

Silicon NPN Power Transistors

D44H10

DESCRIPTION

- With TO-220C package
- Fast switching speeds
- Low collector saturation voltage

APPLICATIONS

- For general purpose power amplification and switching regulators,converters and power amplifiers applications

PINNING

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

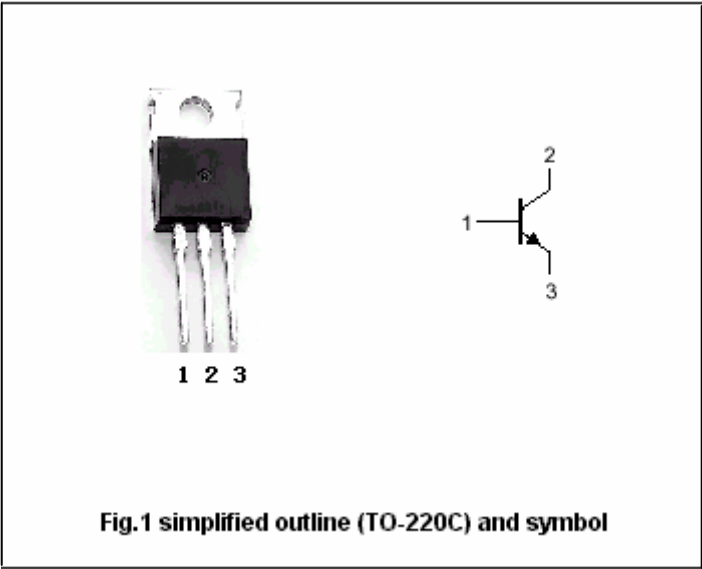


Fig.1 simplified outline (TO-220C) and symbol

Absolute maximum ratings (Tc=25℃)

| SYMBOL    | PARAMETER                 | CONDITIONS               | VALUE   | UNIT |
|-----------|---------------------------|--------------------------|---------|------|
| $V_{CBO}$ | Collector-base voltage    | Open emitter             | 80      | V    |
| $V_{CEO}$ | Collector-emitter voltage | Open base                | 80      | V    |
| $V_{EBO}$ | Emitter-base voltage      | Open collector           | 5       | V    |
| $I_C$     | Collector current (DC)    |                          | 10      | A    |
| $I_{CM}$  | Collector current-Peak    |                          | 20      | A    |
| $P_D$     | Total power dissipation   | $T_C=25^{\circ}\text{C}$ | 50      | W    |
|           |                           | $T_a=25^{\circ}\text{C}$ | 1.67    |      |
| $T_j$     | Junction temperature      |                          | 150     | ℃    |
| $T_{stg}$ | Storage temperature       |                          | -55~150 | ℃    |

THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                                | VALUE | UNIT |
|---------------|------------------------------------------|-------|------|
| $R_{th\ j-C}$ | Thermal resistance from junction to case | 2.5   | ℃/W  |

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## CHARACTERISTICS

Tj=25°C unless otherwise specified

| SYMBOL         | PARAMETER                            | CONDITIONS                | MIN | TYP. | MAX | UNIT    |
|----------------|--------------------------------------|---------------------------|-----|------|-----|---------|
| $V_{CEO(SUS)}$ | Collector-emitter sustaining voltage | $I_C=10mA$ $I_B=0$ ,      | 80  |      |     | V       |
| $V_{CEsat}$    | Collector-emitter saturation voltage | $I_C=8A$ ; $I_B=0.8A$     |     |      | 1.0 | V       |
| $V_{BEsat}$    | Base-emitter saturation voltage      | $I_C=8A$ ; $I_B=0.8A$     |     |      | 1.5 | V       |
| $I_{CES}$      | Collector cut-off current            | $V_{CE}=80V$ ; $V_{BE}=0$ |     |      | 10  | $\mu A$ |
| $I_{EBO}$      | Emitter cut-off current              | $V_{EB}=5V$ ; $I_C=0$     |     |      | 0.1 | mA      |
| $h_{FE-1}$     | DC current gain                      | $I_C=2A$ ; $V_{CE}=1V$    | 35  |      |     |         |
| $h_{FE-2}$     | DC current gain                      | $I_C=4A$ ; $V_{CE}=1V$    | 20  |      |     |         |
| $f_T$          | Transition frequency                 | $I_C=0.5A$ ; $V_{CE}=10V$ |     | 50   |     | MHz     |
| $C_{cb}$       | Collector capacitance                | $f=1MHz$ ; $V_{CB}=10V$   |     | 130  |     | pF      |

## Switching times

|          |              |                                |  |      |  |         |
|----------|--------------|--------------------------------|--|------|--|---------|
| $t_{on}$ | Turn-on time | $I_C=5A$ $I_{B1}=-I_{B2}=0.5A$ |  | 0.3  |  | $\mu s$ |
| $t_s$    | Storage time |                                |  | 0.5  |  | $\mu s$ |
| $t_f$    | Fall time    |                                |  | 0.14 |  | $\mu s$ |

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## PACKAGE OUTLINE

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