

## Silicon NPN Power Transistors

## BUV46 BUV46A

## DESCRIPTION

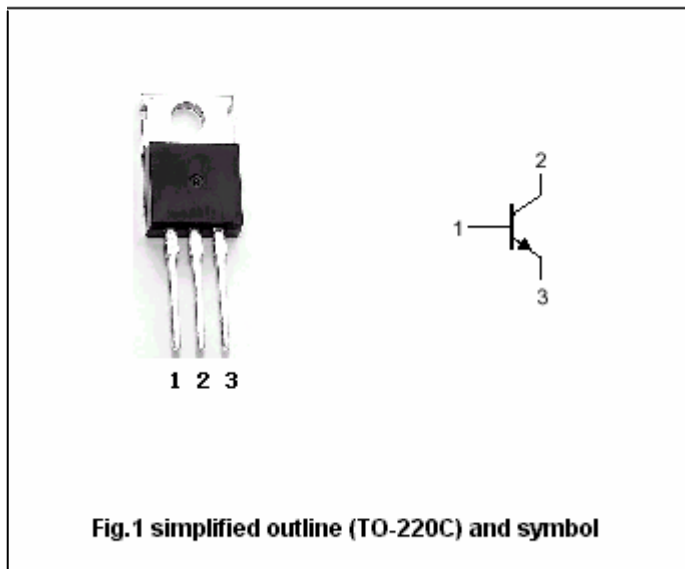
- With TO-220C package
- High voltage
- Fast switching

## APPLICATIONS

- General purpose switching
- Switch mode power supplies
- Electronic ballasts for fluorescent lighting

## PINNING

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



## Absolute maximum ratings (Tc=25°C)

| SYMBOL    | PARAMETER                          |        | CONDITIONS        | VALUE   | UNIT        |
|-----------|------------------------------------|--------|-------------------|---------|-------------|
| $V_{CBO}$ | Collector-base voltage             | BUV46  | Open emitter      | 850     | V           |
|           |                                    | BUV46A |                   | 1000    |             |
| $V_{CEO}$ | Collector-emitter voltage          | BUV46  | Open base         | 400     | V           |
|           |                                    | BUV46A |                   | 450     |             |
| $V_{EBO}$ | Emitter-base voltage               |        | Open collector    | 7       | V           |
| $I_C$     | Collector current (DC)             |        |                   | 5       | A           |
| $I_B$     | Base current                       |        |                   | 3       | A           |
| $P_{tot}$ | Total power dissipation            |        | $T_C=25^{\circ}C$ | 70      | W           |
| $T_j$     | Max.operating junction temperature |        |                   | 150     | $^{\circ}C$ |
| $T_{stg}$ | Storage temperature                |        |                   | -65~150 | $^{\circ}C$ |

## THERMAL CHARACTERISTICS

| SYMBOL           | PARAMETER                        | MAX  | UNIT          |
|------------------|----------------------------------|------|---------------|
| $R_{th\ j-case}$ | Thermal resistance junction case | 1.76 | $^{\circ}C/W$ |

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## CHARACTERISTICS

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

| SYMBOL                | PARAMETER                            |        | CONDITIONS                                                                             | MIN | TYP. | MAX        | UNIT |
|-----------------------|--------------------------------------|--------|----------------------------------------------------------------------------------------|-----|------|------------|------|
| V <sub>CEQ(SUS)</sub> | Collector-emitter sustaining voltage | BUV46  | I <sub>C</sub> =0.1A ; I <sub>B</sub> =0                                               | 400 |      |            | V    |
|                       |                                      | BUV46A |                                                                                        | 450 |      |            |      |
| V <sub>CEsat-1</sub>  | Collector-emitter saturation voltage | BUV46  | I <sub>C</sub> =2.5A ; I <sub>B</sub> =0.5A                                            |     |      | 1.5        | V    |
|                       |                                      | BUV46A | I <sub>C</sub> =2A ; I <sub>B</sub> =0.4A                                              |     |      |            |      |
| V <sub>CEsat-2</sub>  | Collector-emitter saturation voltage | BUV46  | I <sub>C</sub> =3.5A ; I <sub>B</sub> =0.7A                                            |     |      | 5.0        | V    |
|                       |                                      | BUV46A | I <sub>C</sub> =3A ; I <sub>B</sub> =0.6A                                              |     |      |            |      |
| V <sub>BEsat</sub>    | Base-emitter saturation voltage      | BUV46  | I <sub>C</sub> =2.5A ; I <sub>B</sub> =0.5A                                            |     |      | 1.3        | V    |
|                       |                                      | BUV46A | I <sub>C</sub> =2A ; I <sub>B</sub> =0.4A                                              |     |      |            |      |
| I <sub>CER</sub>      | Collector cut-off current            |        | V <sub>CE</sub> = V <sub>CEX</sub> ; R <sub>BE</sub> = 10 Ω<br>T <sub>C</sub> =125°C   |     |      | 0.1<br>1.0 | mA   |
| I <sub>CEX</sub>      | Collector cut-off current            |        | V <sub>CE</sub> = V <sub>CEX</sub> ; V <sub>BE</sub> = -2.5 V<br>T <sub>C</sub> =125°C |     |      | 0.3<br>2.0 | mA   |
| I <sub>EBO</sub>      | Emitter cut-off current              |        | V <sub>EB</sub> =7V ; I <sub>C</sub> =0                                                |     |      | 1.0        | mA   |

## Switching times

|                 |              |                                                                                                                                                                                                               |  |  |     |    |
|-----------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|-----|----|
| t <sub>on</sub> | Turn-on time | For BUV46<br>I <sub>C</sub> =2.5A ; I <sub>B1</sub> =-I <sub>B2</sub> =0.5A ; V <sub>CC</sub> =150V<br><br>For BUV46A<br>I <sub>C</sub> =2A ; I <sub>B1</sub> =-I <sub>B2</sub> =0.4A ; V <sub>CC</sub> =150V |  |  | 1.0 | μs |
| t <sub>s</sub>  | Storage time |                                                                                                                                                                                                               |  |  | 3.0 | μs |
| t <sub>f</sub>  | Fall time    |                                                                                                                                                                                                               |  |  | 0.8 | μs |

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## PACKAGE OUTLINE

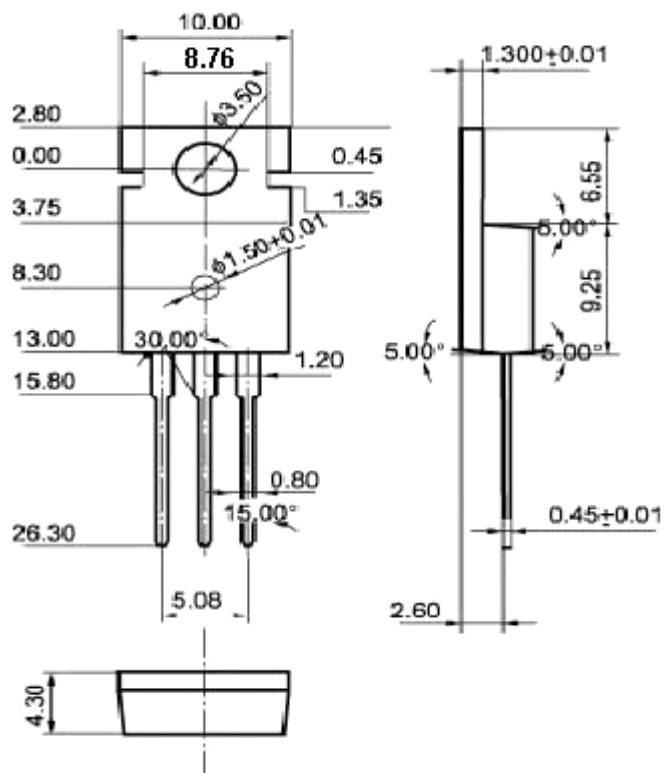


Fig.2 Outline dimensions (unindicated tolerance: 0.1mm)