

**Silicon NPN Power Transistors**

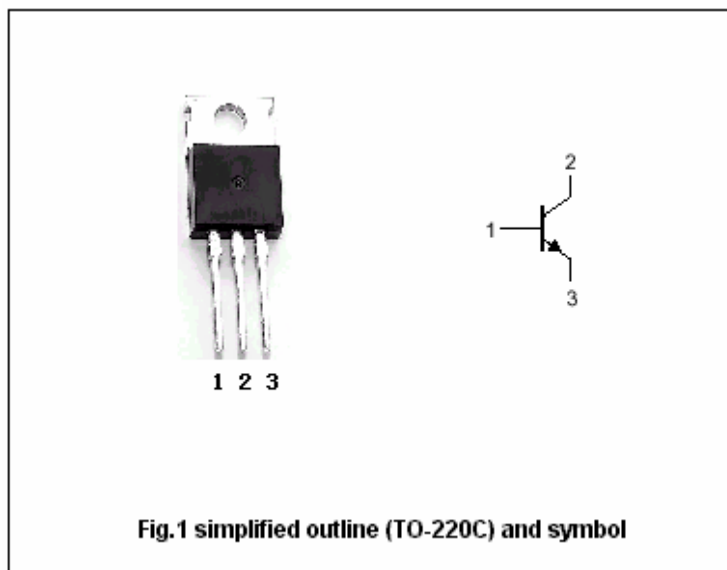
**BD543/A/B/C**

**DESCRIPTION**

- With TO-220C package
- Complement to type BD544/A/B/C
- 8 A continuous collector current
- 10 A peak Collector current

**PINNING**

| PIN | DESCRIPTION                          |
|-----|--------------------------------------|
| 1   | Base                                 |
| 2   | Collector;connected to mounting base |
| 3   | Emitter                              |



**Absolute maximum ratings (Ta=25°C)**

| SYMBOL           | PARAMETER                   | CONDITIONS           | VALUE   | UNIT |
|------------------|-----------------------------|----------------------|---------|------|
| V <sub>CBO</sub> | Collector-base voltage      | BD543                | 40      | V    |
|                  |                             | BD543A               | 60      |      |
|                  |                             | BD543B               | 80      |      |
|                  |                             | BD543C               | 100     |      |
| V <sub>CEO</sub> | Collector-emitter voltage   | BD543                | 40      | V    |
|                  |                             | BD543A               | 60      |      |
|                  |                             | BD543B               | 80      |      |
|                  |                             | BD543C               | 100     |      |
| V <sub>EBO</sub> | Emitter-base voltage        | Open collector       | 5       | V    |
| I <sub>C</sub>   | Collector current           |                      | 8       | A    |
| I <sub>CM</sub>  | Collector current-peak      |                      | 10      | A    |
| P <sub>C</sub>   | Collector power dissipation | T <sub>C</sub> =25°C | 70      | W    |
| T <sub>j</sub>   | Junction temperature        |                      | -65~150 | °C   |
| T <sub>stg</sub> | Storage temperature         |                      | -65~150 | °C   |

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## CHARACTERISTICS

T<sub>j</sub>=25°C unless otherwise specified

| SYMBOL               | PARAMETER                            |             | CONDITIONS   | MIN | TYP. | MAX | UNIT |
|----------------------|--------------------------------------|-------------|--|-----|------|-----|------|
| V <sub>(BR)CEO</sub> | Collector-emitter breakdown voltage  | BD543       | I <sub>C</sub> =30mA ; I <sub>B</sub> =0   | 40  |      |     | V    |
|                      |                                      | BD543A      |  | 60  |      |     |      |
|                      |                                      | BD543B      |  | 80  |      |     |      |
|                      |                                      | BD543C      |  | 100 |      |     |      |
| V <sub>CEsat-1</sub> | Collector-emitter saturation voltage |             | I <sub>C</sub> =3A ; I <sub>B</sub> =0.3A  |     |      | 0.5 | V    |
| V <sub>CEsat-2</sub> | Collector-emitter saturation voltage |             | I <sub>C</sub> =5A ; I <sub>B</sub> =1A  |     |      | 0.5 | V    |
| V <sub>CEsat-3</sub> | Collector-emitter saturation voltage |             | I <sub>C</sub> =8A ; I <sub>B</sub> =1.6A  |     |      | 1   | V    |
| V <sub>BE</sub>      | Base-emitter on voltage              |             | I <sub>C</sub> =5A ; V <sub>CE</sub> =4V   |     |      | 1.6 | V    |
| I <sub>CEO</sub>     | Collector cut-off current            | BD543/543A  | V <sub>CE</sub> =30V; I <sub>B</sub> =0  |     |      | 0.7 | mA   |
|                      |                                      | BD543B/543C | V <sub>CE</sub> =60V; I <sub>B</sub> =0  |     |      |     |      |
| I <sub>EBO</sub>     | Emitter cut-off current              |             | V <sub>EB</sub> =5V; I <sub>C</sub> =0   |     |      | 1   | mA   |
| h <sub>FE-1</sub>    | DC current gain                      |             | I <sub>C</sub> =1A ; V <sub>CE</sub> =4V   | 60  |      |     |      |
| h <sub>FE-2</sub>    | DC current gain                      |             | I <sub>C</sub> =3A ; V <sub>CE</sub> =4V   | 40  |      |     |      |
| h <sub>FE-3</sub>    | DC current gain                      |             | I <sub>C</sub> =5A ; V <sub>CE</sub> =4V   | 15  |      |     |      |
| Switching times      |                                      |             |  |     |      |     |      |
| t <sub>on</sub>      | Turn-on time                         |             | I <sub>C</sub> =6A;<br>I <sub>B1</sub> =-I <sub>B2</sub> =0.6A<br>R <sub>L</sub> =5Ω |     | 0.6  |     | μs   |
| t <sub>off</sub>     | Turn-off time                        |             |  |     | 1.0  |     | μs   |

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PACKAGE OUTLINE

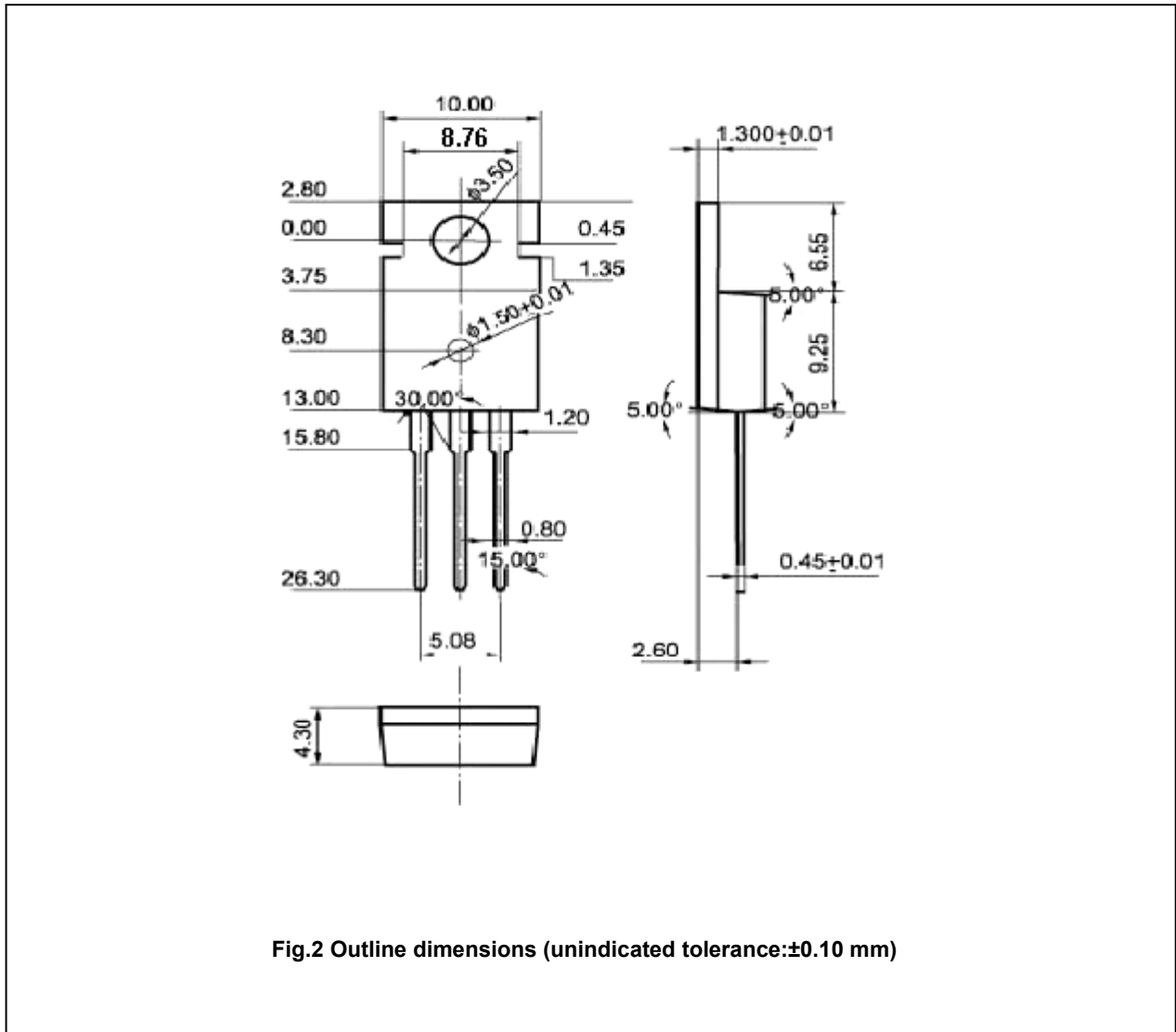


Fig.2 Outline dimensions (unindicated tolerance:  $\pm 0.10$  mm)