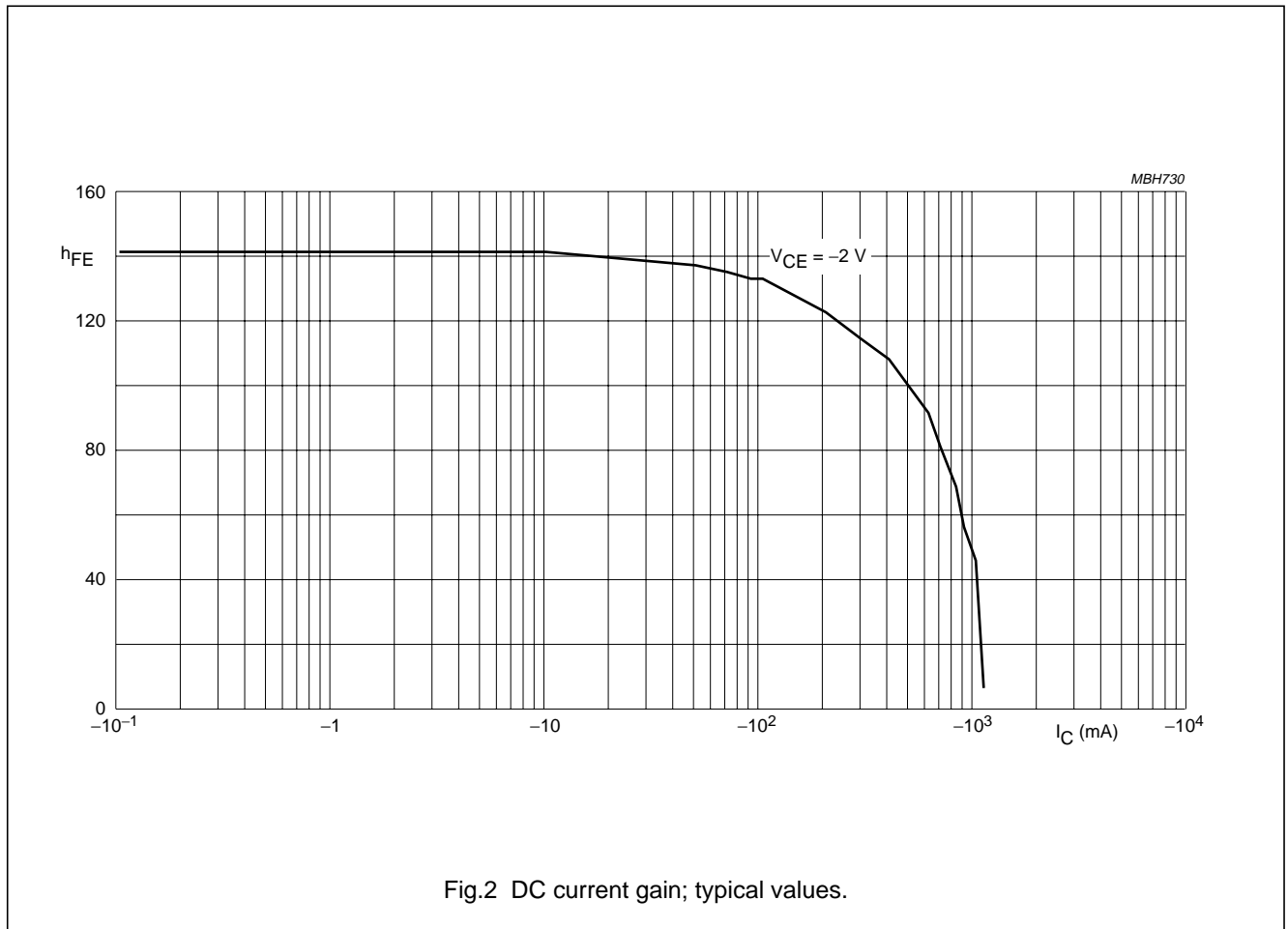
PNP medium power transistors

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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 | - | - | -100 | nA |
| | | I _E = 0; V _{CB} = -30 V; T _j = 125 °C | - | - | -10 | µA |
| I _{EBO} | emitter cut-off current | I _C = 0; V _{EB} = -5 V | - | - | -100 | nA |
| h _{FE} | DC current gain | V _{CE} = -2 V; see Fig.2 I _C = -5 mA I _C = -150 mA I _C = -500 mA | 63 | - | - | |
| | | | 63 | - | 250 | |
| | | | 40 | - | - | |
| | | | | | | |
| h _{FE} | DC current gain BCP51-10; BCP52-10; BCP53-10 BCP51-16; BCP52-16; BCP53-16 | I _C = -150 mA; V _{CE} = -2 V; see Fig.2 | 63 | - | 160 | |
| | | | 100 | - | 250 | |
| V _{CEsat} | collector-emitter saturation voltage | I _C = -500 mA; I _B = -50 mA | - | - | -0.5 | V |
| V _{BE} | base-emitter voltage | I _C = -500 mA; V _{CE} = -2 V | - | - | -1 | V |
| f _T | transition frequency | I _C = -10 mA; V _{CE} = -5 V; f = 100 MHz | - | 115 | - | MHz |



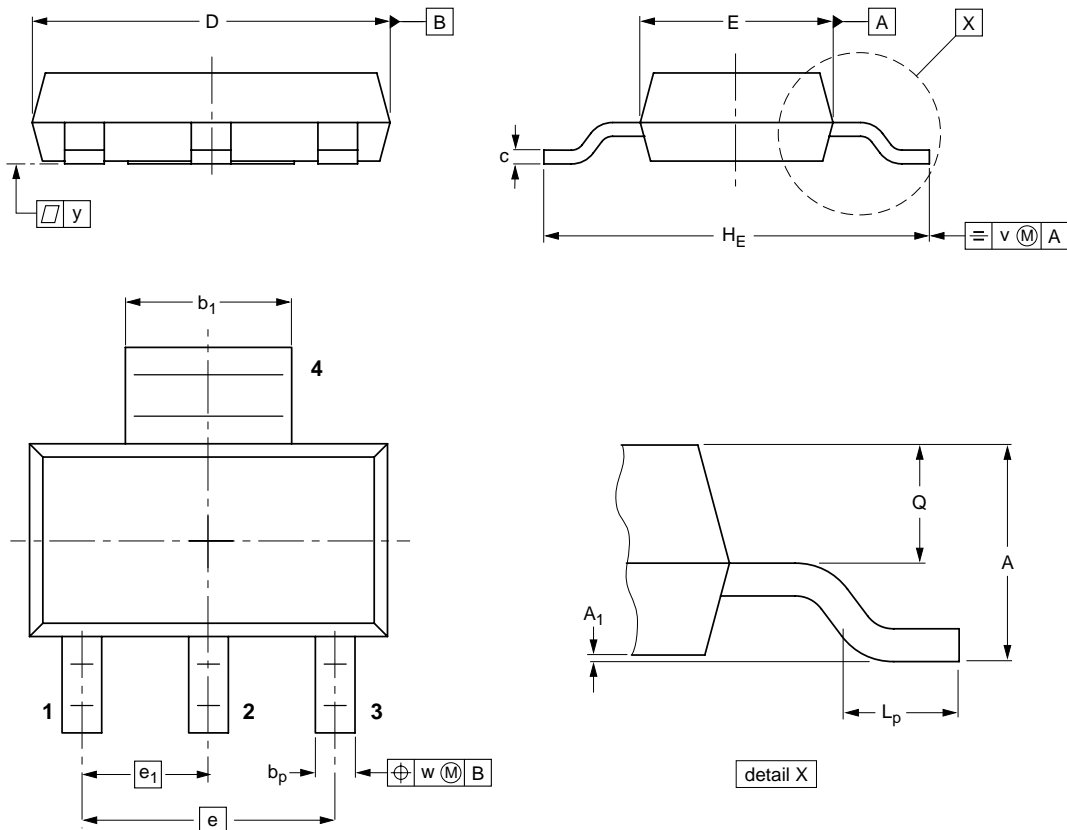
PNP medium power transistors

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PACKAGE OUTLINE

Plastic surface mounted package; collector pad for good heat transfer; 4 leads

SOT223



DIMENSIONS (mm are the original dimensions)

| UNIT | A | A ₁ | b _p | b ₁ | c | D | E | e | e ₁ | H _E | L _p | Q | v | w | y |
|------|------------|----------------|----------------|----------------|--------------|------------|------------|-----|----------------|----------------|----------------|--------------|-----|-----|-----|
| mm | 1.8 1.5 | 0.10 0.01 | 0.80 0.60 | 3.1 2.9 | 0.32 0.22 | 6.7 6.3 | 3.7 3.3 | 4.6 | 2.3 | 7.3 6.7 | 1.1 0.7 | 0.95 0.85 | 0.2 | 0.1 | 0.1 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|-------|-------|--|---------------------|----------------------|
| | IEC | JEDEC | EIAJ | | | |
| SOT223 | | | SC-73 | | | 97-02-28 99-09-13 |

PNP medium power transistors

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DATA SHEET STATUS

| LEVEL | DATA SHEET STATUS ⁽¹⁾ | PRODUCT STATUS ⁽²⁾⁽³⁾ | DEFINITION |
|-------|----------------------------------|----------------------------------|--|
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NOTES

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Contact information

For additional information please visit <http://www.semiconductors.philips.com>. Fax: +31 40 27 24825

For sales offices addresses send e-mail to: sales.addresses@www.semiconductors.philips.com.

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