

DATA SHEET



PEMD4

NPN/PNP resistor-equipped
transistors;

R1 = 10 k Ω , R2 = open

Preliminary specification

2002 Jan 14

**NPN/PNP resistor-equipped transistors;
R1 = 10 kΩ, R2 = open**

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FEATURES

- 300 mW total power dissipation
- Very small 1.6 mm × 1.2 mm × 0.55 mm ultra thin package
- Improved thermal behaviour due to flat leads
- Self alignment during soldering due to straight leads
- Replaces two SC-75/SC-89 packaged transistors on same PCB area
- Reduces required PCB area
- Reduced pick and place costs.

APPLICATIONS

- General purpose switching and amplification
- Inverter and interface circuits
- Circuit driver.

DESCRIPTION

NPN/PNP resistor-equipped transistors in a SOT666 plastic package.

MARKING

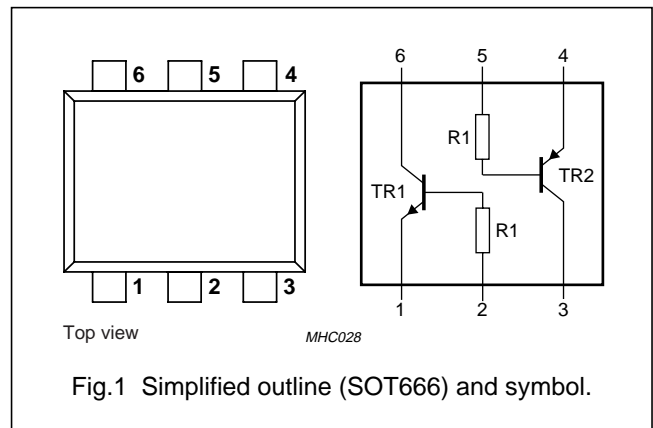
| TYPE NUMBER | MARKING CODE |
|-------------|--------------|
| PEMD4 | 23 |

QUICK REFERENCE DATA

| SYMBOL | PARAMETER | MAX. | UNIT |
|------------------|---------------------------|------|------|
| V _{CEO} | collector-emitter voltage | 50 | V |
| I _{CM} | peak collector current | 100 | mA |
| TR1 | NPN | – | – |
| TR2 | PNP | – | – |
| R1 | bias resistor | 10 | kΩ |
| R2 | open | – | – |

PINNING

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



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LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|--|-------------------------------|----------------------------------|------|------|------|
| Per transistor; for the PNP transistor with negative polarity | | | | | |
| V _{CBO} | collector-base voltage | open emitter | – | 50 | V |
| V _{CEO} | collector-emitter voltage | open base | – | 50 | V |
| V _{EBO} | emitter-base voltage | open collector | – | 5 | V |
| I _O | output current (DC) | | – | 100 | mA |
| I _{CM} | peak collector current | | – | 100 | mA |
| P _{tot} | total power dissipation | T _{amb} ≤ 25 °C; note 1 | – | 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} ≤ 25 °C; note 1 | – | 300 | mW |

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 | notes 1 and 2 | 416 | K/W |

Notes

1. Transistor mounted on an FR4 printed-circuit board.
2. The only recommended soldering method is reflow soldering.

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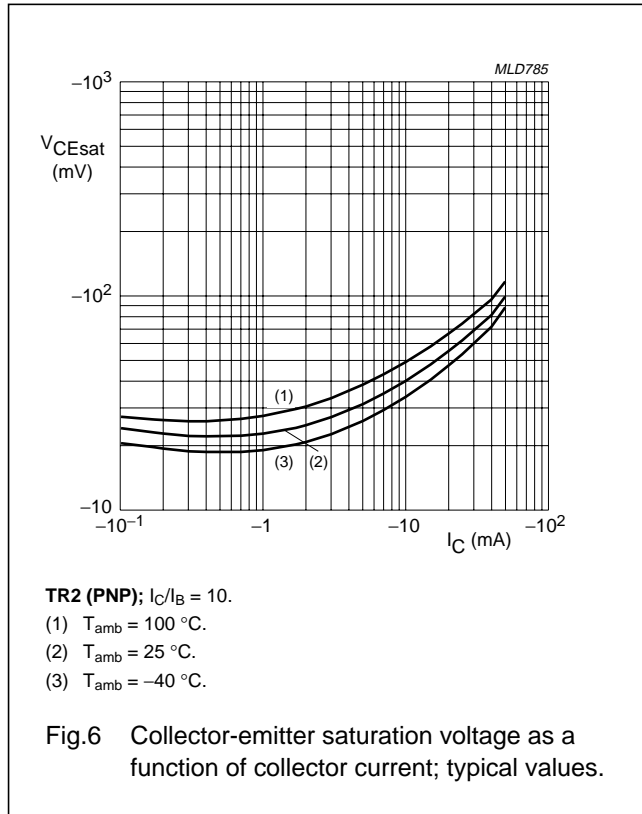
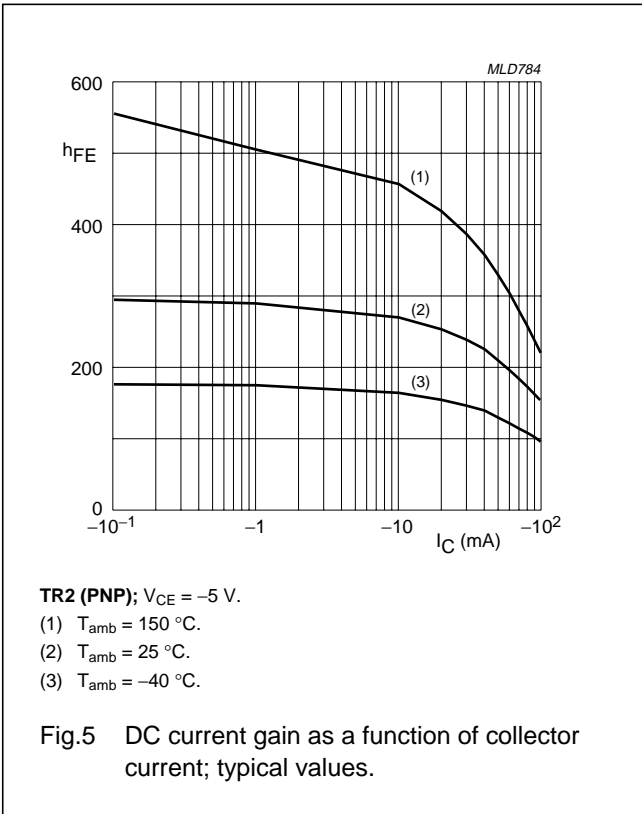
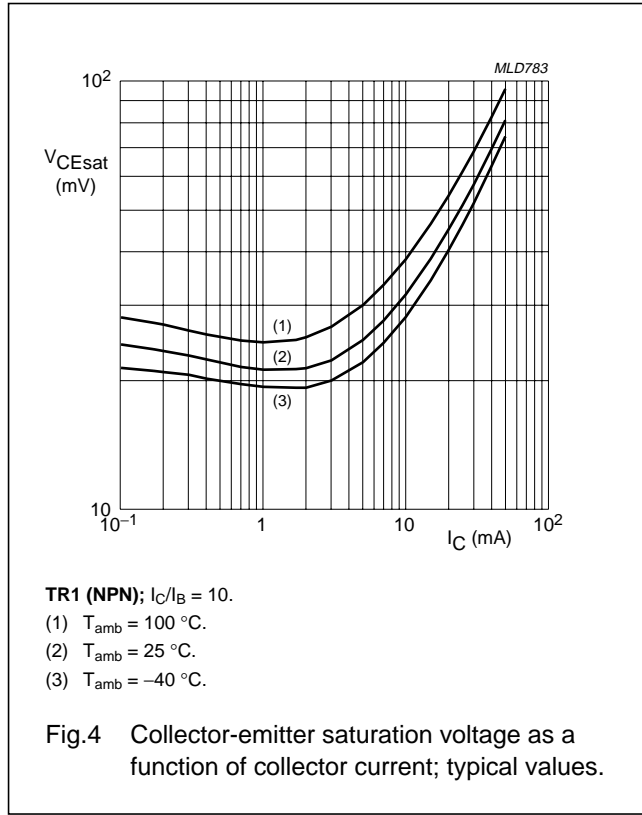
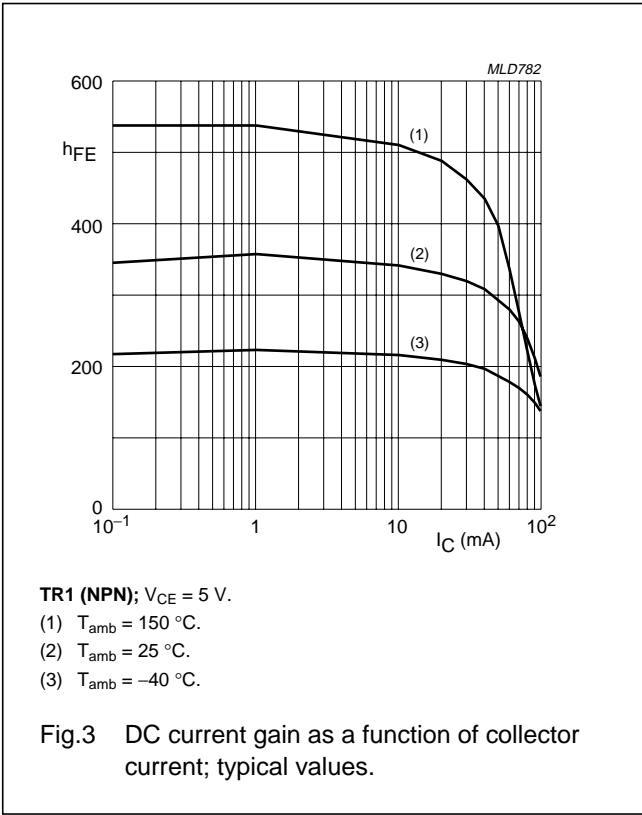
CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|--|--------------------------------------|--|------|------|------|------------|
| Per transistor; for the PNP transistor with negative polarity | | | | | | |
| I _{CBO} | collector-base cut-off current | V _{CB} = 50 V; I _E = 0 | – | – | 100 | nA |
| I _{CEO} | collector-emitter cut-off current | V _{CE} = 50 V; I _B = 0 | – | – | 1 | μ A |
| | | V _{CE} = 30 V; I _B = 0; T _j = 150 °C | – | – | 50 | μ A |
| I _{EBO} | emitter-base cut-off current | V _{EB} = 5 V; I _C = 0 | – | – | 100 | nA |
| h _{FE} | DC current gain | V _{CE} = 5 V; I _C = 1 mA | 200 | – | – | |
| V _{CEsat} | collector-emitter saturation voltage | I _C = 10 mA; I _B = 0.5 mA | – | – | 150 | mV |
| R1 | input resistor | | 7 | 10 | 13 | k Ω |
| C _c | collector capacitance | I _E = i _e = 0; V _{CB} = 10 V; f = 1 MHz | | | | |
| | TR1 (NPN) | | – | – | 2.5 | pF |
| | TR2 (PNP) | – | – | 3 | pF | |

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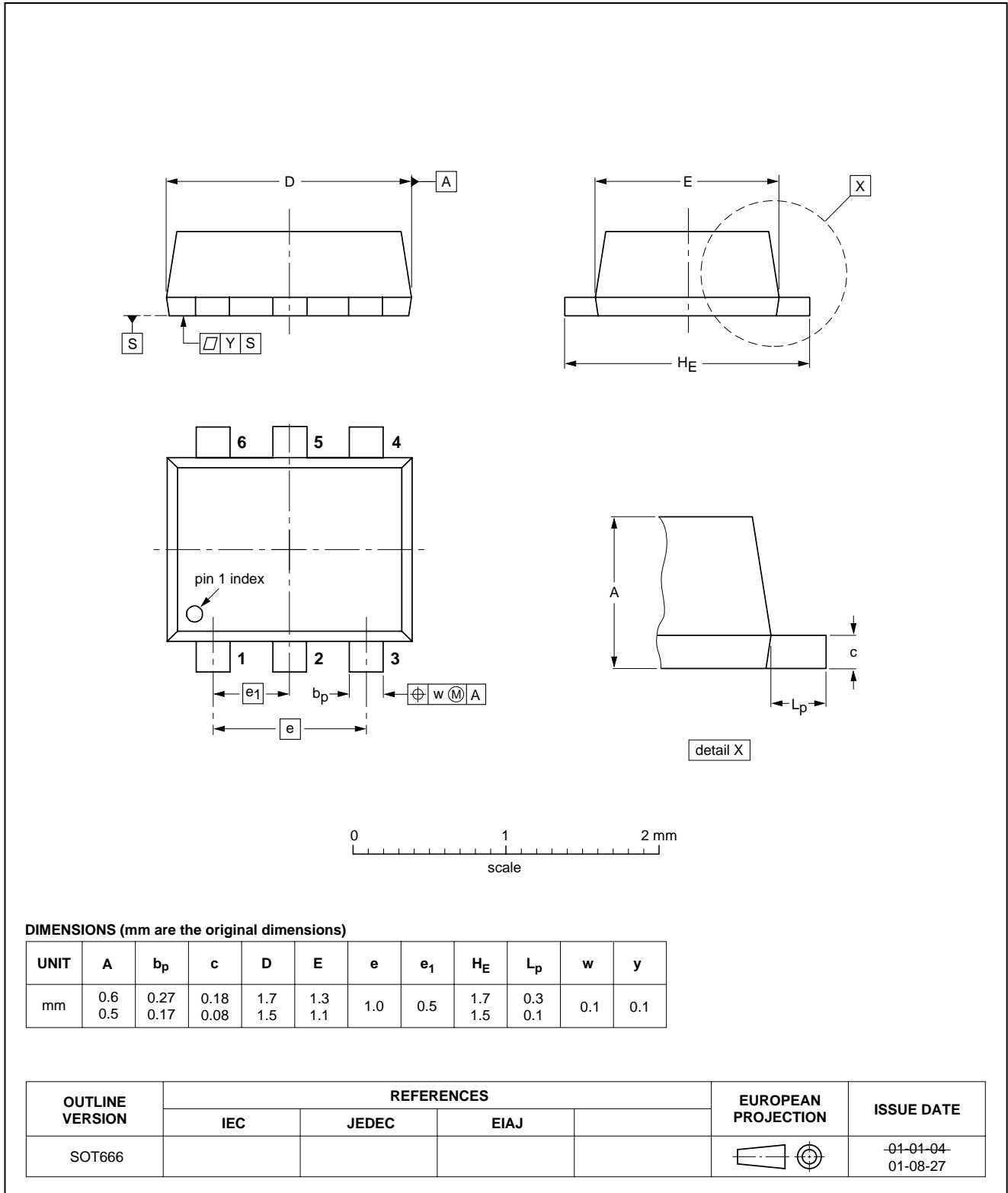
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PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT666



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DATA SHEET STATUS

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|----------------------------------|-------------------------------|--|
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