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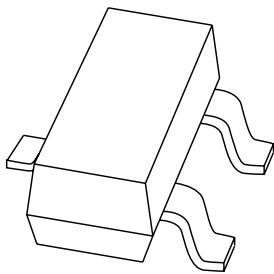
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Kind regards,

Team Nexperia

DATA SHEET



BCV27; BCV47 NPN Darlington transistors

Product data sheet
Supersedes data of 1999 Apr 08

2004 Jan 13

NPN Darlington transistors

BCV27; BCV47

FEATURES

- Medium current (max. 500 mA)
- Low voltage (max. 60 V)
- High DC current gain (min. 20000).

APPLICATIONS

- Preamplifier input applications.

DESCRIPTION

NPN Darlington transistor in a SOT23 plastic package.
PNP complements: BCV26 and BCV46.

MARKING

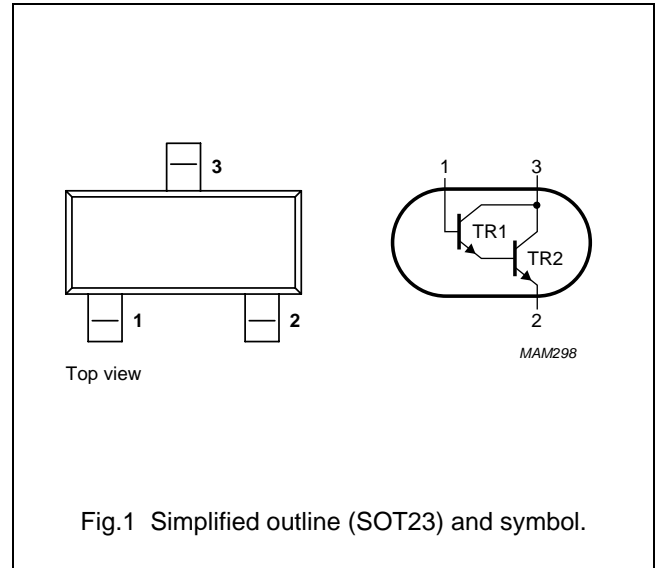
| TYPE NUMBER | MARKING CODE ⁽¹⁾ |
|-------------|-----------------------------|
| BCV27 | FF* |
| BCV47 | FG* |

Note

- * = p : Made in Hong Kong.
* = t : Made in Malaysia.
* = W : Made in China.

PINNING

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



ORDERING INFORMATION

| TYPE NUMBER | PACKAGE | | |
|-------------|---------|--|---------|
| | NAME | DESCRIPTION | VERSION |
| BCV27 | – | plastic surface mounted package; 3 leads | SOT23 |
| BCV47 | | | |

NPN Darlington transistors

BCV27; BCV47

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 | – | 40 | V |
| | BCV27 | | | 80 | V |
| V _{CES} | collector-emitter voltage | open base | – | 30 | V |
| | BCV27 | | | 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 | | – | 100 | mA |
| P _{tot} | total power dissipation | T _{amb} ≤ 25 °C; note 1 | – | 250 | mW |
| T _{stg} | storage temperature | | –65 | +150 | °C |
| T _j | junction temperature | | – | 150 | °C |
| T _{amb} | operating ambient temperature | | –65 | +150 | °C |

Note

1. Transistor mounted on an FR4 printed-circuit board.

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|----------------------|---|------------|-------|------|
| R _{th(j-a)} | thermal resistance from junction to ambient | note 1 | 500 | K/W |

Note

1. Transistor mounted on an FR4 printed-circuit board.

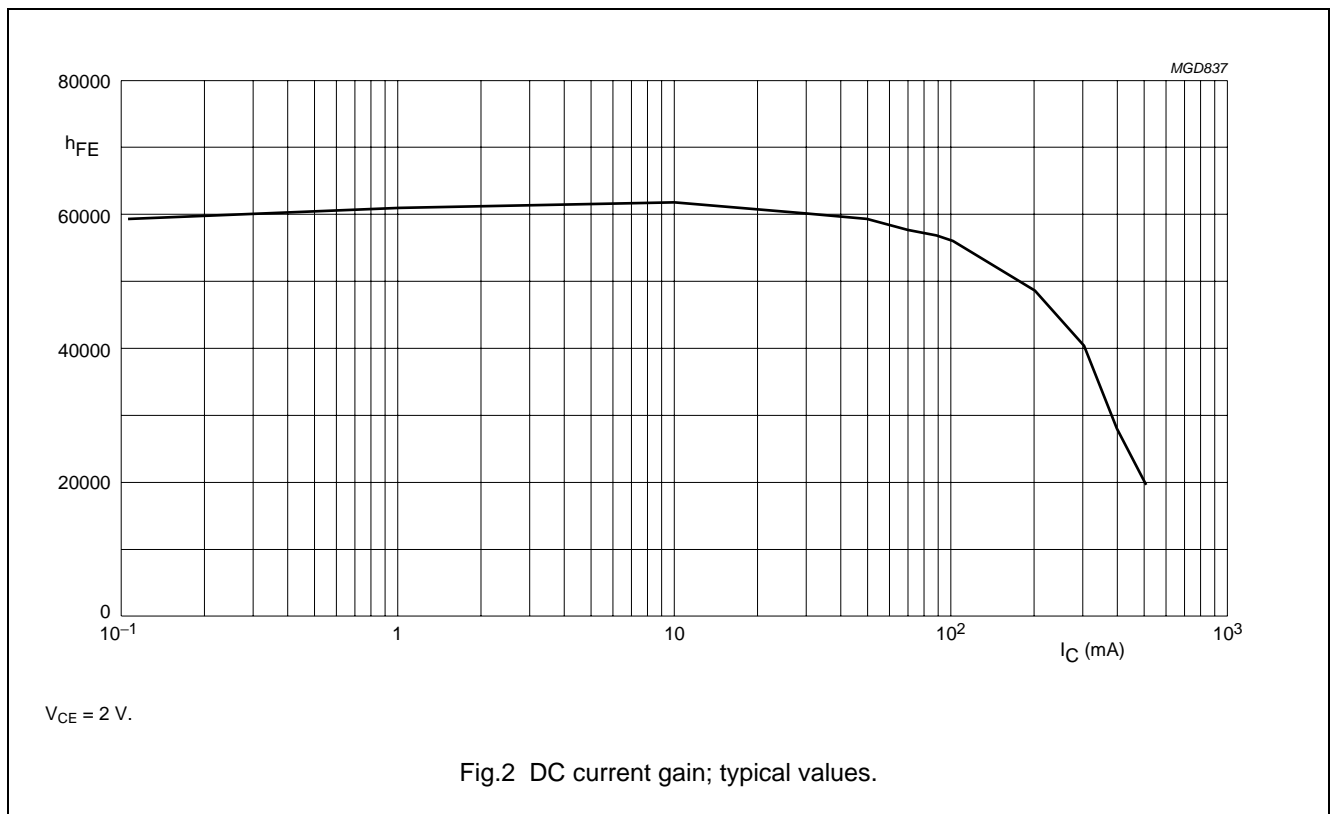
NPN Darlington transistors

BCV27; BCV47

CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT | | |
|--------------------|--------------------------------------|--|------------------------|------------------------|--------|------|---|--|
| I _{CBO} | collector cut-off current | | | | | | | |
| | BCV27 | I _E = 0; V _{CBO} = 30 V | – | – | 100 | nA | | |
| | BCV47 | I _E = 0; V _{CBO} = 60 V | – | – | 100 | nA | | |
| I _{EBO} | emitter cut-off current | I _E = 0; V _{EB} = 10 V | – | – | 100 | nA | | |
| h _{FE} | DC current gain | V _{CE} = 5 V; (see Fig.2) | | | | | | |
| | | | BCV27 | I _C = 1 mA | 4 000 | – | – | |
| | | | | I _C = 10 mA | 10 000 | – | – | |
| | | I _C = 100 mA | 20 000 | – | – | | | |
| | DC current gain | V _{CE} = 5 V; (see Fig.2) | | | | | | |
| | | | BCV47 | I _C = 1 mA | 2 000 | – | – | |
| | | | I _C = 10 mA | 4 000 | – | – | | |
| | I _C = 100 mA | 10 000 | – | – | | | | |
| V _{CEsat} | collector-emitter saturation voltage | I _C = 100 mA; I _B = 0.1 mA | – | – | 1 | V | | |
| V _{BEsat} | base-emitter saturation voltage | I _C = 100 mA; I _B = 0.1 mA | – | – | 1.5 | V | | |
| V _{BEon} | base-emitter on-state voltage | I _C = 10 mA; V _{CE} = 5 V | – | – | 1.4 | V | | |
| f _T | transition frequency | I _C = 30 mA; V _{CE} = 5 V; f = 100 MHz | – | 220 | – | MHz | | |



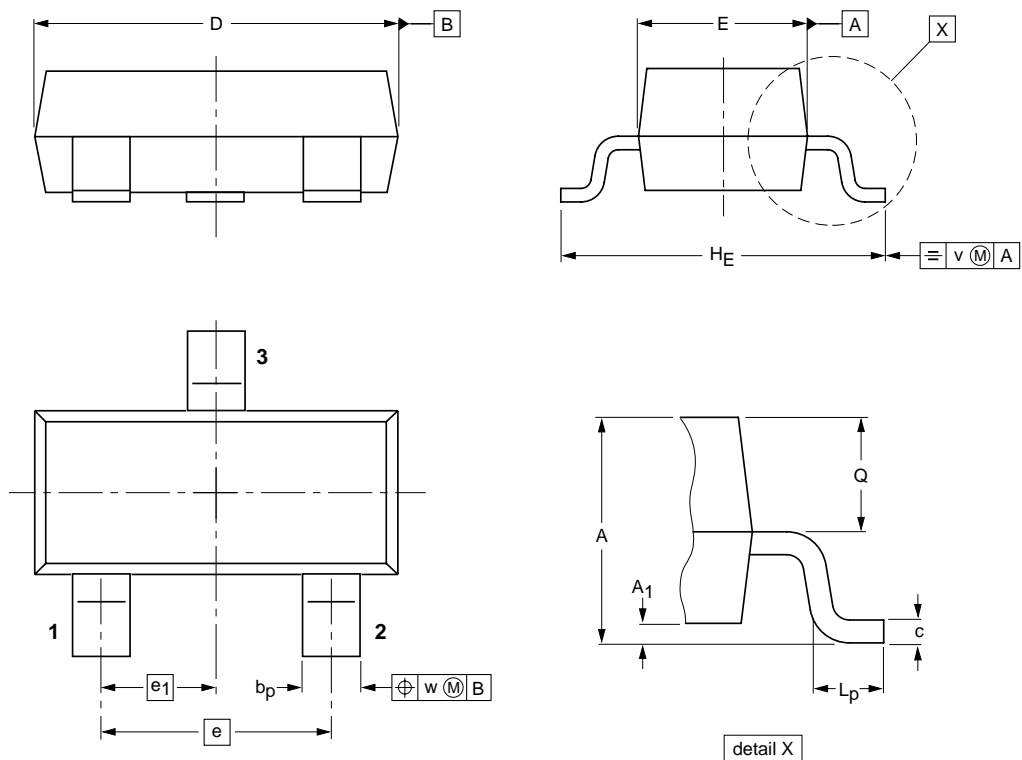
NPN Darlington transistors

BCV27; BCV47

PACKAGE OUTLINE

Plastic surface-mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

| UNIT | A | A ₁ max. | b _p | c | D | E | e | e ₁ | H _E | L _p | Q | v | w |
|------|------------|---------------------|----------------|--------------|------------|------------|-----|----------------|----------------|----------------|--------------|-----|-----|
| mm | 1.1 0.9 | 0.1 | 0.48 0.38 | 0.15 0.09 | 3.0 2.8 | 1.4 1.2 | 1.9 | 0.95 | 2.5 2.1 | 0.45 0.15 | 0.55 0.45 | 0.2 | 0.1 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|----------|-------|--|---------------------|------------------------|
| | IEC | JEDEC | JEITA | | | |
| SOT23 | | TO-236AB | | | | -04-11-04- 06-03-16 |

NPN Darlington transistors

BCV27; BCV47

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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NXP Semiconductors

Customer notification

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Contact information

For additional information please visit: <http://www.nxp.com>

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