# Silicon NPN Power Transistors MJ15001

## DESCRIPTION

- With TO-3 package
- Complement to type MJ15002
- Wide area of safe operation

## APPLICATIONS

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

**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 | VALUE | UNIT |
|---|---|---|---|---|
| $V_{CBO}$ | Collector-base voltage | Open emitter | 140 | V |
| $V_{CEO}$ | Collector-emitter voltage | Open base | 140 | V |
| $V_{EBO}$ | Emitter-base voltage | Open collector | 5 | V |
| $I_C$ | Collector current | | 15 | A |
| $I_B$ | Base current | | 5 | A |
| $I_E$ | Emitter current | | -20 | A |
| $P_D$ | Total power dissipation | $T_C$=25℃ | 200 | W |
| $T_j$ | Junction temperature | | 200 | ℃ |
| $T_{stg}$ | Storage temperature | | -65~200 | ℃ |



## THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---|---|---|---|
| $R_{th\ j\text{-}c}$ | Thermal resistance junction to case | 0.875 | ℃/W |

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## CHARACTERISTICS

**Tj=25℃ unless otherwise specified**

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|---|---|---|---|---|---|---|
| $V_{CEO(SUS)}$ | Collector-emitter sustaining voltage | $I_C$=0.2A ;$I_B$=0 | 140 | | | V |
| $V_{CEsat}$ | Collector-emitter saturation voltage | $I_C$=4A; $I_B$=0.4A | | | 1.0 | V |
| $V_{BE}$ | Base-emitter on voltage | $I_C$=4A ; $V_{CE}$=2V | | | 2.0 | V |
| $I_{CEO}$ | Collector cut-off current | $V_{CE}$=140V; $I_B$=0 | | | 0.25 | mA |
| $I_{CEX}$ | Collector cut-off current | $V_{CE}$=140V; $V_{BE(off)}$=1.5V<br>$T_C$=150℃ | | | 0.1<br>2.0 | mA |
| $I_{EBO}$ | Emitter cut-off current | $V_{EB}$=5V; $I_C$=0 | | | 0.1 | mA |
| $h_{FE}$ | DC current gain | $I_C$=4A ; $V_{CE}$=2V | 25 | | 150 | |
| $I_{s/b}$ | Second breakdown collector current With base forward biased | $V_{CE}$=40Vdc,t=1s, Nonrepetitive | 5 | | | A |
| | | $V_{CE}$=100Vdc,t=1s, Nonrepetitive | 0.5 | | | |
| $C_{OB}$ | Output capacitance | $I_E$=0 ; $V_{CB}$=10V;f=1.0MHz | | | 1000 | pF |
| $f_T$ | Transition frequency | $I_C$=0.5A ; $V_{CE}$=10V;f=0.5MHz | 2 | | | MHz |

**PACKAGE OUTLINE**

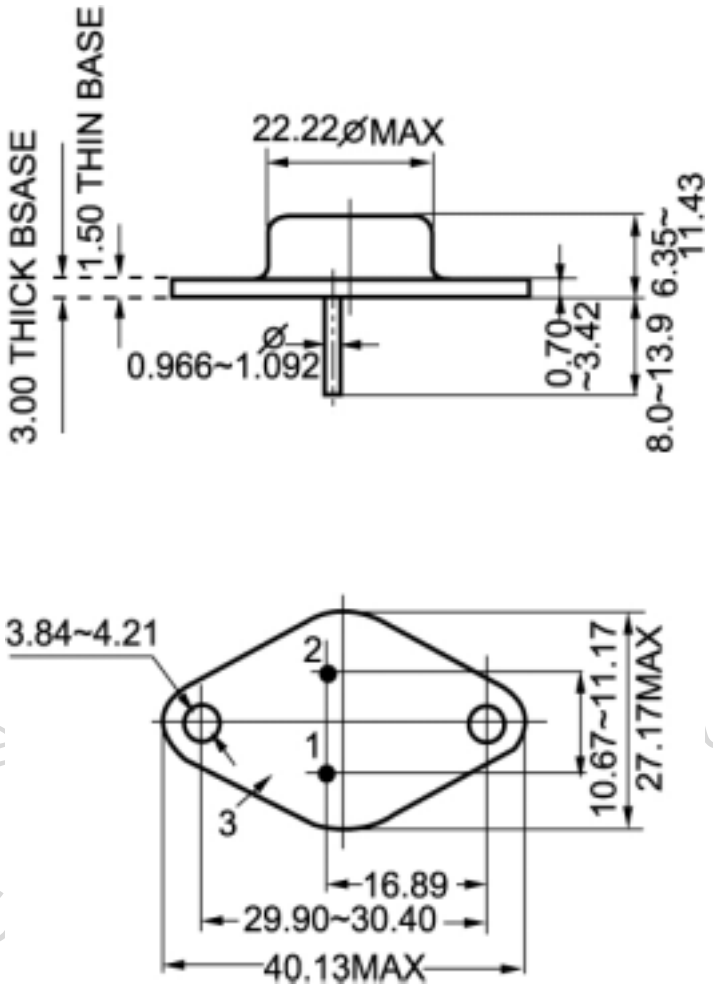


**Fig.2 outline dimensions (unindicated tolerance:±0.1mm)**