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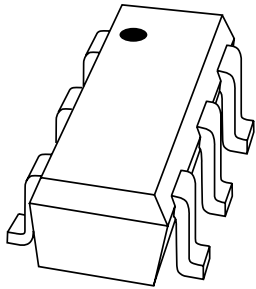
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Kind regards,

Team Nexperia

DATA SHEET



BC846S

NPN general purpose double
transistor

Product data sheet
Supersedes data of 1999 May 28

1999 Sep 01

NPN general purpose double transistor

BC846S

FEATURES

- Two transistors in one package
- Reduces number of components and board space
- No mutual interference between the transistors.

APPLICATIONS

- General purpose switching and small signal amplification.

DESCRIPTION

NPN double transistor in an SC-88 (SOT363) plastic six lead package.

PINNING

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

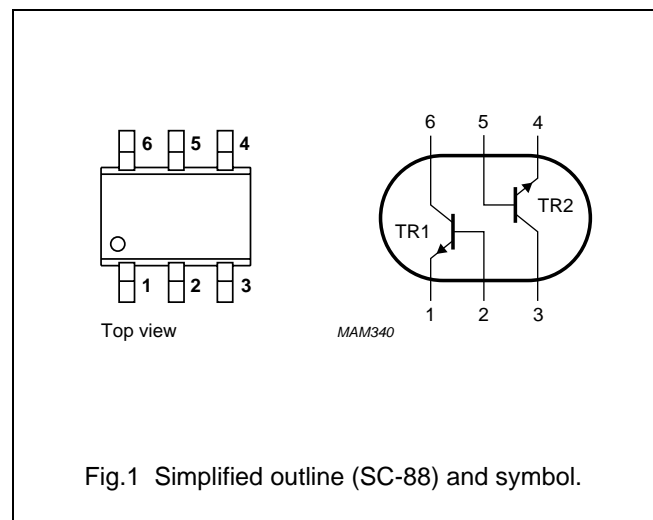


Fig.1 Simplified outline (SC-88) and symbol.

MARKING

| TYPE NUMBER | MARKING CODE |
|-------------|--------------|
| BC846S | 4Ft |

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 | – | 80 | V |
| V_{CEO} | collector-emitter voltage | open base | – | 65 | V |
| V_{EBO} | emitter-base voltage | open collector | – | 6 | V |
| I_C | collector current (DC) | | – | 100 | mA |
| P_{tot} | total power dissipation | $T_{amb} \leq 25\text{ °C}$ | – | 200 | mW |
| T_{stg} | storage temperature | | –65 | +150 | °C |
| T_j | junction temperature | | – | 150 | °C |
| T_{amb} | operating ambient temperature | | –65 | +150 | °C |
| Per device | | | | | |
| P_{tot} | total power dissipation | $T_{amb} \leq 25\text{ °C}$; note 1 | – | 300 | mW |

Note

1. Refer to SC-88 (SOT363) standard mounting conditions.

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THERMAL CHARACTERISTICS

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

Note

1. Refer to SC-88 (SOT363) standard mounting conditions.

CHARACTERISTICS

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

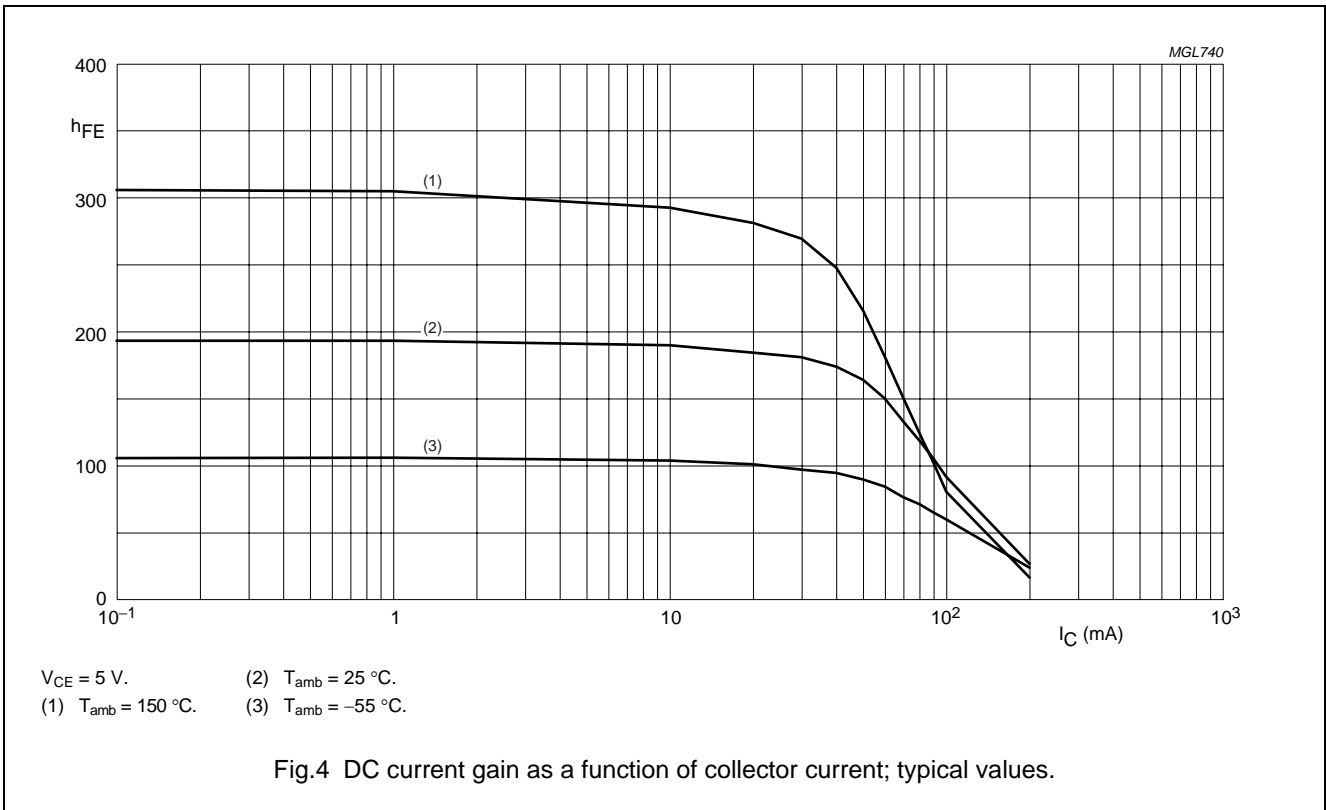
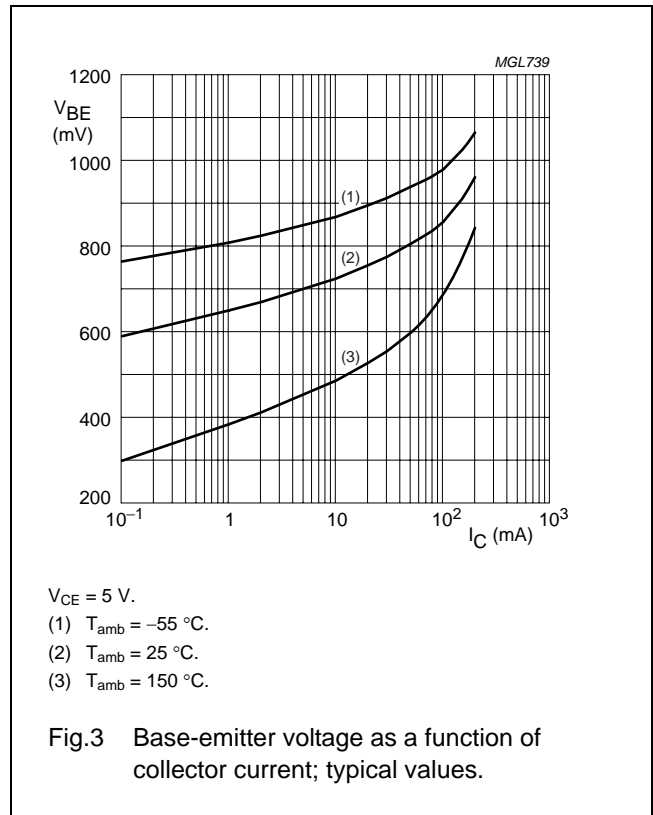
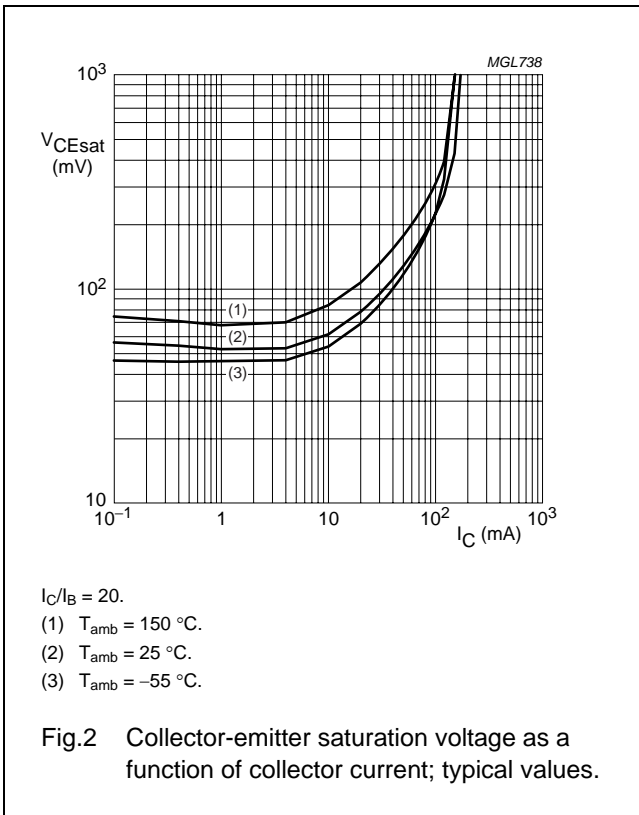
| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-----------------------|--------------------------------------|---|------|------|------|---------------|
| Per transistor | | | | | | |
| I_{CBO} | collector cut-off current | $I_E = 0; V_{CB} = 30\text{ V}$ | – | – | 15 | nA |
| | | $I_E = 0; V_{CB} = 30\text{ V}; T_j = 150\text{ °C}$ | – | – | 5 | μA |
| I_{EBO} | emitter cut-off current | $I_C = 0; V_{EB} = 5\text{ V}$ | – | – | 100 | nA |
| h_{FE} | DC current gain | $I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$ | 110 | – | – | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$ | – | – | 100 | mV |
| | | $I_C = 100\text{ mA}; I_B = 5\text{ mA}; \text{note 1}$ | – | – | 300 | mV |
| V_{BEsat} | base-emitter saturation voltage | $I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$ | – | 770 | – | mV |
| C_c | collector capacitance | $I_E = i_e = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$ | – | – | 1.5 | 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: $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02$.

NPN general purpose double transistor

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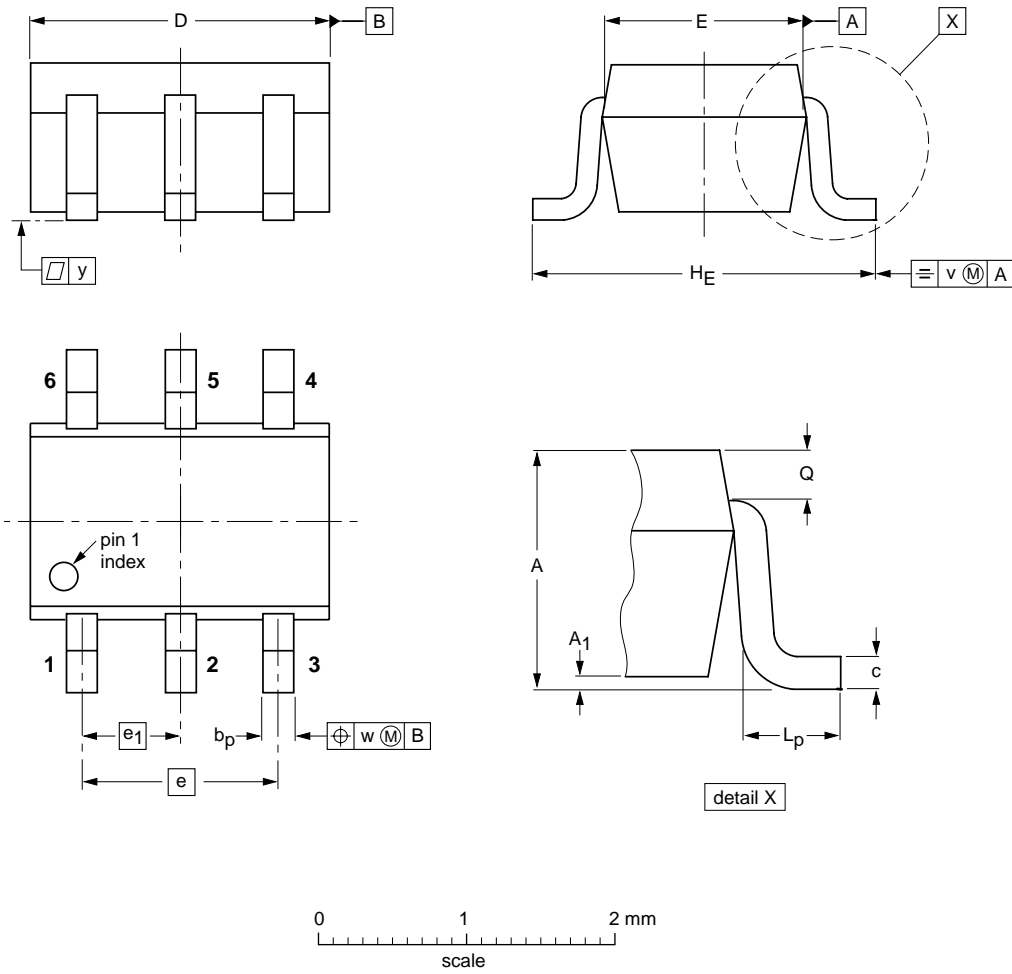
NPN general purpose double transistor

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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 |

NPN general purpose double transistor

BC846S

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

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