

**Inchange Semiconductor**

**Product Specification**

**Silicon NPN Power Transistors**

**BD675A/677A/679A/681**

**DESCRIPTION**

- With TO-126 package
- Complement to type BD676A/678A/680A/682
- DARLINGTON

**APPLICATIONS**

- For medium power linear and switching applications

**PINNING**

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

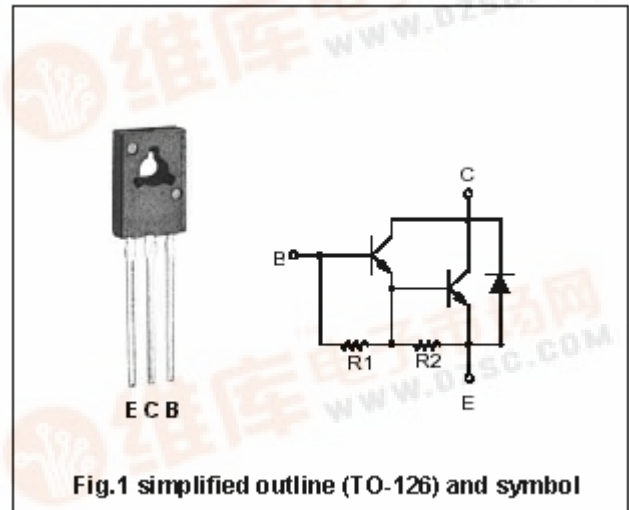


Fig.1 simplified outline (TO-126) and symbol

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

| SYMBOL           | PARAMETER                   | CONDITIONS         | VALUE   | UNIT |
|------------------|-----------------------------|--------------------|---------|------|
| V <sub>CB0</sub> | Collector-base voltage      | BD675A             | 45      | V    |
|                  |                             | BD677A             | 60      |      |
|                  |                             | BD679A             | 80      |      |
|                  |                             | BD681              | 100     |      |
| V <sub>CEO</sub> | Collector-emitter voltage   | BD675A             | 45      | V    |
|                  |                             | BD677A             | 60      |      |
|                  |                             | BD679A             | 80      |      |
|                  |                             | BD681              | 100     |      |
| V <sub>EBO</sub> | Emitter -base voltage       | Open collector     | 5       | V    |
| I <sub>C</sub>   | Collector current           |                    | 4       | A    |
| I <sub>CM</sub>  | Collector current-Peak      |                    | 6       | A    |
| I <sub>B</sub>   | Base current                |                    | 0.1     | A    |
| P <sub>C</sub>   | Collector power dissipation | T <sub>C</sub> =25 | 40      | W    |
| T <sub>j</sub>   | Junction temperature        |                    | 150     |      |
| T <sub>stg</sub> | Storage temperature         |                    | -65~150 |      |

## Silicon NPN Power Transistors

## BD675A/677A/679A/681

## CHARACTERISTICS

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

| SYMBOL                | PARAMETER                            |                  | CONDITIONS                                 | MIN | TYP. | MAX | UNIT |
|-----------------------|--------------------------------------|------------------|--------------------------------------------|-----|------|-----|------|
| V <sub>CEQ(SUS)</sub> | Collector-emitter sustaining voltage | BD675A           | I <sub>C</sub> =50mA; I <sub>B</sub> =0    | 45  |      |     | V    |
|                       |                                      | BD677A           |                                            | 60  |      |     |      |
|                       |                                      | BD679A           |                                            | 80  |      |     |      |
|                       |                                      | BD681            |                                            | 100 |      |     |      |
| V <sub>CEsat</sub>    | Collector-emitter saturation voltage | BD675A/677A/679A | I <sub>C</sub> =2A; I <sub>B</sub> =40mA   |     |      | 2.8 | V    |
|                       |                                      | BD681            | I <sub>C</sub> =1.5A; I <sub>B</sub> =30mA |     |      | 2.5 |      |
| V <sub>BE(ON)</sub>   | Base-emitter voltage                 | BD675A/677A/679A | I <sub>C</sub> =2A; V <sub>CE</sub> =3V    |     |      | 2.5 | V    |
|                       |                                      | BD681            | I <sub>C</sub> =1.5A; V <sub>CE</sub> =3V  |     |      | 2.5 |      |
| I <sub>CBO</sub>      | Collector cut-off current            | BD675A           | V <sub>CB</sub> =45V; I <sub>E</sub> =0    |     |      | 0.2 | mA   |
|                       |                                      | BD677A           | V <sub>CB</sub> =60V; I <sub>E</sub> =0    |     |      |     |      |
|                       |                                      | BD679A           | V <sub>CB</sub> =80V; I <sub>E</sub> =0    |     |      |     |      |
|                       |                                      | BD681            | V <sub>CB</sub> =100V; I <sub>E</sub> =0   |     |      |     |      |
| I <sub>CEO</sub>      | Collector cut-off current            | BD675A           | V <sub>CE</sub> =45V; V <sub>BE</sub> =0   |     |      | 0.5 | mA   |
|                       |                                      | BD677A           | V <sub>CE</sub> =60V; V <sub>BE</sub> =0   |     |      |     |      |
|                       |                                      | BD679A           | V <sub>CE</sub> =80V; V <sub>BE</sub> =0   |     |      |     |      |
|                       |                                      | BD681            | V <sub>CE</sub> =100V; V <sub>BE</sub> =0  |     |      |     |      |
| I <sub>EBO</sub>      | Emitter cut-off current              |                  | V <sub>EB</sub> =5V; I <sub>C</sub> =0     |     |      | 2   | mA   |
| h <sub>FE</sub>       | DC current gain                      | BD675A/677A/679A | I <sub>C</sub> =2A; V <sub>CE</sub> =3V    | 750 |      |     |      |
|                       |                                      | BD681            | I <sub>C</sub> =1.5A; V <sub>CE</sub> =3V  | 750 |      |     |      |

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PACKAGE OUTLINE

