

## Silicon PNP Power Transistors

## MJ15023 MJ15025

## DESCRIPTION

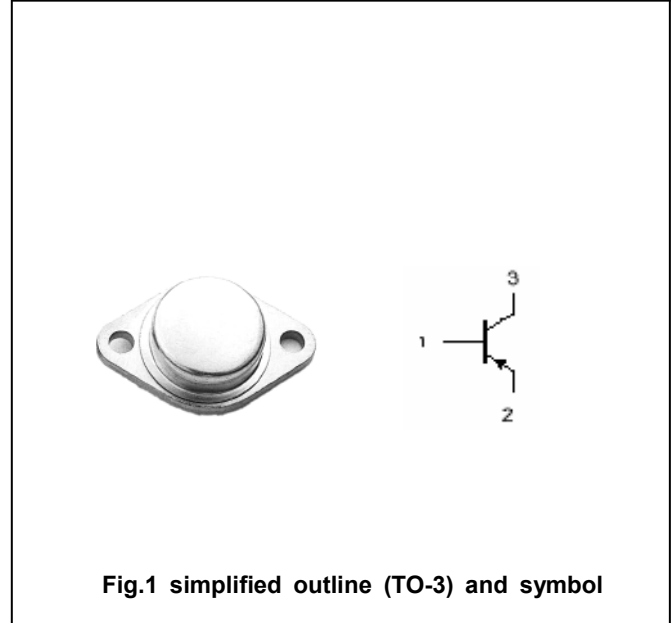
- With TO-3 package
- Complement to type MJ15022; MJ15024
- Excellent safe operating area
- High DC current gain  
 $h_{FE} = 15$  (Min) @  $I_C = 8$  Adc

## APPLICATIONS

- Designed for high power audio, disk head positioners and other linear applications

## PINNING(see Fig.2)

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

ABSOLUTE MAXIMUM RATINGS( $T_C=25^\circ\text{C}$ )

| SYMBOL    | PARAMETER                 | CONDITIONS             | VALUE   | UNIT             |
|-----------|---------------------------|------------------------|---------|------------------|
| $V_{CBO}$ | Collector-base voltage    | MJ15023                | -350    | V                |
|           |                           | MJ15025                | -400    |                  |
| $V_{CEO}$ | Collector-emitter voltage | MJ15023                | -200    | V                |
|           |                           | MJ15025                | -250    |                  |
| $V_{EBO}$ | Emitter-base voltage      | Open collector         | -5      | V                |
| $I_C$     | Collector current         |                        | -16     | A                |
| $I_{CM}$  | Collector current-peak    |                        | -30     | A                |
| $I_B$     | Base current              |                        | -5      | A                |
| $P_D$     | Total power dissipation   | $T_C=25^\circ\text{C}$ | 250     | W                |
| $T_j$     | Junction temperature      |                        | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage temperature       |                        | -65~200 | $^\circ\text{C}$ |

## THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                           | MAX  | UNIT                      |
|---------------|-------------------------------------|------|---------------------------|
| $R_{th\ j-c}$ | Thermal resistance junction to case | 0.70 | $^\circ\text{C}/\text{W}$ |

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## CHARACTERISTICS

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

| SYMBOL                 | PARAMETER   |         | CONDITIONS   | MIN          | TYP. | MAX   | UNIT |
|------------------------|---|---------|--|--------------|------|-------|------|
| V <sub>CEO(SUS)</sub>  | Collector-emitter sustaining voltage                        | MJ15023 | I <sub>C</sub> =-0.1A ; I <sub>B</sub> =0  | -200         |      |       | V    |
|                        |   | MJ15025 |  | -250         |      |       |      |
| V <sub>CE(sat)-1</sub> | Collector-emitter saturation voltage                        |         | I <sub>C</sub> =-8A; I <sub>B</sub> =-0.8A   |              |      | -1.4  | V    |
| V <sub>CE(sat)-2</sub> | Collector-emitter saturation voltage                        |         | I <sub>C</sub> =-16A; I <sub>B</sub> =-3.2A  |              |      | -4.0  | V    |
| V <sub>BE</sub>        | Base-emitter on voltage                                     |         | I <sub>C</sub> =-8A ; V <sub>CE</sub> =-4V   |              |      | -2.2  | V    |
| I <sub>CEO</sub>       | Collector cut-off current                                   | MJ15023 | V <sub>CE</sub> =-150V; I <sub>B</sub> =0  |              |      | -0.5  | mA   |
|                        |   | MJ15025 | V <sub>CE</sub> =-200V; I <sub>B</sub> =0  |              |      |       |      |
| I <sub>CEX</sub>       | Collector cut-off current                                   | MJ15023 | V <sub>CE</sub> =-200V; V <sub>BE(off)</sub> =-1.5V                                  |              |      | -0.25 | mA   |
|                        |   | MJ15025 | V <sub>CE</sub> =-250V; V <sub>BE(off)</sub> =-1.5V                                  |              |      |       |      |
| I <sub>EBO</sub>       | Emitter cut-off current                                     |         | V <sub>EB</sub> =-5V; I <sub>C</sub> =0  |              |      | -0.5  | mA   |
| h <sub>FE-1</sub>      | DC current gain   |         | I <sub>C</sub> =-8A ; V <sub>CE</sub> =-4V   | 15           |      | 60    |      |
| h <sub>FE-2</sub>      | DC current gain   |         | I <sub>C</sub> =-16A ; V <sub>CE</sub> =-4V  | 5            |      |       |      |
| I <sub>s/b</sub>       | Second breakdown collector current with base forward biased |         | V <sub>CE</sub> =-50Vdc, t=0.5 s,<br>V <sub>CE</sub> =-80Vdc, t=0.5 s, Nonrepetitive | -5.0<br>-2.0 |      |       | A    |
| C <sub>OB</sub>        | Output capacitance  |         | I <sub>E</sub> =0 ; V <sub>CB</sub> =-10V; f=1.0MHz                                  |              |      | 600   | pF   |
| f <sub>T</sub>         | Transition frequency  |         | I <sub>C</sub> =-1A ; V <sub>CE</sub> =-10V; f=1.0MHz                                | 4            |      |       | MHz  |

PACKAGE OUTLINE

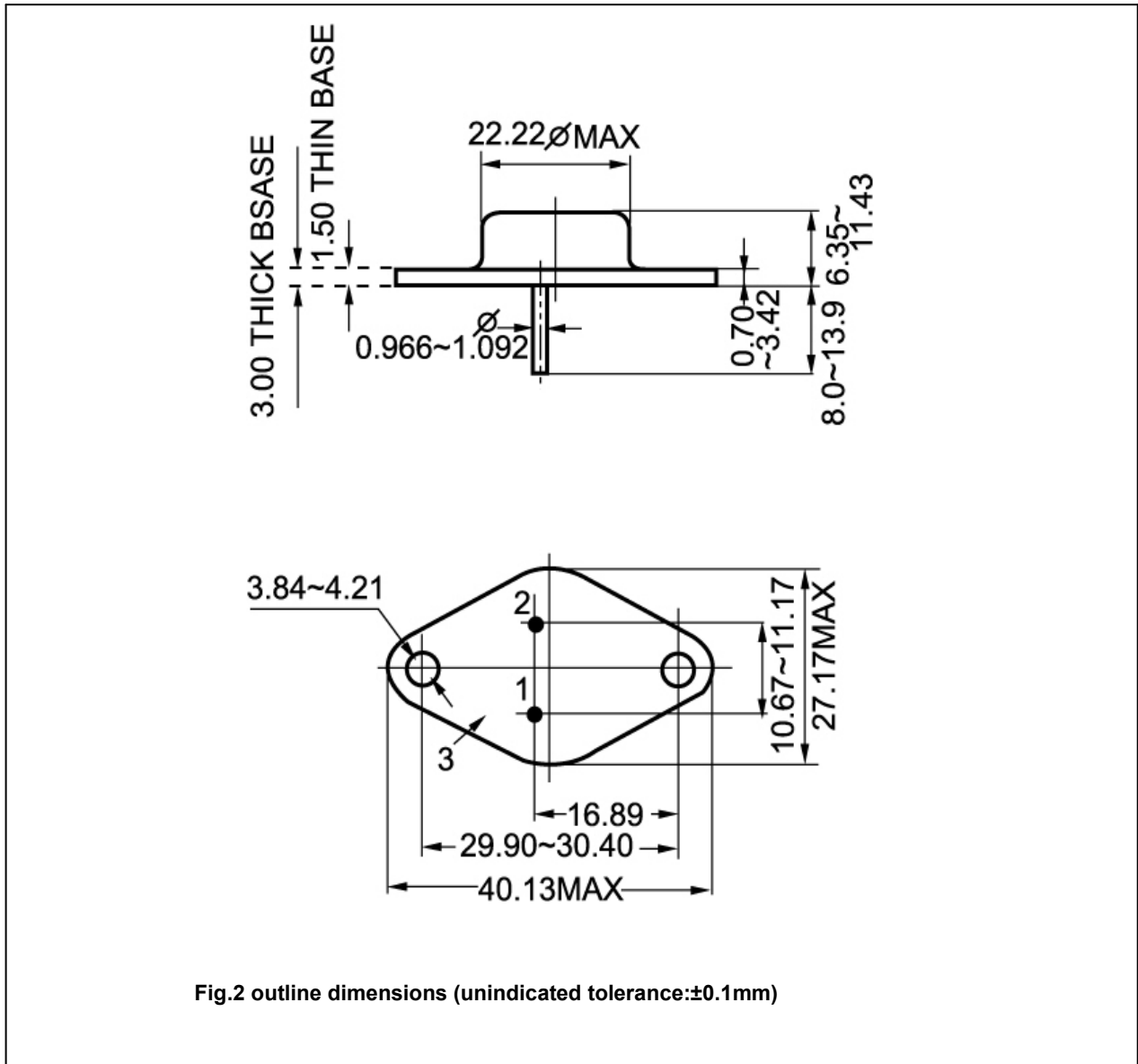


Fig.2 outline dimensions (unindicated tolerance:±0.1mm)