

**Silicon NPN Power Transistors**

**BUX81**

**DESCRIPTION**

- With TO-3 package
- High voltage ;fast switching speed
- Low saturation voltage

**APPLICATIONS**

- Switching-mode power supplies ,CRT scanning,inverters,and other industrial applications

**PINNING(see fig.2)**

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

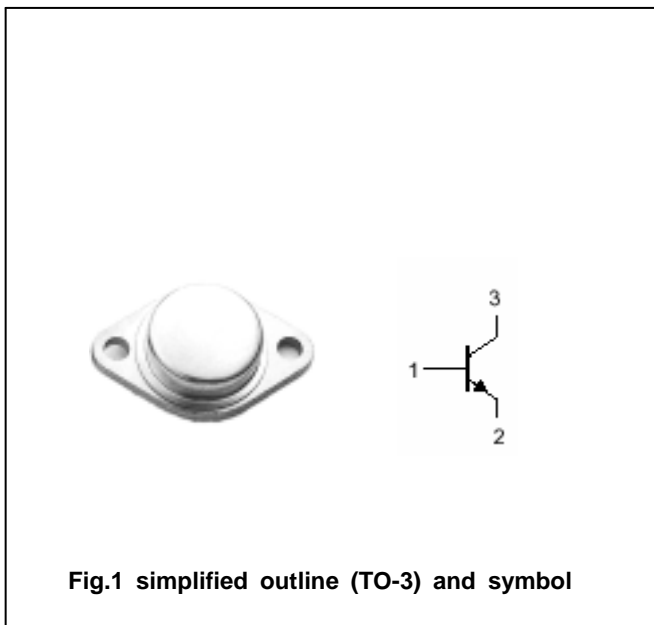


Fig.1 simplified outline (TO-3) and symbol

**ABSOLUTE MAXIMUM RATINGS(Ta=25 )**

| SYMBOL    | PARAMETER                 | CONDITIONS     | VALUE   | UNIT |
|-----------|---------------------------|----------------|---------|------|
| $V_{CBO}$ | Collector-base voltage    | Open emitter   | 1000    | V    |
| $V_{CEO}$ | Collector-emitter voltage | Open base      | 450     | V    |
| $V_{EBO}$ | Emitter-base voltage      | Open collector | 10      | V    |
| $I_C$     | Collector current         |                | 10      | A    |
| $I_{CM}$  | Collector current-peak    |                | 15      | A    |
| $I_B$     | Base current              |                | 4       | A    |
| $I_{BM}$  | Base current-peak         |                | 6       | A    |
| $P_T$     | Total power dissipation   | $T_C=25$       | 150     | W    |
| $T_j$     | Junction temperature      |                | 200     |      |
| $T_{stg}$ | Storage temperature       |                | -65~200 |      |

**THERMAL CHARACTERISTICS**

| SYMBOL       | PARAMETER                           | MAX  | UNIT |
|--------------|-------------------------------------|------|------|
| $R_{th j-c}$ | Thermal resistance junction to case | 1.17 | /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> =0.1A; L=25mH                                      | 450 |      |            | V    |
| V <sub>CEsat-1</sub>  | Collector-emitter saturation voltage | I <sub>C</sub> =5 A; I <sub>B</sub> =1 A                          |     |      | 1.5        | V    |
| V <sub>CEsat-2</sub>  | Collector-emitter saturation voltage | I <sub>C</sub> =8 A; I <sub>B</sub> =2.5 A                        |     |      | 3.0        | V    |
| V <sub>BEsat-1</sub>  | Base-emitter saturation voltage      | I <sub>C</sub> =5 A; I <sub>B</sub> =1 A                          |     |      | 1.4        | V    |
| V <sub>BEsat-2</sub>  | Base-emitter saturation voltage      | I <sub>C</sub> =8 A; I <sub>B</sub> =2.5 A                        |     |      | 1.8        | V    |
| I <sub>CES</sub>      | Collector cut-off current            | V <sub>CE</sub> =1000V; V <sub>BE</sub> =0<br>T <sub>C</sub> =125 |     |      | 1.0<br>3.0 | mA   |
| I <sub>EBO</sub>      | Emitter cut-off current              | V <sub>EB</sub> =10V; I <sub>C</sub> =0                           |     |      | 10         | mA   |
| h <sub>FE</sub>       | DC current gain                      | I <sub>C</sub> =1.2A ; V <sub>CE</sub> =5V                        | 20  |      |            |      |
| f <sub>T</sub>        | Transition frequency                 | I <sub>C</sub> =0.5A ; V <sub>CE</sub> =10V                       |     | 8    |            | MHz  |
| C <sub>OB</sub>       | Output capacitance                   | I <sub>E</sub> =0 ; V <sub>CB</sub> =20V; f=0.1MHz                |     | 105  |            | pF   |

## Switching times

|                 |              |   |  |  |     |    |
|-----------------|--------------|---|--|--|-----|----|
| t <sub>on</sub> | Turn-on time | I <sub>C</sub> =5A ; I <sub>B1</sub> =1A; I <sub>B2</sub> =-2A<br>V <sub>CC</sub> =250V |  |  | 0.5 | μs |
| t <sub>s</sub>  | Storage time |   |  |  | 3.5 | μs |
| t <sub>f</sub>  | Fall time    |   |  |  | 0.8 | μs |

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PACKAGE OUTLINE

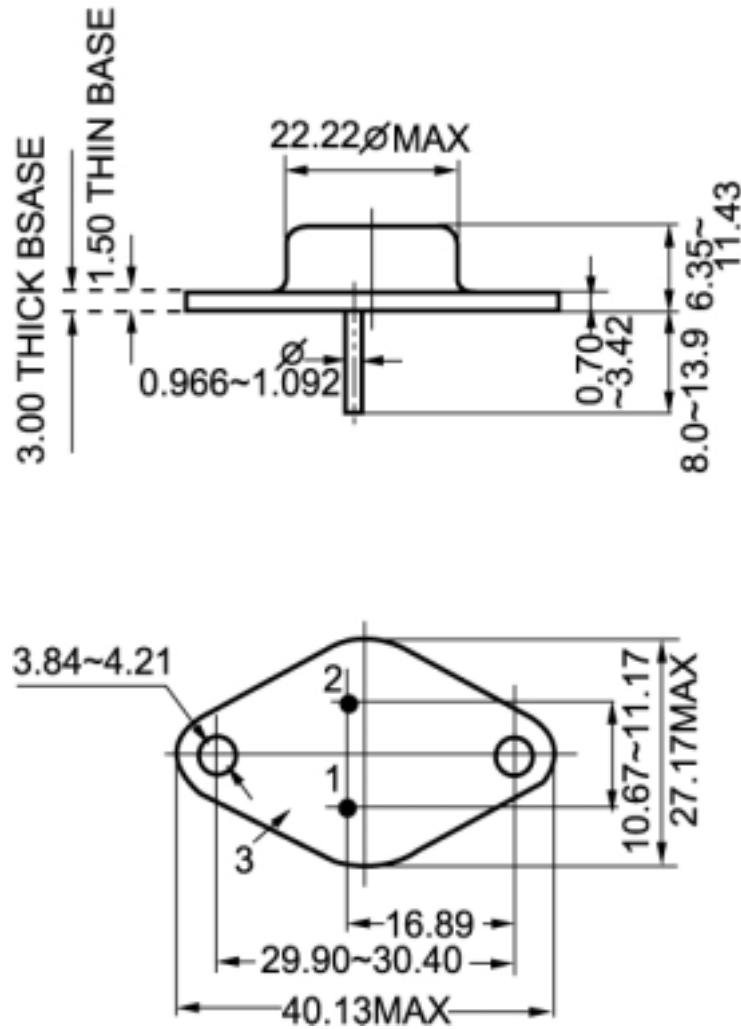


Fig.2 Outline dimensions