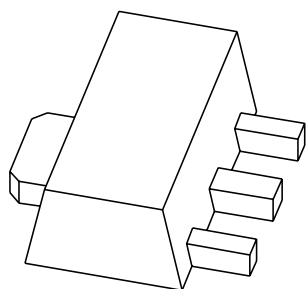


DATA SHEET



BCV28; BCV48 PNP Darlington transistors

Product specification
Supersedes data of 1997 Mar 25
File under Discrete Semiconductors, SC04

1997 Apr 21

PNP Darlington transistors

BCV28; BCV48

FEATURES

- Very high DC current gain (min. 10000)
- High current (max. 500 mA)
- Low voltage (max. 60 V).

APPLICATIONS

- Where very high amplification is required.

DESCRIPTION

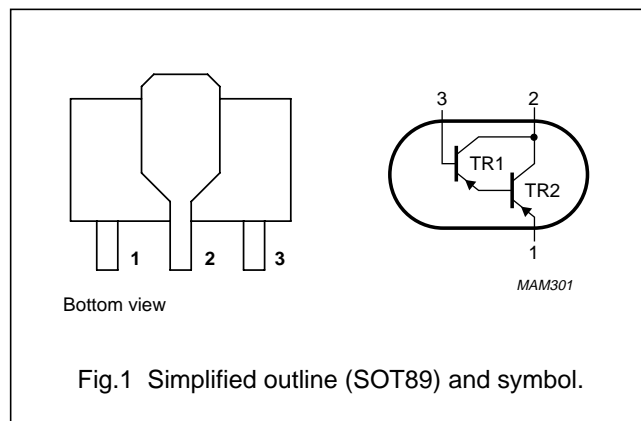
PNP Darlington transistor in a SOT89 plastic package.
NPN complements: BCV29 and BCV49.

MARKING

| TYPE NUMBER | MARKING CODE |
|-------------|--------------|
| BCV28 | ED |
| BCV48 | EE |

PINNING

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



QUICK REFERENCE DATA

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-----------|---------------------------|---|-------|------|------|------|
| V_{CBO} | collector-base voltage | open emitter | | | | |
| | BCV28 | | – | – | –40 | V |
| | BCV48 | | – | – | –80 | V |
| V_{CES} | collector-emitter voltage | $V_{BE} = 0$ | | | | |
| | BCV28 | | – | – | –30 | V |
| | BCV48 | | – | – | –60 | V |
| I_C | collector current (DC) | | – | – | –500 | mA |
| P_{tot} | total power dissipation | $T_{amb} \leq 25\text{ }^\circ\text{C}$ | – | – | 1.3 | W |
| h_{FE} | DC current gain | $I_C = -100\text{ mA}; V_{CE} = -5\text{ V}$ | | | | |
| | BCV28 | | 20000 | – | – | |
| | BCV48 | | 10000 | – | – | |
| f_T | transition frequency | $I_C = -30\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}$ | – | 220 | – | MHz |

PNP Darlington transistors

BCV28; BCV48

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 | | | |
| | BCV28 | | – | –40 | V |
| | BCV48 | | – | –80 | V |
| V _{CES} | collector-emitter voltage | V _{BE} = 0 | | | |
| | BCV28 | | – | –30 | V |
| | BCV48 | | – | –60 | V |
| V _{EBO} | emitter-base voltage | open collector | – | –10 | V |
| I _C | collector current (DC) | | – | –500 | mA |
| I _{CM} | peak collector current | | – | –800 | mA |
| I _B | base current (DC) | | – | –100 | mA |
| 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, tinned, mounting pad for collector 1 cm².
For other mounting conditions, see “*Thermal considerations for the SOT89 in the General part of handbook SC04*”.

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

- Device mounted on a printed-circuit board, single-sided copper, tinned, mounting pad for collector 1 cm².
For other mounting conditions, see “*Thermal considerations for the SOT89 in the General part of handbook SC04*”.

PNP Darlington transistors

BCV28; BCV48

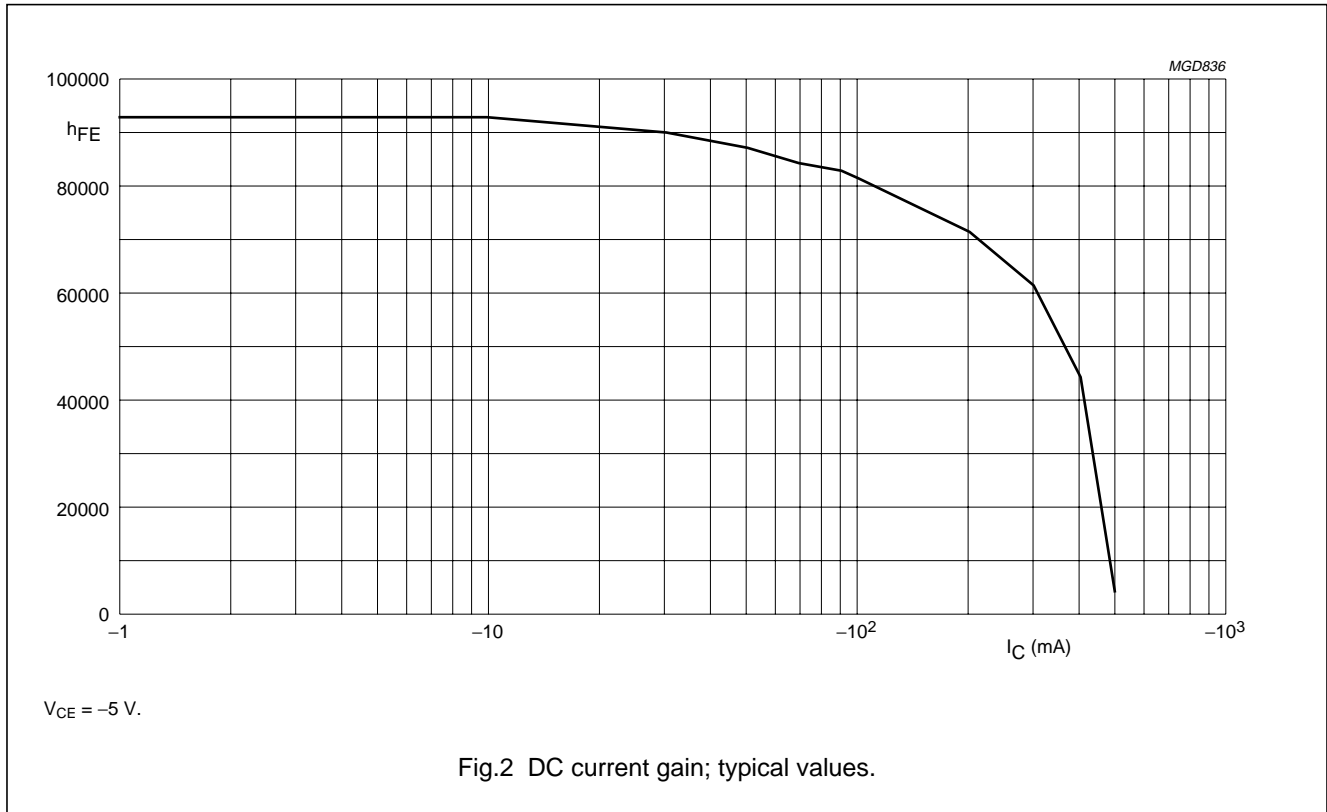
CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-------------|--------------------------------------|---|-------|------|------|------|
| I_{CBO} | collector cut-off current BCV28 | $I_E = 0; V_{CB} = -30\text{ V}$ | – | – | –100 | nA |
| | BCV48 | $I_E = 0; V_{CB} = -60\text{ V}$ | – | – | –100 | nA |
| I_{EBO} | emitter cut-off current | $I_C = 0; V_{BE} = -10\text{ V}$ | – | – | –100 | nA |
| h_{FE} | DC current gain BCV28 | $I_C = -1\text{ mA}; V_{CE} = -5\text{ V};$ see Fig.2 | 4000 | – | – | |
| | BCV48 | | 2000 | – | – | |
| h_{FE} | DC current gain BCV28 | $I_C = -10\text{ mA}; V_{CE} = -5\text{ V};$ see Fig.2 | 10000 | – | – | |
| | BCV48 | | 4000 | – | – | |
| h_{FE} | DC current gain BCV28 | $I_C = -100\text{ mA}; V_{CE} = -5\text{ V};$ see Fig.2 | 20000 | – | – | |
| | BCV48 | | 10000 | – | – | |
| h_{FE} | DC current gain BCV28 | $I_C = -500\text{ mA}; V_{CE} = -5\text{ V};$ see Fig.2 | 4000 | – | – | |
| | BCV48 | | 2000 | – | – | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = -100\text{ mA}; I_B = -0.1\text{ mA}$ | – | – | –1 | V |
| V_{BEsat} | base-emitter saturation voltage | $I_C = -100\text{ mA}; I_B = -0.1\text{ mA}$ | – | – | –1.5 | V |
| V_{BEon} | base-emitter on-state voltage | $I_C = -10\text{ mA}; I_B = -5\text{ mA}$ | – | – | –1.4 | V |
| f_T | transition frequency | $I_C = -30\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}$ | – | 220 | – | MHz |

PNP Darlington transistors

BCV28; BCV48



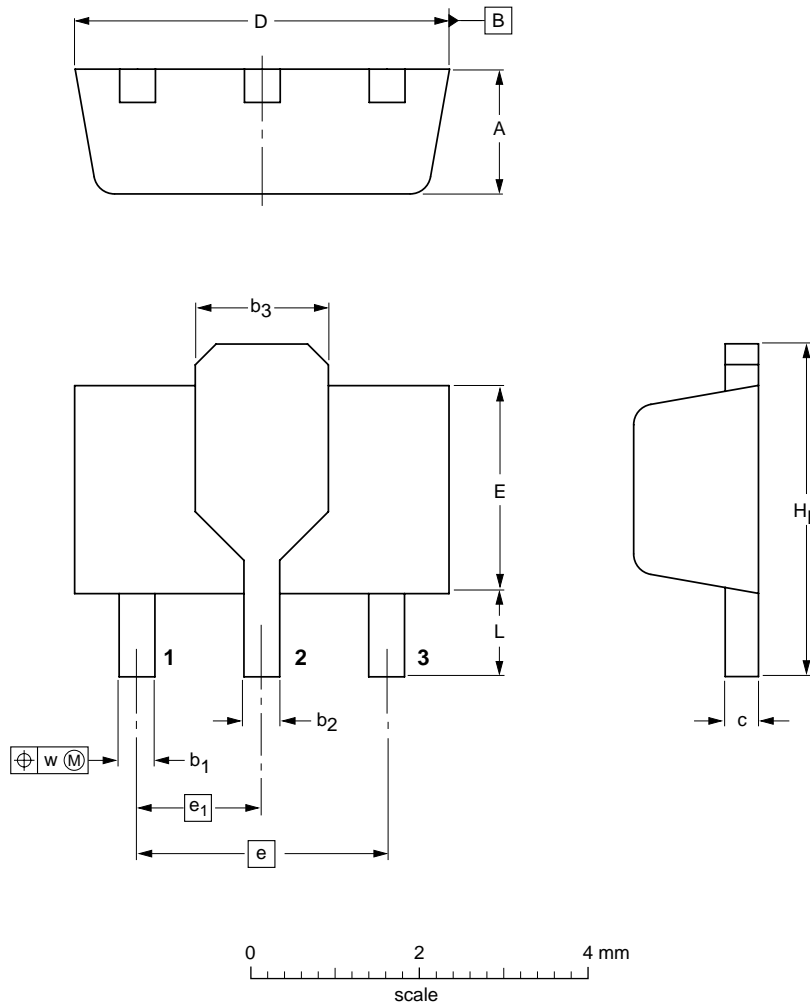
PNP Darlington transistors

BCV28; BCV48

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 | 0.48 | 0.53 | 1.8 | 0.44 | 4.6 | 2.6 | 3.0 | 1.5 | 4.25 | 0.8 | 0.13 |
| | 1.4 | 0.35 | 0.40 | 1.4 | 0.37 | 4.4 | 2.4 | 3.0 | 1.5 | 3.75 | | |

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

PNP Darlington transistors

BCV28; BCV48

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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Printed in The Netherlands

117047/00/03/pp8

Date of release: 1997 Apr 21

Document order number: 9397 750 02024

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