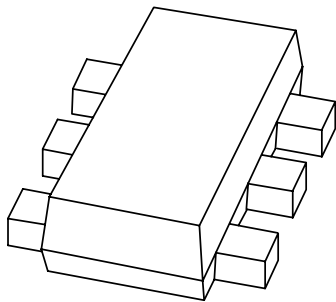


DATA SHEET



PBSS2515VS

15 V low V_{CEsat} NPN double transistor

Product specification
Supersedes data of 2001 Sep 13

2001 Nov 07

15 V low V_{CEsat} NPN double transistor

PBSS2515VS

FEATURES

- 300 mW total power dissipation
- Very small 1.6 x 1.2 mm ultra thin package
- Excellent coplanarity due to straight leads
- Low collector-emitter saturation voltage
- High current capability
- Improved thermal behaviour due to flat lead
- Replaces two SC-75/SC-89 packaged low V_{CEsat} transistors on same PCB area
- Reduces required PCB area
- Reduced pick and place costs.

APPLICATIONS

- General purpose switching and muting
- Low frequency driver circuits
- LCD backlighting
- Audio frequency general purpose amplifier applications
- Battery driven equipment (mobile phones, video cameras and hand-held devices).

DESCRIPTION

NPN low V_{CEsat} double transistor in a SOT666 plastic package.
 PNP complement: PBSS3515VS.

MARKING

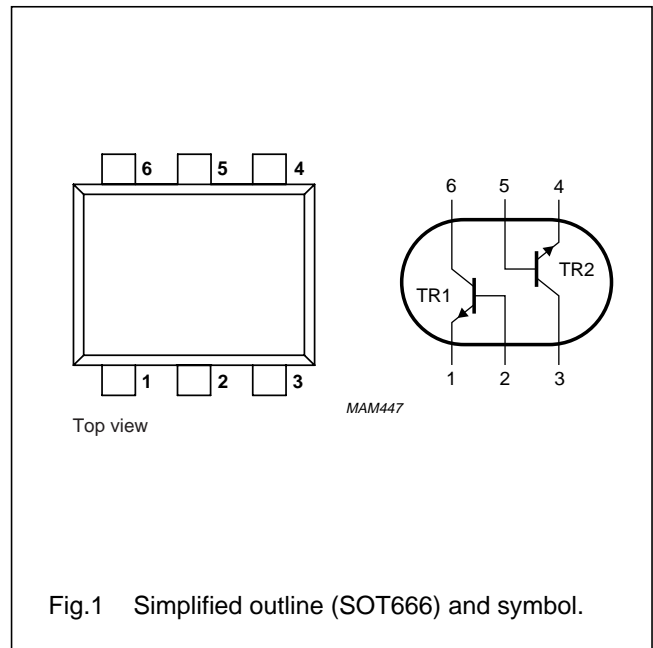
| TYPE NUMBER | MARKING CODE |
|-------------|--------------|
| PBSS2515VS | N9 |

QUICK REFERENCE DATA

| SYMBOL | PARAMETER | MAX. | UNIT |
|-------------|---------------------------|------|------------|
| V_{CEO} | collector-emitter voltage | 15 | V |
| I_{CM} | peak collector current | 1 | A |
| R_{CEsat} | equivalent on-resistance | <500 | m Ω |

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 unless otherwise specified | | | | | |
| V_{CBO} | collector-base voltage | open emitter | – | 15 | V |
| V_{CEO} | collector-emitter voltage | open base | – | 15 | V |
| V_{EBO} | emitter-base voltage | open collector | – | 6 | V |
| I_C | collector current (DC) | | – | 500 | mA |
| I_{CM} | peak collector current | | – | 1 | A |
| I_{BM} | peak base current | | – | 100 | mA |
| P_{tot} | total power dissipation | $T_{amb} \leq 25\text{ °C}$; 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 | $T_{amb} \leq 25\text{ °C}$; 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

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

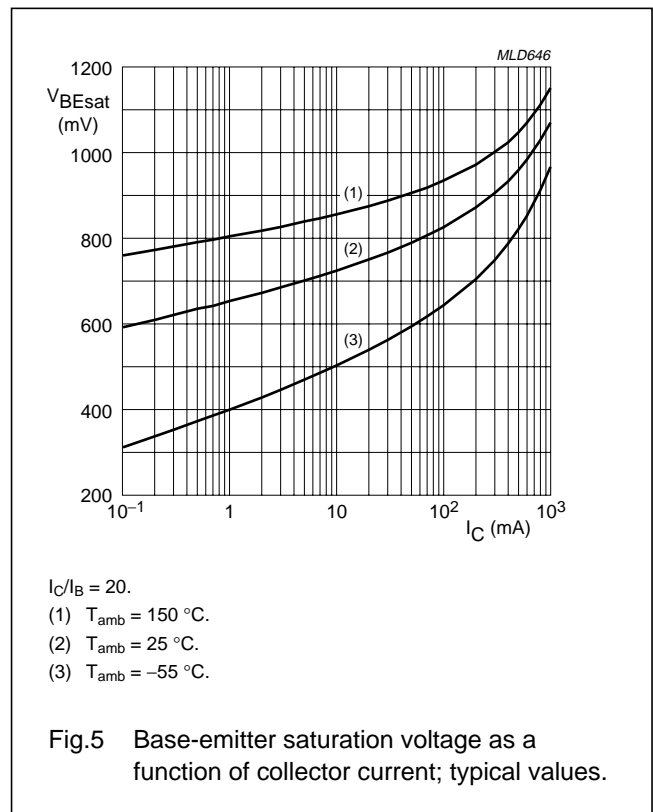
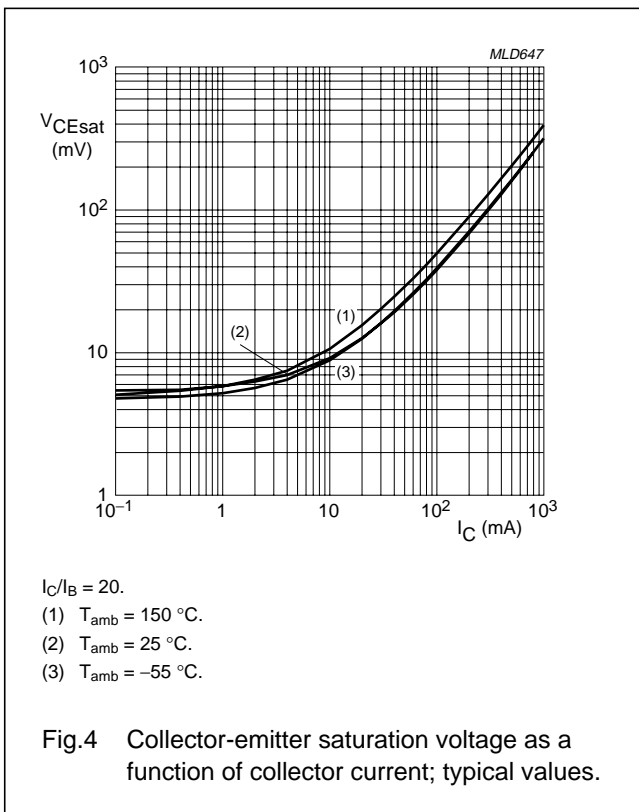
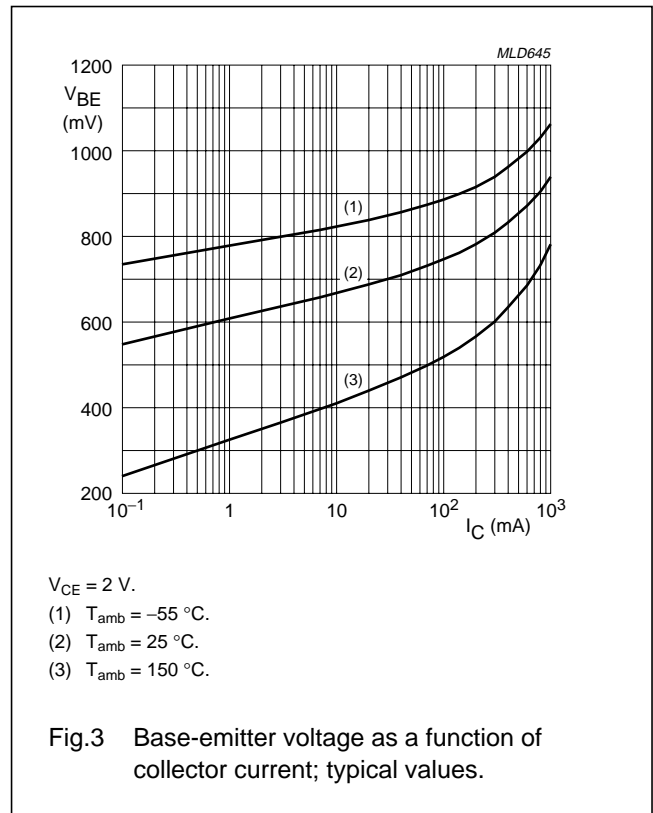
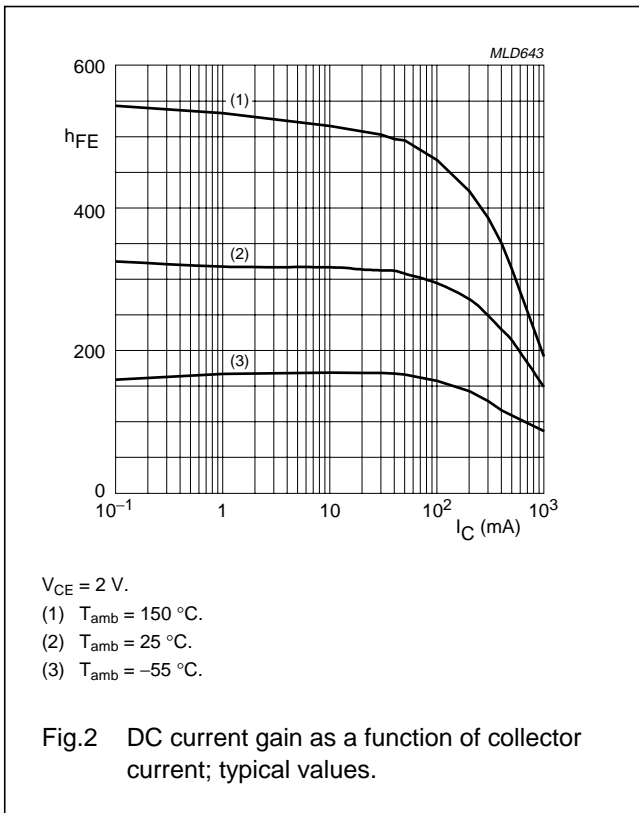
| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|--|--------------------------------------|--|------|------|------|------------------|
| Per transistor unless otherwise specified | | | | | | |
| I_{CBO} | collector-base cut-off current | $V_{CB} = 15\text{ V}; I_E = 0$ | – | – | 100 | nA |
| | | $V_{CB} = 15\text{ V}; I_E = 0; T_j = 150\text{ °C}$ | – | – | 50 | μA |
| I_{EBO} | emitter-base cut-off current | $V_{EB} = 5\text{ V}; I_C = 0$ | – | – | 100 | nA |
| h_{FE} | DC current gain | $V_{CE} = 2\text{ V}; I_C = 10\text{ mA}$ | 200 | – | – | |
| | | $V_{CE} = 2\text{ V}; I_C = 100\text{ mA};$ note 1 | 150 | – | – | |
| | | $V_{CE} = 2\text{ V}; I_C = 500\text{ mA};$ note 1 | 90 | – | – | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$ | – | – | 25 | mV |
| | | $I_C = 200\text{ mA}; I_B = 10\text{ mA}$ | – | – | 150 | mV |
| | | $I_C = 500\text{ mA}; I_B = 50\text{ mA};$ note 1 | – | – | 250 | mV |
| R_{CEsat} | equivalent on-resistance | $I_C = 500\text{ mA}; I_B = 50\text{ mA};$ note 1 | – | 300 | <500 | $\text{m}\Omega$ |
| V_{BEsat} | base-emitter saturation voltage | $I_C = 500\text{ mA}; I_B = 50\text{ mA};$ note 1 | – | – | 1.1 | V |
| V_{BE} | base-emitter turn-on voltage | $V_{CE} = 2\text{ V}; I_C = 100\text{ mA};$ note 1 | – | – | 0.9 | V |
| f_T | transition frequency | $I_C = 100\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$ | 250 | 420 | – | MHz |
| C_C | collector capacitance | $V_{CB} = 10\text{ V}; I_E = I_e = 0; f = 1\text{ MHz}$ | – | 4.4 | 6 | pF |

Note

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

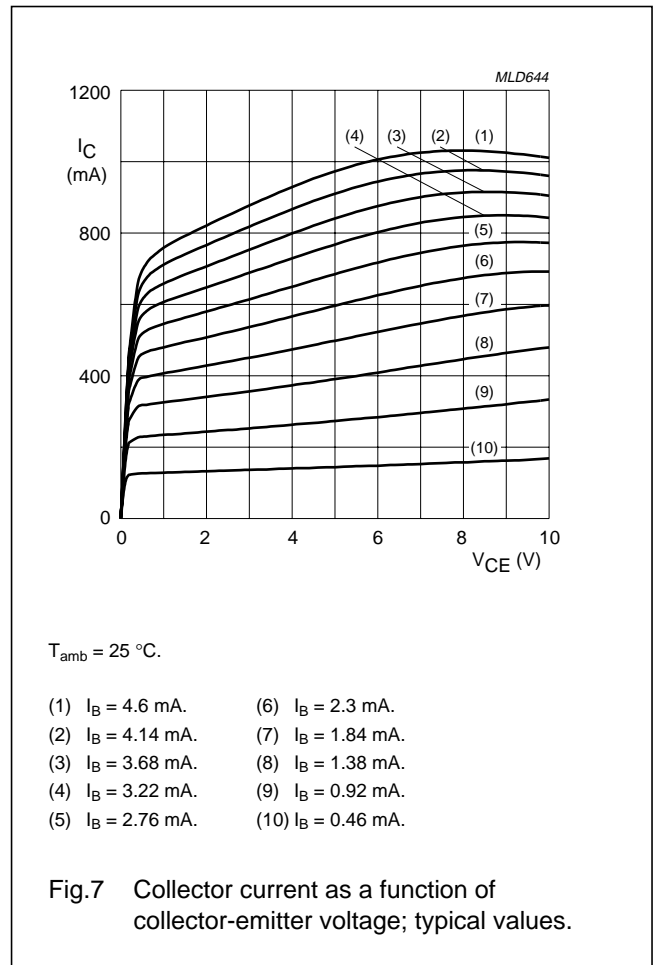
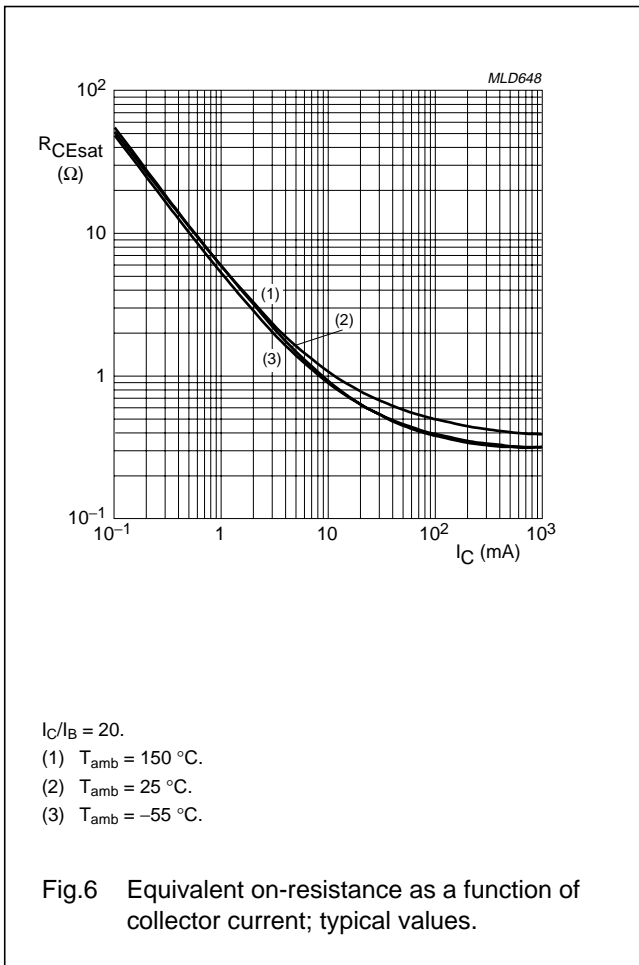
15 V low V_{CEsat} NPN double transistor

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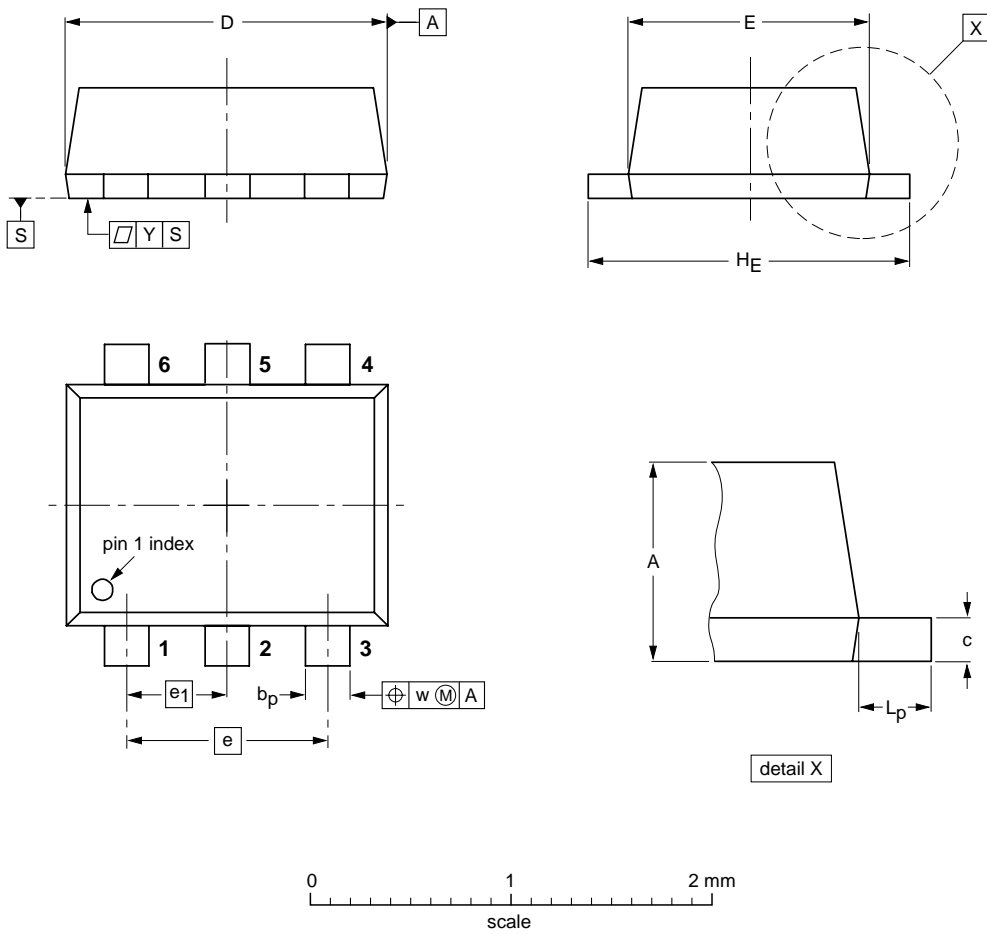
15 V low V_{CEsat} NPN double transistor

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PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT666



DIMENSIONS (mm are the original dimensions)

| UNIT | A | b_p | c | D | E | e | e_1 | H_E | L_p | w | y |
|------|------------|--------------|--------------|------------|------------|-----|-------|------------|------------|-----|-----|
| mm | 0.6 0.5 | 0.27 0.17 | 0.18 0.08 | 1.7 1.5 | 1.3 1.1 | 1.0 | 0.5 | 1.7 1.5 | 0.3 0.1 | 0.1 | 0.1 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|-------|------|--|---------------------|----------------------|
| | IEC | JEDEC | EIAJ | | | |
| SOT666 | | | | | | 01-01-04 01-08-27 |

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|----------------------------------|-------------------------------|--|
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NOTES

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NOTES

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