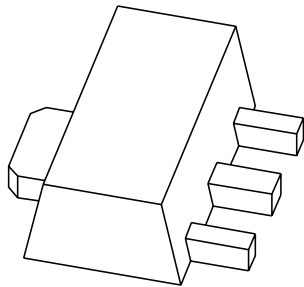


DATA SHEET



BCX54; BCX55; BCX56 NPN medium power transistors

Product specification
Supersedes data of 1999 Apr 19

2001 Oct 10

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

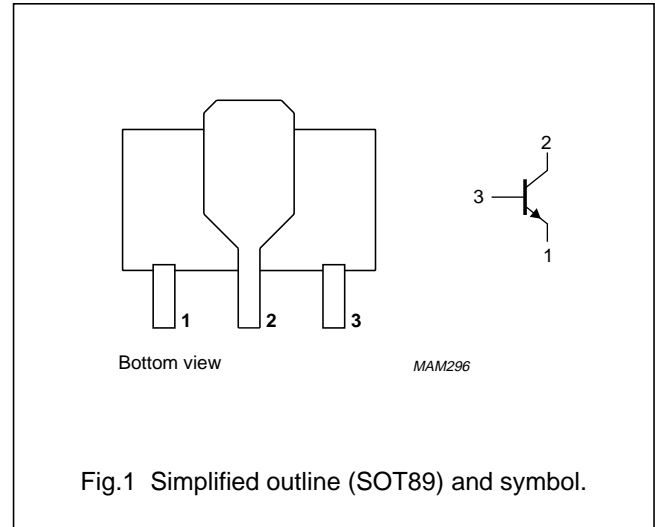
NPN medium power transistor in a SOT89 plastic package. PNP complements: BCX51, BCX52 and BCX53.

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 60134).

| 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”*.

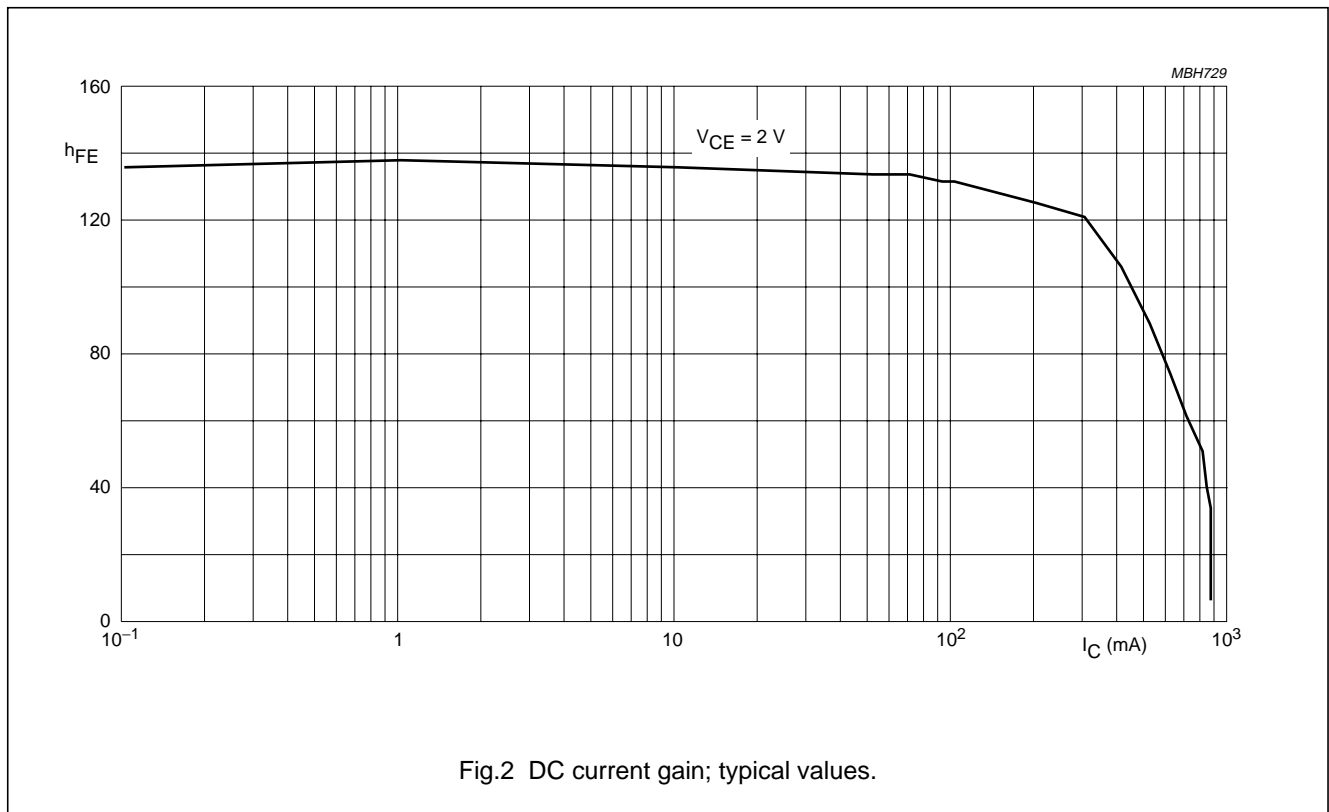
NPN medium power transistors

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 | 63 | – | – | |
| | | I _C = 150 mA | 63 | – | 250 | |
| | I _C = 500 mA | 40 | – | – | | |
| 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 | |



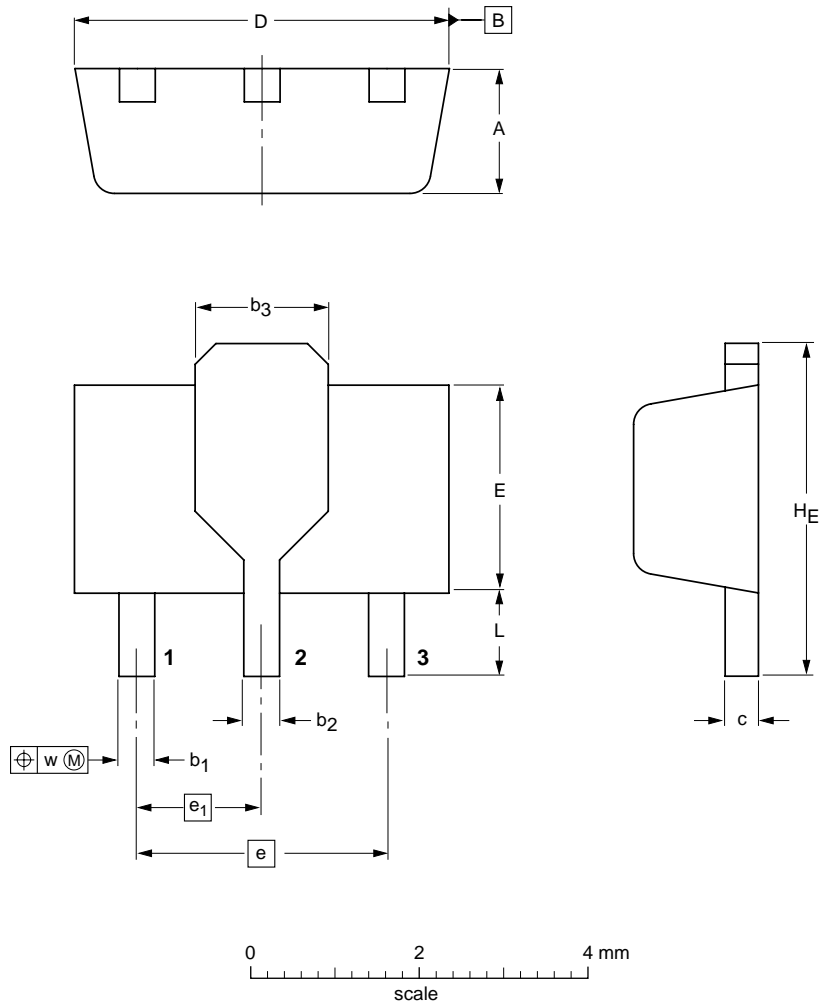
NPN medium power transistors

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 | | TO-243 | SC-62 | | | 97-02-28 99-09-13 |

NPN medium power transistors

BCX54; BCX55; BCX56

DATA SHEET STATUS

| DATA SHEET STATUS ⁽¹⁾ | PRODUCT STATUS ⁽²⁾ | DEFINITIONS |
|----------------------------------|-------------------------------|--|
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NPN medium power transistors

BCX54; BCX55; BCX56

NOTES

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