

## Silicon NPN Power Transistors

## BUH715AF

## DESCRIPTION

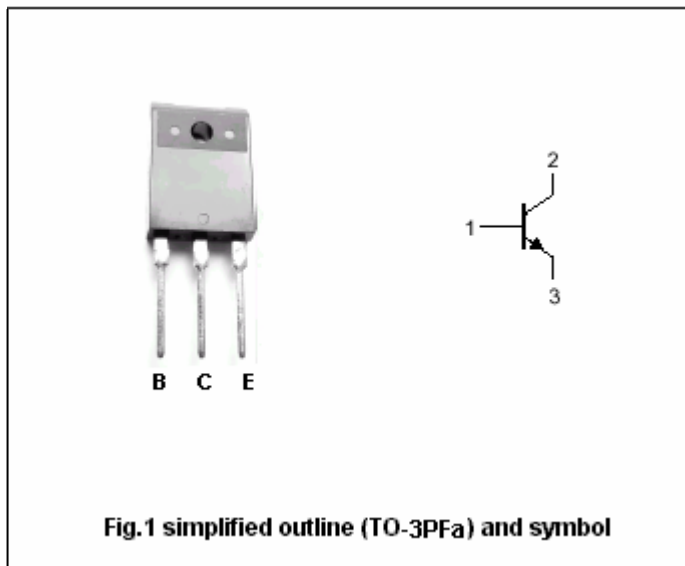
- With TO-3PFa package
- High voltage,high speed

## APPLICATIONS

- Horizontal deflection for monitors.
- Switching mode power supplies

## PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | Base        |
| 2   | Collector   |
| 3   | Emitter     |

Absolute maximum ratings( $T_a=25^\circ\text{C}$ )

| SYMBOL    | PARAMETER                      | CONDITIONS             | VALUE   | UNIT             |
|-----------|--------------------------------|------------------------|---------|------------------|
| $V_{CBO}$ | Collector-base voltage         | Open emitter           | 1500    | V                |
| $V_{CEO}$ | Collector-emitter voltage      | Open base              | 700     | V                |
| $V_{EBO}$ | Emitter-base voltage           | Open collector         | 10      | V                |
| $I_C$     | Collector current (DC)         |                        | 10      | A                |
| $I_{CM}$  | Collector current (Pulse)      |                        | 20      | A                |
| $I_B$     | Base current (DC)              |                        | 5       | A                |
| $I_{BM}$  | Base current (Pulse)           |                        | 10      | A                |
| $P_{tot}$ | Total power dissipation        | $T_C=25^\circ\text{C}$ | 57      | W                |
| $T_j$     | Operating junction temperature |                        | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage temperature            |                        | -65~150 | $^\circ\text{C}$ |

## THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                                | MAX | UNIT                      |
|---------------|------------------------------------------|-----|---------------------------|
| $R_{th\ j-c}$ | Thermal resistance from junction to case | 2.2 | $^\circ\text{C}/\text{W}$ |

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## CHARACTERISTICS

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

| SYMBOL                | PARAMETER                            | CONDITIONS                                                          | MIN | TYP. | MAX    | UNIT |
|-----------------------|--------------------------------------|---------------------------------------------------------------------|-----|------|--------|------|
| V <sub>CEO(SUS)</sub> | Collector-emitter sustaining voltage | I <sub>C</sub> =100mA ; I <sub>B</sub> =0                           | 700 |      |        | V    |
| V <sub>(BR)EBO</sub>  | Emitter-base breakdown voltage       | I <sub>E</sub> =10mA ; I <sub>C</sub> =0                            | 10  |      |        | V    |
| V <sub>CEsat</sub>    | Collector-emitter saturation voltage | I <sub>C</sub> =7A ; I <sub>B</sub> =1.5A                           |     |      | 1.5    | V    |
| V <sub>BEsat</sub>    | Base-emitter saturation voltage      | I <sub>C</sub> =7A ; I <sub>B</sub> =1.5A                           |     |      | 1.3    | V    |
| I <sub>CES</sub>      | Collector cut-off current            | V <sub>CE</sub> =1500V ; V <sub>BE</sub> =0<br>T <sub>j</sub> =125℃ |     |      | 1<br>2 | mA   |
| I <sub>EBO</sub>      | Emitter cut-off current              | V <sub>EB</sub> =5V ; I <sub>C</sub> =0                             |     |      | 100    | μA   |
| h <sub>FE-1</sub>     | DC current gain                      | I <sub>C</sub> =1A ; V <sub>CE</sub> =5V                            | 10  |      |        |      |
| h <sub>FE-2</sub>     | DC current gain                      | I <sub>C</sub> =7A ; V <sub>CE</sub> =5V                            | 8   |      | 16     |      |

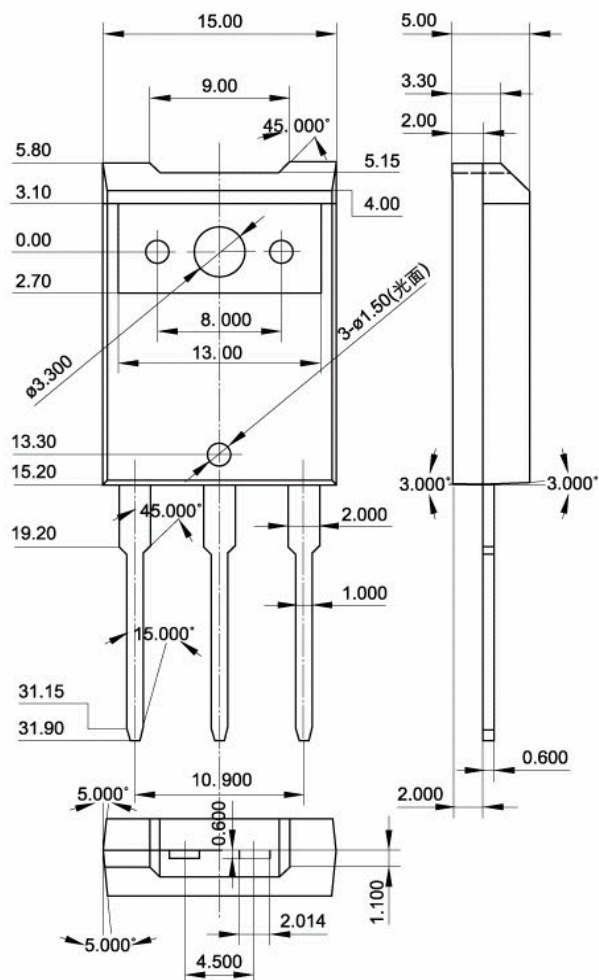
## Switching times

|                |              |                                                                                               |  |     |     |    |
|----------------|--------------|-----------------------------------------------------------------------------------------------|--|-----|-----|----|
| t <sub>s</sub> | Storage time | I <sub>C</sub> =7A ; I <sub>B1</sub> =1.5A ; I <sub>B2</sub> =3.5A ;<br>V <sub>CC</sub> =400V |  | 2.1 | 3.1 | μs |
| t <sub>f</sub> | Fall time    |                                                                                               |  | 140 | 210 | ns |

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## PACKAGE OUTLINE

Fig.2 Outline dimensions(unindicated tolerance: $\pm 0.30\text{mm}$ )