

## Silicon NPN Power Transistors

2SD1296

## DESCRIPTION

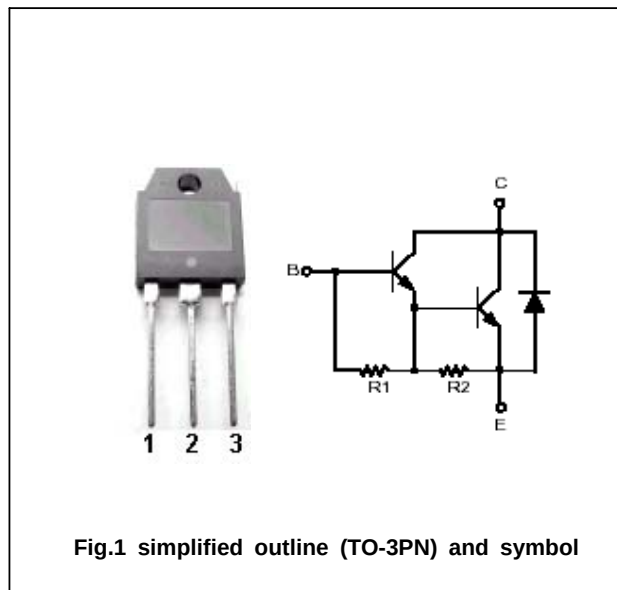
- With TO-3PN package
- High DC current gain
- Low saturation voltage

## APPLICATIONS

- For audio frequency power amplifier and low speed high current switching industrial use

## PINNING

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



## Absolute maximum ratings (Ta=25°C)

| SYMBOL    | PARAMETER                 | CONDITIONS             | MAX     | UNIT             |
|-----------|---------------------------|------------------------|---------|------------------|
| $V_{CBO}$ | Collector-base voltage    | Open emitter           | 150     | V                |
| $V_{CEO}$ | Collector-emitter voltage | Open base              | 100     | V                |
| $V_{EBO}$ | Emitter-base voltage      | Open collector         | 8       | V                |
| $I_C$     | Collector current         |                        | 15      | A                |
| $I_{CM}$  | Collector current-peak    |                        | 30      | A                |
| $P_T$     | Total power dissipation   | $T_C=25^\circ\text{C}$ | 100     | W                |
|           |                           | $T_a=25^\circ\text{C}$ | 3.0     |                  |
| $T_j$     | Junction temperature      |                        | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage temperature       |                        | -55~150 | $^\circ\text{C}$ |

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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> =30mA ; I <sub>B</sub> =0   | 100  |      |       | V    |
| V <sub>CEsat</sub>   | Collector-emitter saturation voltage | I <sub>C</sub> =15A ; I <sub>B</sub> =30mA |      |      | 1.5   | V    |
| V <sub>BEsat</sub>   | Base-emitter saturation voltage      | I <sub>C</sub> =15A ; I <sub>B</sub> =30mA |      |      | 2.2   | V    |
| I <sub>CBO</sub>     | Collector cut-off current            | V <sub>CB</sub> =100V ; I <sub>E</sub> =0  |      |      | 10    | μA   |
| I <sub>EBO</sub>     | Emitter cut-off current              | V <sub>EB</sub> =5V ; I <sub>C</sub> =0    |      |      | 5     | mA   |
| h <sub>FE</sub>      | DC current gain                      | I <sub>C</sub> =15A ; V <sub>CE</sub> =2V  | 1000 |      | 30000 |      |

## Switching times

|                  |              |                                                                                                            |  |     |  |    |
|------------------|--------------|------------------------------------------------------------------------------------------------------------|--|-----|--|----|
| t <sub>on</sub>  | Turn-on time | I <sub>C</sub> =15A ; I <sub>B1</sub> =-I <sub>B2</sub> =30mA<br>V <sub>CC</sub> ≈60V ; R <sub>L</sub> =4Ω |  | 1.0 |  | μs |
| t <sub>stg</sub> | Storage time |                                                                                                            |  | 5.0 |  | μs |
| t <sub>f</sub>   | Fall time    |                                                                                                            |  | 2.0 |  | μs |

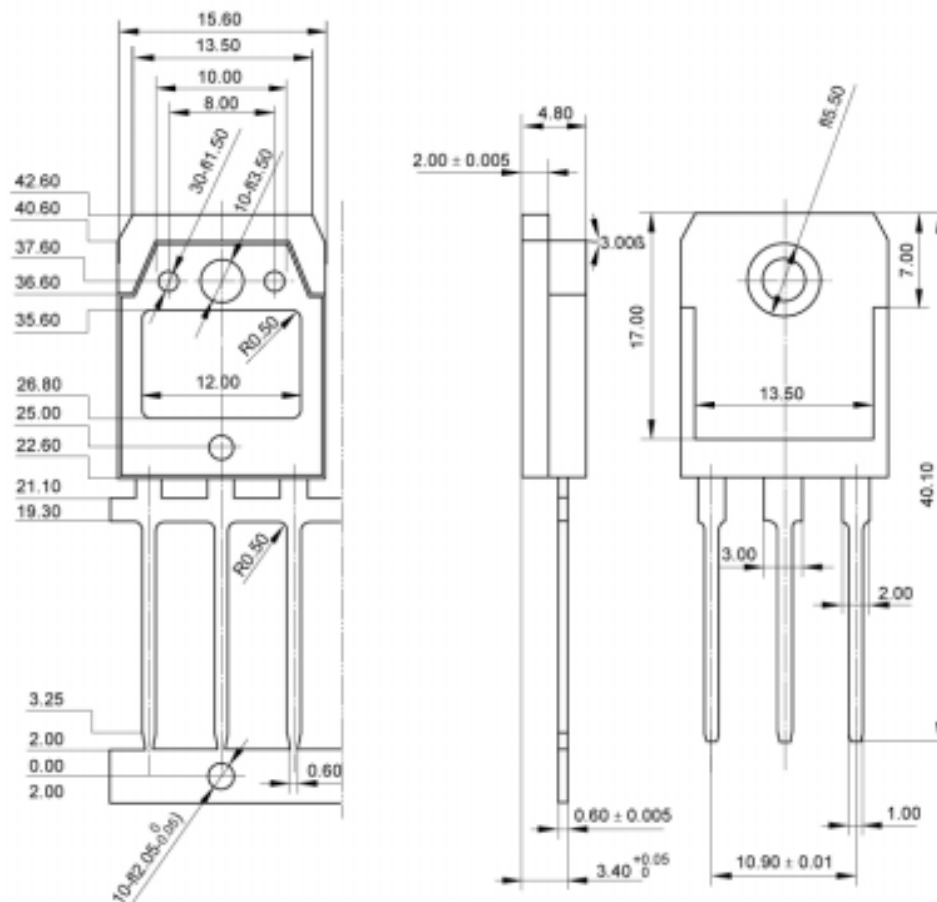
◆ h<sub>FE</sub> Classifications

| M         | L         | K          | J          |
|-----------|-----------|------------|------------|
| 1000-3000 | 2000-5000 | 4000-10000 | 8000-30000 |

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## PACKAGE OUTLINE



**Fig.2 outline dimensions**