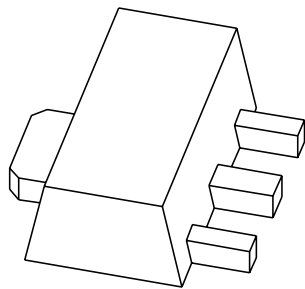


DATA SHEET



BCX54; BCX55; BCX56 NPN medium power transistors

Product specification
Supersedes data of 1997 Mar 24

1999 Apr 19

NPN medium power transistors

BCX54; BCX55; BCX56

FEATURES

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

APPLICATIONS

- Driver stages of audio and video amplifiers.

DESCRIPTION

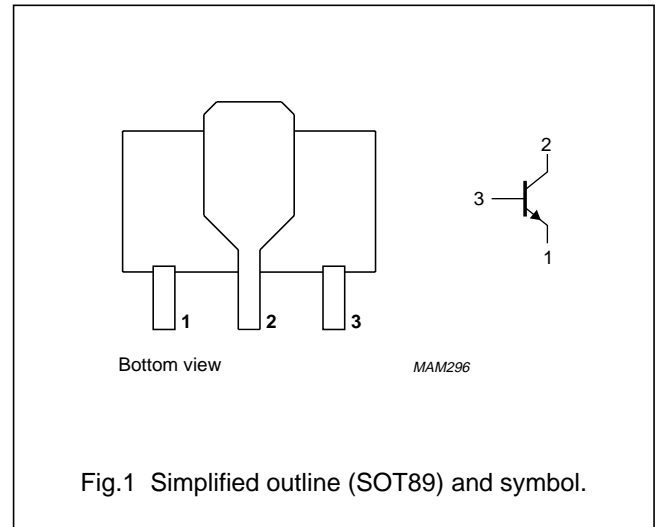
NPN medium power transistor in a SOT89 plastic package. PNP complements: BCX51, BCX52 and BCX53.

MARKING

| TYPE NUMBER | MARKING CODE | TYPE NUMBER | MARKING CODE |
|-------------|--------------|-------------|--------------|
| BCX54 | BA | BCX55-16 | BM |
| BCX54-10 | BC | BCX56 | BH |
| BCX54-16 | BD | BCX56-10 | BK |
| BCX55 | BE | BCX56-16 | BL |
| BCX55-10 | BG | | |

PINNING

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



NPN medium power transistors

BCX54; BCX55; BCX56

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 | | | |
| | BCX54 | | – | 45 | V |
| | BCX55 | | – | 60 | V |
| | BCX56 | | – | 100 | V |
| V _{CEO} | collector-emitter voltage | open base | | | |
| | BCX54 | | – | 45 | V |
| | BCX55 | | – | 60 | V |
| | BCX56 | | – | 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 6 cm².
For other mounting conditions, see “*Thermal considerations for SOT89 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 | 94 | 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 6 cm².
For other mounting conditions, see “*Thermal considerations for SOT89 in the General Part of associated Handbook*”.

NPN medium power transistors

BCX54; BCX55; BCX56

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 | 40 | – | – | |
| | | I _C = 150 mA | 63 | – | 250 | |
| | | I _C = 500 mA | 25 | – | – | |
| | DC current gain | I _C = 150 mA; V _{CE} = 2 V; (see Fig.2) | | | | |
| | BCX54-10; 55-10; 56-10 | | 63 | – | 160 | |
| | BCX54-16; 55-16; 56-16 | | 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 | – | 130 | – | MHz |
| $\frac{h_{FE1}}{h_{FE2}}$ | DC current gain ratio of the complementary pairs | I _C = 150 mA; V _{CE} = 2 V | – | 1.3 | 1.6 | |

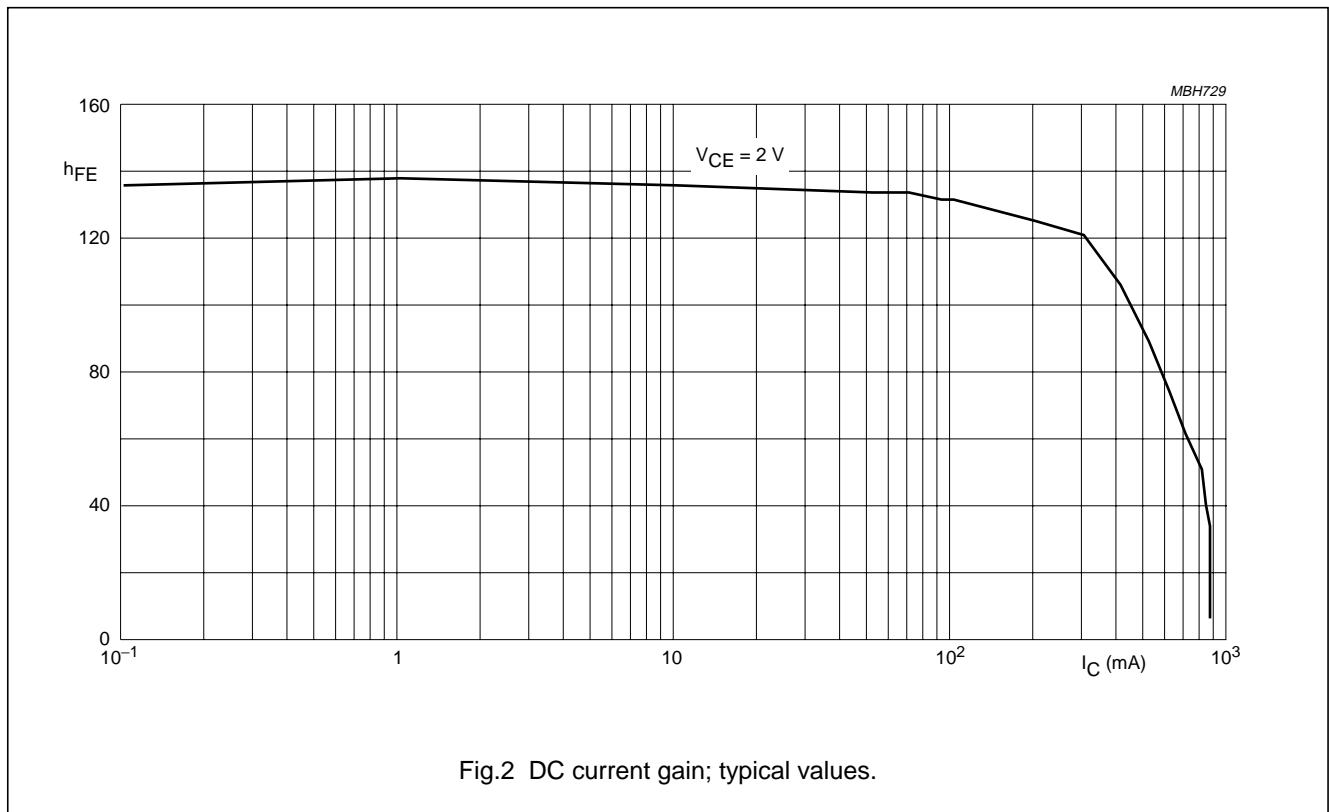


Fig.2 DC current gain; typical values.

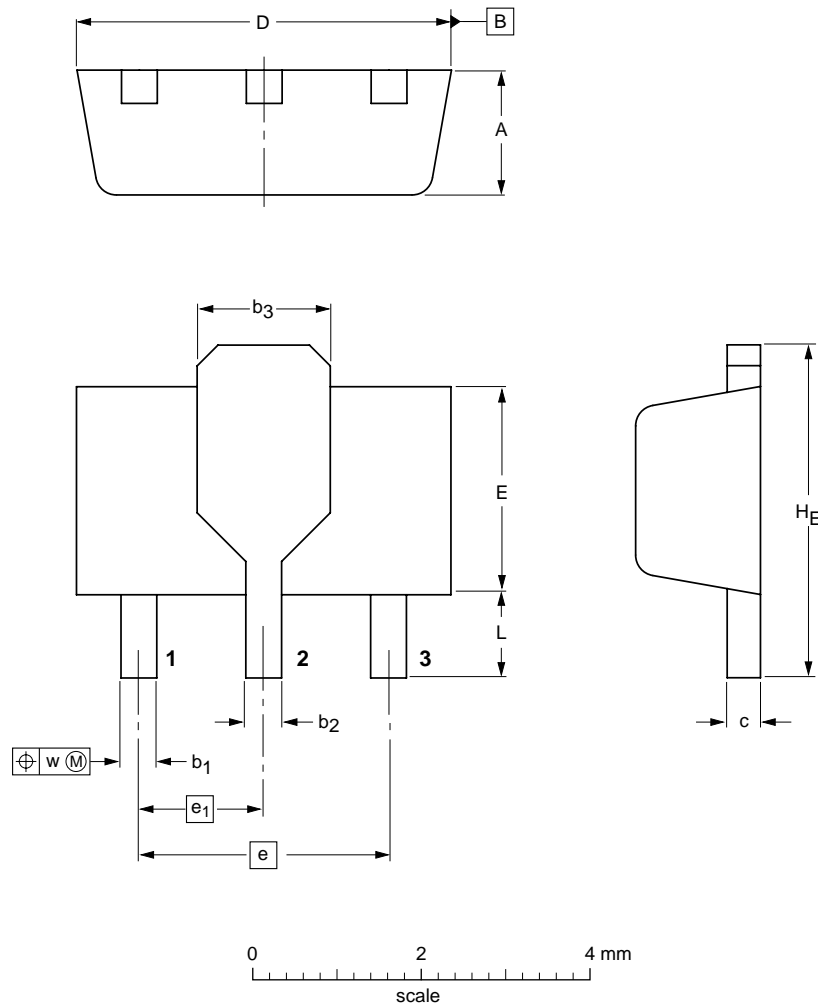
NPN medium power transistors

BCX54; BCX55; BCX56

PACKAGE OUTLINE

Plastic surface mounted package; collector pad for good heat transfer; 3 leads

SOT89



DIMENSIONS (mm are the original dimensions)

| UNIT | A | b ₁ | b ₂ | b ₃ | c | D | E | e | e ₁ | H _E | L min. | w |
|------|------------|----------------|----------------|----------------|--------------|------------|------------|-----|----------------|----------------|--------|------|
| mm | 1.6 1.4 | 0.48 0.35 | 0.53 0.40 | 1.8 1.4 | 0.44 0.37 | 4.6 4.4 | 2.6 2.4 | 3.0 | 1.5 | 4.25 3.75 | 0.8 | 0.13 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|-------|------|--|---------------------|------------|
| | IEC | JEDEC | EIAJ | | | |
| SOT89 | | | | | | 97-02-28 |

NPN medium power transistors

BCX54; BCX55; BCX56

DEFINITIONS

| Data Sheet Status | |
|---|---|
| Objective specification | This data sheet contains target or goal specifications for product development. |
| Preliminary specification | This data sheet contains preliminary data; supplementary data may be published later. |
| Product specification | This data sheet contains final product specifications. |
| Limiting values | |
| Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability. | |
| Application information | |
| Where application information is given, it is advisory and does not form part of the specification. | |

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NPN medium power transistors

BCX54; BCX55; BCX56

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