

Silicon NPN Power Transistors

BUX84F BUX85F

DESCRIPTION

- With TO-220Fa package
- High voltage ,high speed

APPLICATIONS

- Converters
- Inverters
- Switching regulators
- Motor controls systems

PINNING

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

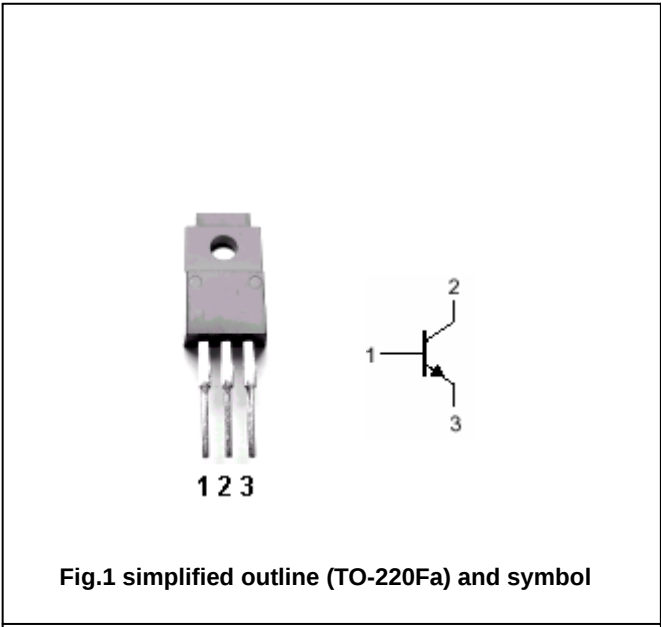


Fig.1 simplified outline (TO-220Fa) and symbol

Absolut maximum ratings (Ta=25 )

| SYMBOL    | PARAMETER                 | CONDITIONS     | VALUE   | UNIT |
|-----------|---------------------------|----------------|---------|------|
| $V_{CBO}$ | Collector-base voltage    | BUX84F         | 800     | V    |
|           |                           | BUX85F         | 1000    |      |
| $V_{CEO}$ | Collector-emitter voltage | BUX84F         | 400     | V    |
|           |                           | BUX85F         | 450     |      |
| $V_{EBO}$ | Emitter-base voltage      | Open collector | 10      | V    |
| $I_C$     | Collector current         |                | 2       | A    |
| $I_{CM}$  | Collector current-peak    |                | 3       | A    |
| $I_B$     | Base current              |                | 0.75    | A    |
| $I_{BM}$  | Base current-peak         |                | 1       | A    |
| $P_{tot}$ | Total power dissipation   | $T_C=25$       | 18      | W    |
| $T_j$     | Junction temperature      |                | 150     |      |
| $T_{stg}$ | Storage temperature       |                | -65~150 |      |

THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                              | MAX | UNIT |
|---------------|----------------------------------------|-----|------|
| $R_{th\ j-a}$ | Thermal resistance junction to ambient | 55  | K/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 | BUX84F | I <sub>C</sub> =100mA ; I <sub>B</sub> =0; L=25mH                 | 400 |      |            | V    |
|                       |                                      | BUX85F |                                                                   | 450 |      |            |      |
| V <sub>CEsat-1</sub>  | Collector-emitter saturation voltage |        | I <sub>C</sub> =0.3A ; I <sub>B</sub> =0.03A                      |     |      | 0.8        | V    |
| V <sub>CEsat-2</sub>  | Collector-emitter saturation voltage |        | I <sub>C</sub> =1A ; I <sub>B</sub> =0.2A                         |     |      | 1          | V    |
| V <sub>BEsat</sub>    | Base-emitter saturation voltage      |        | I <sub>C</sub> =1A ; I <sub>B</sub> =0.2A                         |     |      | 1.1        | V    |
| I <sub>CES</sub>      | Collector cut-off current            | BUX84F | V <sub>CE</sub> =800V; V <sub>BE</sub> =0<br>T <sub>j</sub> =125  |     |      | 0.2<br>1.5 | mA   |
|                       |                                      | BUX85F | V <sub>CE</sub> =1000V; V <sub>BE</sub> =0<br>T <sub>j</sub> =125 |     |      | 0.2<br>1.5 |      |
| I <sub>EBO</sub>      | Emitter cut-off current              |        | V <sub>EB</sub> =5V; I <sub>C</sub> =0                            |     |      | 1.0        | mA   |
| h <sub>FE-1</sub>     | DC current gain                      |        | I <sub>C</sub> =0.1A ; V <sub>CE</sub> =5V                        | 20  |      | 100        |      |
| h <sub>FE-2</sub>     | DC current gain                      |        | I <sub>C</sub> =0.5A ; V <sub>CE</sub> =5V                        | 15  |      |            |      |
| f <sub>T</sub>        | Transition frequency                 |        | I <sub>C</sub> =0.2A ; V <sub>CE</sub> =10V; f=1.0MHz             |     | 20   |            | MHz  |

## Switching times

|                 |              |                                                                                             |  |     |     |    |
|-----------------|--------------|---------------------------------------------------------------------------------------------|--|-----|-----|----|
| t <sub>on</sub> | Turn-on time | I <sub>C</sub> =1A ; V <sub>CC</sub> =250V<br>I <sub>B1</sub> =0.2A; I <sub>B2</sub> =-0.4A |  | 0.2 | 0.5 | μs |
| t <sub>s</sub>  | Storage time |                                                                                             |  | 2   | 3.5 | μs |
| t <sub>f</sub>  | Fall time    |                                                                                             |  | 0.4 |     | μs |

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PACKAGE OUTLINE

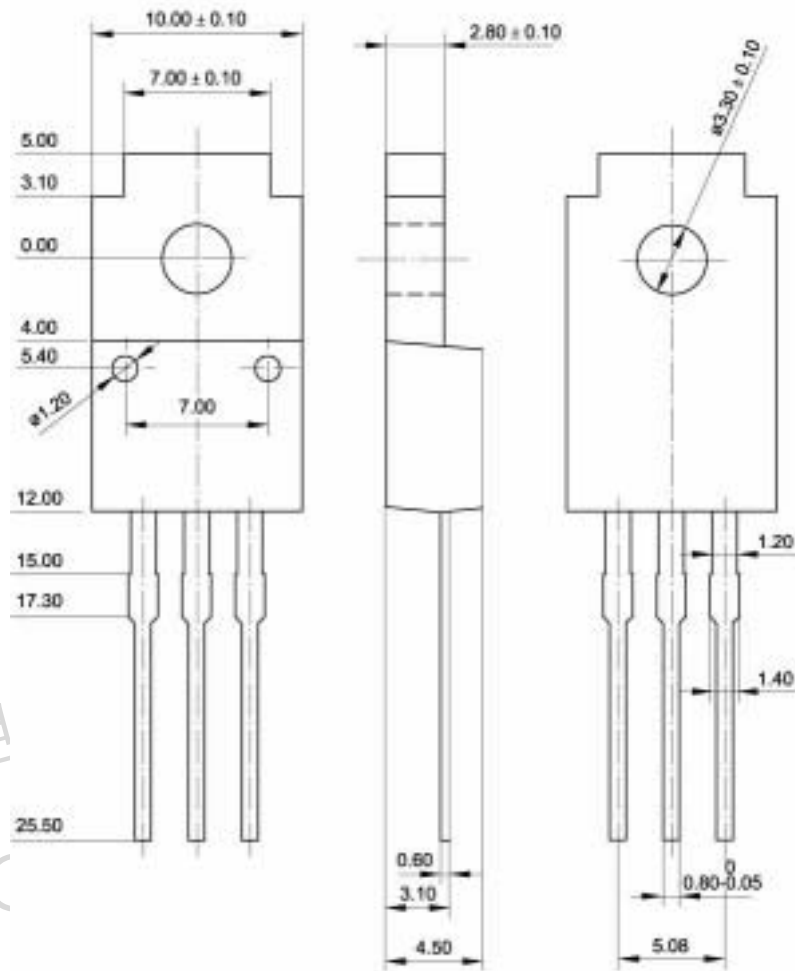


Fig.2 Outline dimensions (unindicated tolerance:  $\pm 0.10\text{mm}$ )