

Silicon PNP Power Transistors

2SB1022

DESCRIPTION

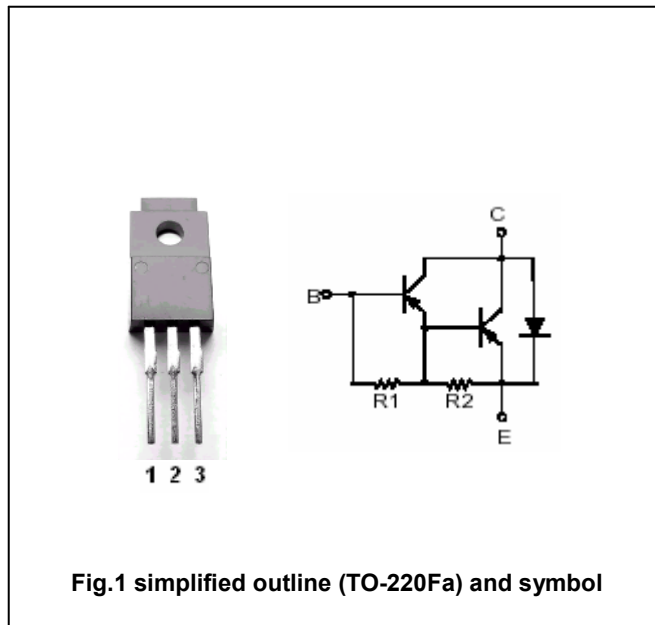
- With TO-220Fa package
- High DC current gain
- Low saturation voltage
- Complement to type 2SD1417

APPLICATIONS

- High power switching applications
- Hammer drive,pulse motor drive applications

PINNING

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



Absolute maximum ratings(Ta=25°C)

| SYMBOL           | PARAMETER                   | CONDITIONS           | VALUE   | UNIT |
|------------------|-----------------------------|----------------------|---------|------|
| V <sub>CBO</sub> | Collector-base voltage      | Open emitter         | -60     | V    |
| V <sub>CEO</sub> | Collector -emitter voltage  | Open base            | -60     | V    |
| V <sub>EBO</sub> | Emitter-base voltage        | Open collector       | -5      | V    |
| I <sub>C</sub>   | Collector current           |                      | -7      | A    |
| I <sub>B</sub>   | Base current                |                      | -0.2    | A    |
| P <sub>C</sub>   | Collector power dissipation | T <sub>a</sub> =25°C | 2.0     | W    |
|                  |                             | T <sub>C</sub> =25°C | 30      |      |
| T <sub>j</sub>   | Junction temperature        |                      | 150     | °C   |
| T <sub>stg</sub> | Storage temperature         |                      | -55~150 | °C   |

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## CHARACTERISTICS

T<sub>j</sub>=25°C unless otherwise specified

| SYMBOL               | PARAMETER                            | CONDITIONS                                 | MIN  | TYP. | MAX   | UNIT |
|----------------------|--------------------------------------|--|------|------|-------|------|
| V <sub>(BR)CEO</sub> | Collector-emitter breakdown voltage  | I <sub>C</sub> =-50mA; I <sub>B</sub> =0   | -60  |      |       | V    |
| V <sub>CEsat-1</sub> | Collector-emitter saturation voltage | I <sub>C</sub> =-3A; I <sub>B</sub> =-6mA  |      |      | -1.5  | V    |
| V <sub>CEsat-2</sub> | Collector-emitter saturation voltage | I <sub>C</sub> =-7A; I <sub>B</sub> =-14mA |      |      | -2.0  | V    |
| V <sub>BEsat</sub>   | Base-emitter saturation voltage      | I <sub>C</sub> =-3A; I <sub>B</sub> =-6mA  |      |      | -2.5  | V    |
| I <sub>CBO</sub>     | Collector cut-off current            | V <sub>CB</sub> =-60V; I <sub>E</sub> =0   |      |      | -100  | μA   |
| I <sub>EBO</sub>     | Emitter cut-off current              | V <sub>EB</sub> =-5V; I <sub>C</sub> =0    |      |      | -4.0  | mA   |
| h <sub>FE-1</sub>    | DC current gain                      | I <sub>C</sub> =-3A; V <sub>CE</sub> =-3V  | 2000 |      | 15000 |      |
| h <sub>FE-2</sub>    | DC current gain                      | I <sub>C</sub> =-7A; V <sub>CE</sub> =-3V  | 1000 |      |       |      |

## Switching times

|                  |              |   |  |     |  |    |
|------------------|--------------|---|--|-----|--|----|
| t <sub>on</sub>  | Turn-on time | I <sub>B1</sub> =-I <sub>B2</sub> =-6mA; V <sub>CC</sub> ≈-45V<br>R <sub>L</sub> =15Ω |  | 0.8 |  | μs |
| t <sub>stg</sub> | Storage time |   |  | 2.0 |  | μs |
| t <sub>f</sub>   | Fall time    |   |  | 2.5 |  | μs |

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PACKAGE OUTLINE

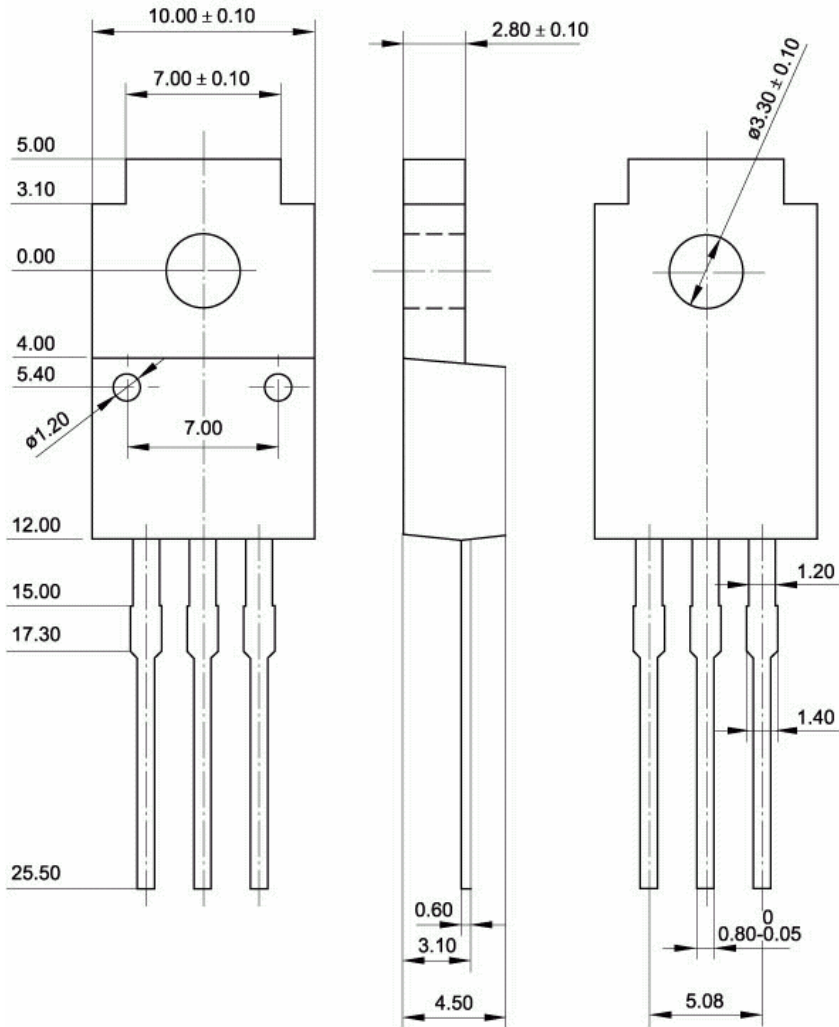


Fig.2 Outline dimensions (unindicated tolerance:  $\pm 0.15$  mm)