

Silicon NPN Power Transistors

BUW49

DESCRIPTION

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- With TO-3PN package.
- High current capability.
- Fast switching speed.
- Low collector saturation voltage

APPLICATIONS

- Switching regulators.
- Motor control.
- High frequency and efficiency converters

PINNING

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

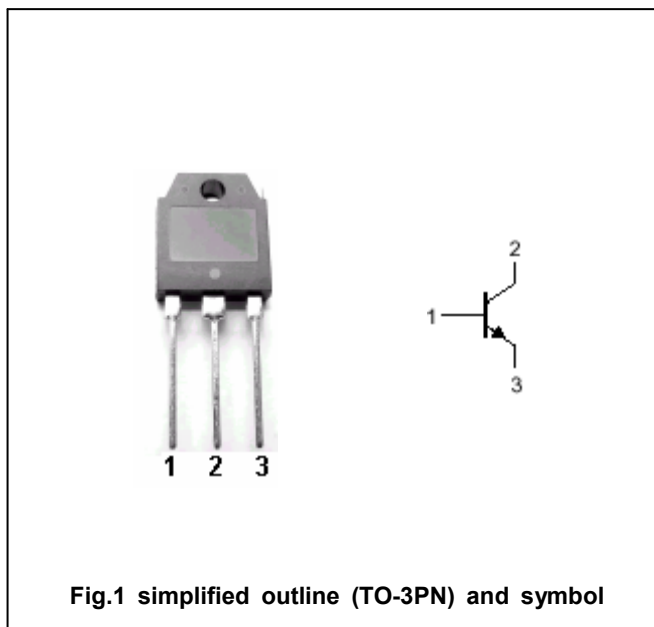


Fig.1 simplified outline (TO-3PN) and symbol

Absolute maximum ratings (Ta=25°C)

| SYMBOL           | PARAMETER                   | CONDITIONS           | VALUE   | UNIT |
|------------------|-----------------------------|----------------------|---------|------|
| V <sub>CBO</sub> | Collector-base voltage      | Open emitter         | 160     | V    |
| V <sub>CEO</sub> | Collector-emitter voltage   | Open base            | 80      | V    |
| V <sub>EBO</sub> | Emitter-base voltage        | Open collector       | 7       | V    |
| I <sub>C</sub>   | Collector current (DC)      |                      | 30      | A    |
| I <sub>CM</sub>  | Collector current (Pulse)   |                      | 40      | A    |
| I <sub>B</sub>   | Base current                |                      | 6       | A    |
| I <sub>BM</sub>  | Base current (peak)         |                      | 10      | A    |
| P <sub>C</sub>   | Collector power dissipation | T <sub>C</sub> =25°C | 150     | W    |
| T <sub>j</sub>   | Junction temperature        |                      | 175     | °C   |
| T <sub>stg</sub> | Storage temperature         |                      | -65~175 | °C   |

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## CHARACTERISTICS

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 $T_j=25^\circ\text{C}$  unless otherwise specified

| SYMBOL         | PARAMETER                            | CONDITIONS  | MIN | TYP. | MAX    | UNIT |
|----------------|--------------------------------------|---|-----|------|--------|------|
| $V_{(BR)EBO}$  | Emitter-base breakdown voltage       | $I_E=50\text{mA}; I_C=0$  | 7   |      |        | V    |
| $V_{CEO(SUS)}$ | Collector-emitter sustaining voltage | $I_C=0.2\text{A}; I_B=0; L=25\text{mH}$                               | 80  |      |        | V    |
| $V_{CEsat-1}$  | Collector-emitter saturation voltage | $I_C=40\text{A}; I_B=4\text{A}$                                       |     |      | 1.4    | V    |
| $V_{CEsat-2}$  | Collector-emitter saturation voltage | $I_C=30\text{A}; I_B=3\text{A}$                                       |     |      | 1.2    | V    |
| $V_{BEsat}$    | Base-emitter saturation voltage      | $I_C=30\text{A}; I_B=3\text{A}$                                       |     |      | 2.0    | V    |
| $I_{CEX}$      | Collector cut-off current            | $V_{CE}=\text{rated}; V_{BE}=-1.5\text{V}$<br>$T_C=125^\circ\text{C}$ |     |      | 1<br>3 | mA   |
| $I_{EBO}$      | Emitter cut-off current              | $V_{EB}=5\text{V}; I_C=0$   |     |      | 1      | mA   |
| $f_T$          | Transition frequency                 | $V_{CE}=15\text{V}; f=15\text{MHz}; I_C=1\text{A}$                    |     | 8    |        |      |

Switching times :

|          |              |   |  |      |      |               |
|----------|--------------|---|--|------|------|---------------|
| $t_{on}$ | Turn-on time | $I_C=30\text{A}; I_{B1}=-I_{B2}=4\text{A}$<br>$V_{CC}=80\text{V}$ |  | 0.8  | 1.2  | $\mu\text{s}$ |
| $t_s$    | Storage time |   |  | 0.6  | 1.1  | $\mu\text{s}$ |
| $t_f$    | Fall time    |   |  | 0.15 | 0.25 | $\mu\text{s}$ |

## THERMAL CHARACTERISTICS

| SYMBOL          | PARAMETER                        | MAX | UNIT                      |
|-----------------|----------------------------------|-----|---------------------------|
| $R_{th j-case}$ | Thermal resistance junction case | 1   | $^\circ\text{C}/\text{W}$ |

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PACKAGE OUTLINE

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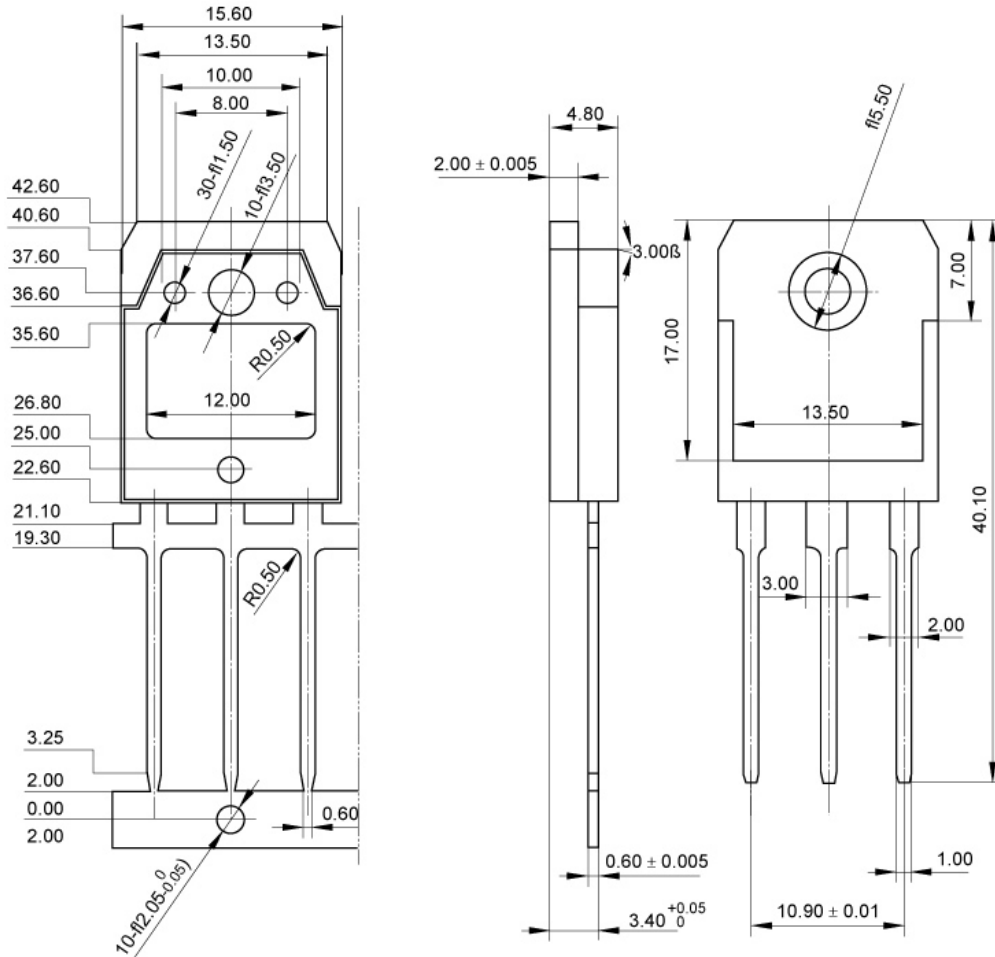


Fig.2 outline dimensions (unindicated tolerance:±0.10 mm)