



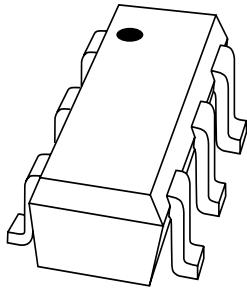
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DATA SHEET



BC857BS

PNP general purpose double
transistor

Product data sheet
Supersedes data of 1997 Jul 09

1999 Apr 26

PNP general purpose double transistor

BC857BS

FEATURES

- Low collector capacitance
- Low collector-emitter saturation voltage
- Closely matched current gain
- Reduces number of components and boardspace
- No mutual interference between the transistors.

APPLICATIONS

- General purpose switching and amplification.

DESCRIPTION

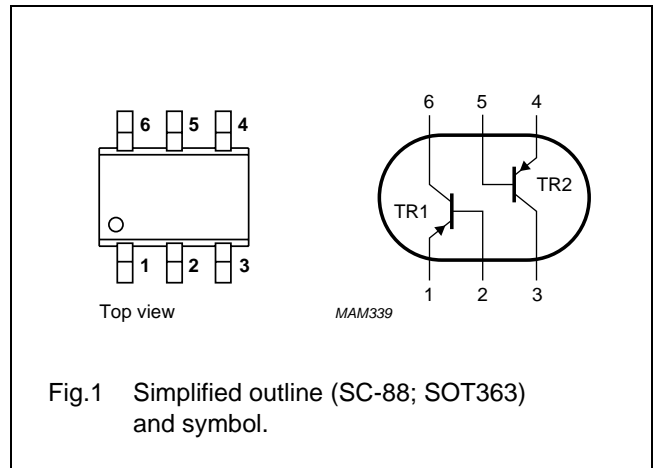
PNP double transistor in an SC-88; SOT363 plastic package. NPN complement: BC847BS.

MARKING

| TYPE NUMBER | MARKING CODE |
|-------------|--------------|
| BC857BS | 3Ft |

PINNING

| PIN | DESCRIPTION |
|------|--------------------|
| 1, 4 | emitter TR1; TR2 |
| 2, 5 | base TR1; TR2 |
| 6, 3 | collector TR1; TR2 |



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|-----------------------|-------------------------------|--|------|------|------------------|
| Per transistor | | | | | |
| V_{CBO} | collector-base voltage | open emitter | - | -50 | V |
| V_{CEO} | collector-emitter voltage | open base | - | -45 | V |
| V_{EBO} | emitter-base voltage | open collector | - | -5 | V |
| I_C | collector current (DC) | | - | -100 | mA |
| I_{CM} | peak collector current | | - | -200 | mA |
| I_{BM} | peak base current | | - | -200 | mA |
| P_{tot} | total power dissipation | $T_{amb} \leq 25\text{ }^\circ\text{C}$ | - | 200 | mW |
| T_{stg} | storage temperature | | -65 | +150 | $^\circ\text{C}$ |
| T_j | junction temperature | | - | 150 | $^\circ\text{C}$ |
| T_{amb} | operating ambient temperature | | -65 | +150 | $^\circ\text{C}$ |
| Per device | | | | | |
| P_{tot} | total power dissipation | $T_{amb} \leq 25\text{ }^\circ\text{C}$; note 1 | - | 300 | mW |

Note

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

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THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|-------------------|---|------------|-------|------|
| Per device | | | | |
| $R_{th\ j-a}$ | thermal resistance from junction to ambient | note 1 | 416 | K/W |

Note

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

CHARACTERISTICS

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

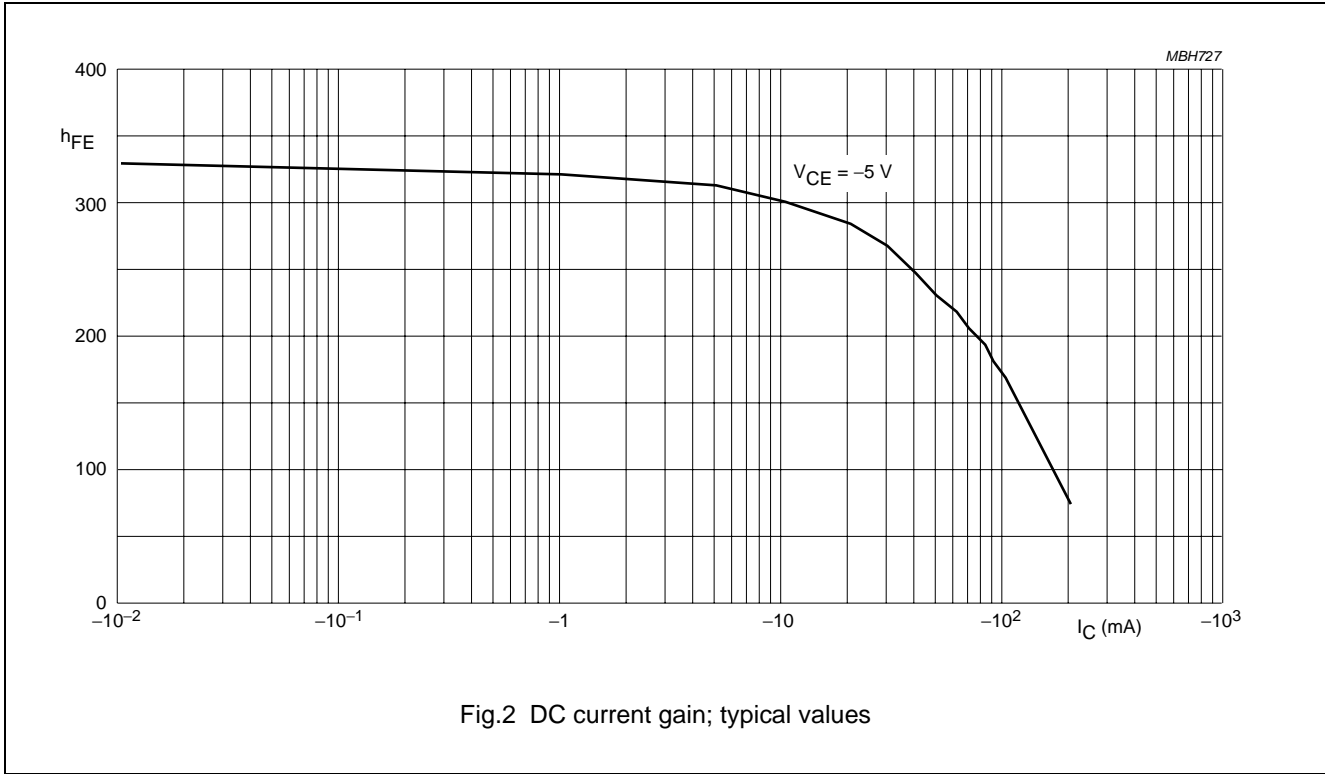
| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-----------------------|--------------------------------------|---|------|------|------|---------------|
| Per transistor | | | | | | |
| I_{CBO} | collector cut-off current | $I_E = 0; V_{CB} = -30\text{ V}$ | - | - | -15 | nA |
| | | $I_E = 0; V_{CB} = -30\text{ V}; T_j = 150\text{ °C}$ | - | - | -5 | μA |
| I_{EBO} | emitter cut-off current | $I_C = 0; V_{EB} = -5\text{ V}$ | - | - | -100 | nA |
| h_{FE} | DC current gain | $I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$ | 200 | - | 450 | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = -10\text{ mA}; I_B = -0.5\text{ mA}$ | - | - | -100 | mV |
| | | $I_C = -100\text{ mA}; I_B = -5\text{ mA}; \text{note 1}$ | - | - | -400 | mV |
| V_{BEsat} | base-emitter saturation voltage | $I_C = -10\text{ mA}; I_B = -0.5\text{ mA}$ | - | -755 | - | mV |
| V_{BE} | base-emitter voltage | $I_C = 2\text{ mA}; V_{CE} = -5\text{ V}$ | -600 | -655 | -750 | mV |
| C_c | collector capacitance | $I_E = i_e = 0; V_{CB} = -10\text{ V}; f = 1\text{ MHz}$ | - | - | 2.2 | pF |
| C_e | emitter capacitance | $I_C = i_c = 0; V_{EB} = -500\text{ mV}; f = 1\text{ MHz}$ | - | 10 | - | pF |
| f_T | transition frequency | $I_C = -10\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}$ | 100 | - | - | MHz |

Note

1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$.

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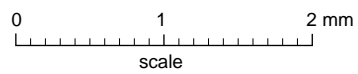
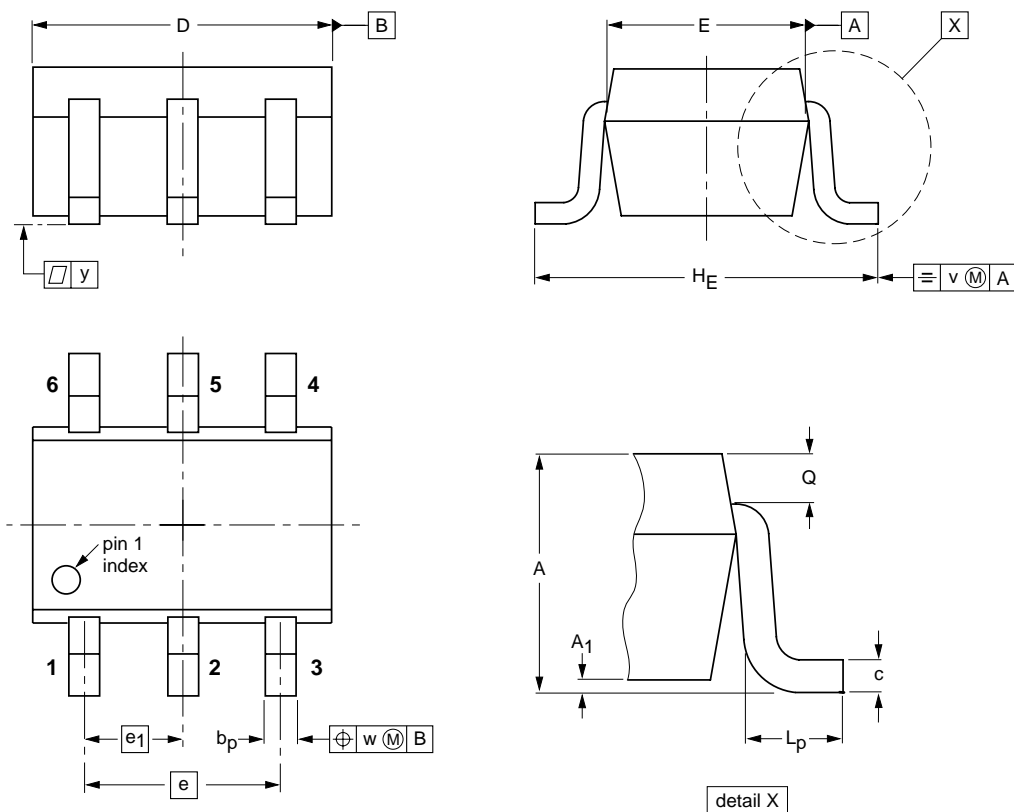
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PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT363



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 | y |
|------|------------|-----------------------|----------------|--------------|------------|--------------|-----|----------------|----------------|----------------|--------------|-----|-----|-----|
| mm | 1.1 0.8 | 0.1 | 0.30 0.20 | 0.25 0.10 | 2.2 1.8 | 1.35 1.15 | 1.3 | 0.65 | 2.2 2.0 | 0.45 0.15 | 0.25 0.15 | 0.2 | 0.2 | 0.1 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|--------------------|------------|-------|-------|--|------------------------|------------|
| | IEC | JEDEC | EIAJ | | | |
| SOT363 | | | SC-88 | | | 97-02-28 |

PNP general purpose double transistor

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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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Printed in The Netherlands

115002/00/02/pp7

Date of release: 1999 Apr 26

Document order number: 9397 750 05804

