

Silicon NPN Power Transistors

BUS13

DESCRIPTION

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

APPLICATIONS

- Converters
- Inverters
- Switching regulators
- Motor controls

PINNING (See Fig.2)

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

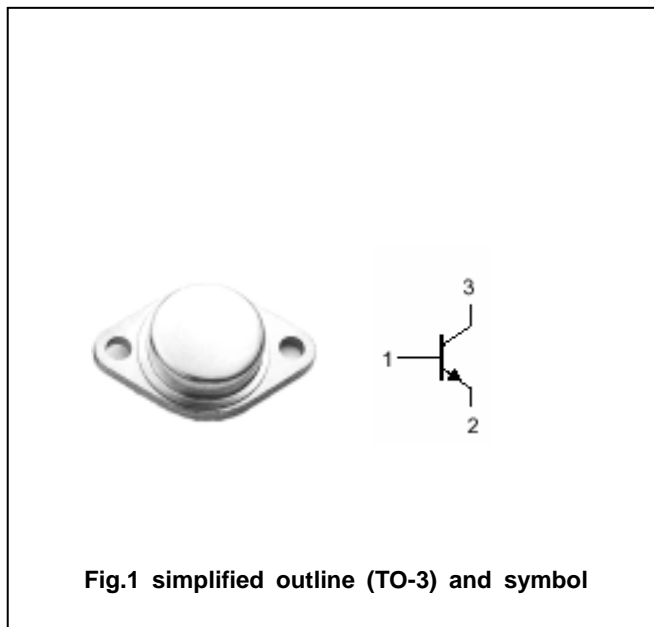


Fig.1 simplified outline (TO-3) and symbol

Absolute maximum ratings(Ta= )

| SYMBOL    | PARAMETER                 | CONDITIONS     | MAX     | UNIT |
|-----------|---------------------------|----------------|---------|------|
| $V_{CBO}$ | Collector-base voltage    | Open emitter   | 850     | V    |
| $V_{CEO}$ | Collector-emitter voltage | Open base      | 400     | V    |
| $V_{EBO}$ | Emitter-base voltage      | Open collector | 9       | V    |
| $I_C$     | Collector current         |                | 15      | A    |
| $I_{CM}$  | Collector current-Peak    |                | 30      | A    |
| $I_B$     | Base current              |                | 6       | A    |
| $I_{BM}$  | Base current-Peak         |                | 9       | A    |
| $P_T$     | Total power dissipation   | $T_{mb}=25$    | 175     | W    |
| $T_j$     | Junction temperature      |                | 200     |      |
| $T_{stg}$ | Storage temperature       |                | -65~200 |      |

THERMAL CHARACTERISTICS

| SYMBOL         | PARAMETER   | VALUE | UNIT |
|----------------|---|-------|------|
| $R_{th\ j-mb}$ | Thermal resistance from junction to mounting base | 1.0   | /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 ; I <sub>B</sub> =0; L=25mH                                    | 400 |      |            | V    |
| V <sub>CEsat</sub>    | Collector-emitter saturation voltage | I <sub>C</sub> =8A; I <sub>B</sub> =1.6A  |     |      | 1.5        | V    |
| V <sub>BEsat</sub>    | Base-emitter saturation voltage      | I <sub>C</sub> =8A; I <sub>B</sub> =1.6A  |     |      | 1.6        | V    |
| I <sub>CES</sub>      | Collector cut-off current            | V <sub>CE</sub> =RatedBV <sub>CEO</sub> ; V <sub>BE</sub> =0<br>T <sub>C</sub> =125 |     |      | 1.0<br>4.0 | mA   |
| I <sub>EBO</sub>      | Emitter cut-off current              | V <sub>EB</sub> =9V; I <sub>C</sub> =0  |     |      | 10         | mA   |
| h <sub>FE</sub>       | DC current gain                      | I <sub>C</sub> =2A ; V <sub>CE</sub> =5V  | 15  |      | 50         |      |

## Switching times

|                 |              |  |  |  |     |    |
|-----------------|--------------|--|--|--|-----|----|
| t <sub>on</sub> | Turn-on time | I <sub>C</sub> =8A; I <sub>B1</sub> =- I <sub>B2</sub> =1.6A |  |  | 1.0 | μs |
| t <sub>s</sub>  | Storage time |  |  |  | 4.0 | μs |
| t <sub>f</sub>  | Fall time    |  |  |  | 0.8 | μs |

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PACKAGE OUTLINE

