

## Silicon NPN Power Transistors

## 2N5655 2N5656 2N5657

## DESCRIPTION

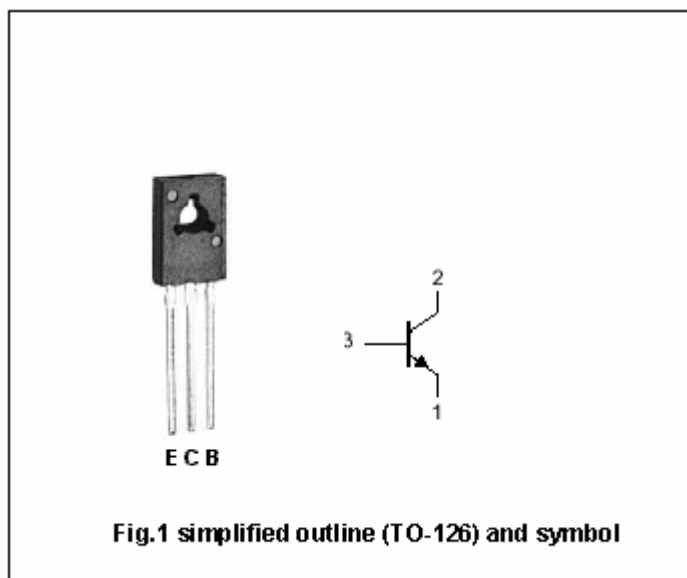
- With TO-126 package
- High breakdown voltage

## APPLICATIONS

- For use in line-operated equipment such as audio output amplifiers; low-current ,high-voltage converters; and AC line relays

## PINNING

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

Absolute maximum ratings( $T_a=25^\circ\text{C}$ )

| SYMBOL    | PARAMETER                 | CONDITIONS             | VALUE   | UNIT             |
|-----------|---------------------------|------------------------|---------|------------------|
| $V_{CBO}$ | Collector-base voltage    | 2N5655                 | 275     | V                |
|           |                           | 2N5656                 | 325     |                  |
|           |                           | 2N5657                 | 375     |                  |
| $V_{CEO}$ | Collector-emitter voltage | 2N5655                 | 250     | V                |
|           |                           | 2N5656                 | 300     |                  |
|           |                           | 2N5657                 | 350     |                  |
| $V_{EBO}$ | Emitter-base voltage      | Open collector         | 6       | V                |
| $I_C$     | Collector current         |                        | 0.5     | A                |
| $I_{CM}$  | Collector current-Peak    |                        | 1.0     | A                |
| $I_B$     | Base current              |                        | 0.25    | A                |
| $P_D$     | Total power dissipation   | $T_C=25^\circ\text{C}$ | 20      | W                |
| $T_j$     | Junction temperature      |                        | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage temperature       |                        | -65~150 | $^\circ\text{C}$ |

## THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                           | VALUE | UNIT               |
|---------------|-------------------------------------|-------|--------------------|
| $R_{th\ j-c}$ | Thermal resistance junction to case | 6.25  | $^\circ\text{C/W}$ |

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## CHARACTERISTICS

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

| SYMBOL                | PARAMETER                            |        | CONDITIONS                                                                                     | MIN | TYP. | MAX        | UNIT |
|-----------------------|--------------------------------------|--------|------------------------------------------------------------------------------------------------|-----|------|------------|------|
| V <sub>CEQ(SUS)</sub> | Collector-emitter sustaining voltage | 2N5655 | I <sub>C</sub> =0.1A; I <sub>B</sub> =0; L=50mH                                                | 250 |      |            | V    |
|                       |                                      | 2N5656 |                                                                                                | 300 |      |            |      |
|                       |                                      | 2N5657 |                                                                                                | 350 |      |            |      |
| V <sub>CEsat-1</sub>  | Collector-emitter saturation voltage |        | I <sub>C</sub> =100mA; I <sub>B</sub> =10mA                                                    |     |      | 1.0        | V    |
| V <sub>CEsat-2</sub>  | Collector-emitter saturation voltage |        | I <sub>C</sub> =250mA; I <sub>B</sub> =25mA                                                    |     |      | 2.5        | V    |
| V <sub>CEsat-3</sub>  | Collector-emitter saturation voltage |        | I <sub>C</sub> =500mA; I <sub>B</sub> =100mA                                                   |     |      | 10         | V    |
| V <sub>BE</sub>       | Base-emitter on voltage              |        | I <sub>C</sub> =100mA; V <sub>CE</sub> =10V                                                    |     |      | 1.0        | V    |
| I <sub>CEO</sub>      | Collector cut-off current            | 2N5655 | V <sub>CE</sub> =150V; I <sub>B</sub> =0                                                       |     |      | 0.1        | mA   |
|                       |                                      | 2N5656 | V <sub>CE</sub> =200V; I <sub>B</sub> =0                                                       |     |      |            |      |
|                       |                                      | 2N5657 | V <sub>CE</sub> =250V; I <sub>B</sub> =0                                                       |     |      |            |      |
| I <sub>CBO</sub>      | Collector cut-off current            | 2N5655 | V <sub>CB</sub> =275V; I <sub>E</sub> =0                                                       |     |      | 10         | μA   |
|                       |                                      | 2N5656 | V <sub>CB</sub> =325V; I <sub>E</sub> =0                                                       |     |      |            |      |
|                       |                                      | 2N5657 | V <sub>CB</sub> =375V; I <sub>E</sub> =0                                                       |     |      |            |      |
| I <sub>CEX</sub>      | Collector cut-off current            |        | V <sub>CE</sub> = Rated V <sub>CEO</sub> ; V <sub>BE(off)</sub> =1.5V<br>T <sub>C</sub> =100°C |     |      | 0.1<br>1.0 | mA   |
| I <sub>EBO</sub>      | Emitter cut-off current              |        | V <sub>EB</sub> =6V; I <sub>C</sub> =0                                                         |     |      | 10         | μA   |
| h <sub>FE-1</sub>     | DC current gain                      |        | I <sub>C</sub> =50mA; V <sub>CE</sub> =10V                                                     | 25  |      |            |      |
| h <sub>FE-2</sub>     | DC current gain                      |        | I <sub>C</sub> =100mA; V <sub>CE</sub> =10V                                                    | 30  |      | 250        |      |
| h <sub>FE-3</sub>     | DC current gain                      |        | I <sub>C</sub> =250mA; V <sub>CE</sub> =10V                                                    | 15  |      |            |      |
| h <sub>FE-4</sub>     | DC current gain                      |        | I <sub>C</sub> =500mA; V <sub>CE</sub> =10V                                                    | 5   |      |            |      |
| f <sub>T</sub>        | Transition frequency                 |        | I <sub>C</sub> =50mA; V <sub>CE</sub> =10V; f=10MHz                                            | 10  |      |            | MHz  |
| C <sub>OB</sub>       | Output capacitance                   |        | f=100kHz; V <sub>CB</sub> =10V; I <sub>E</sub> =0                                              |     |      | 25         | pF   |

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## PACKAGE OUTLINE

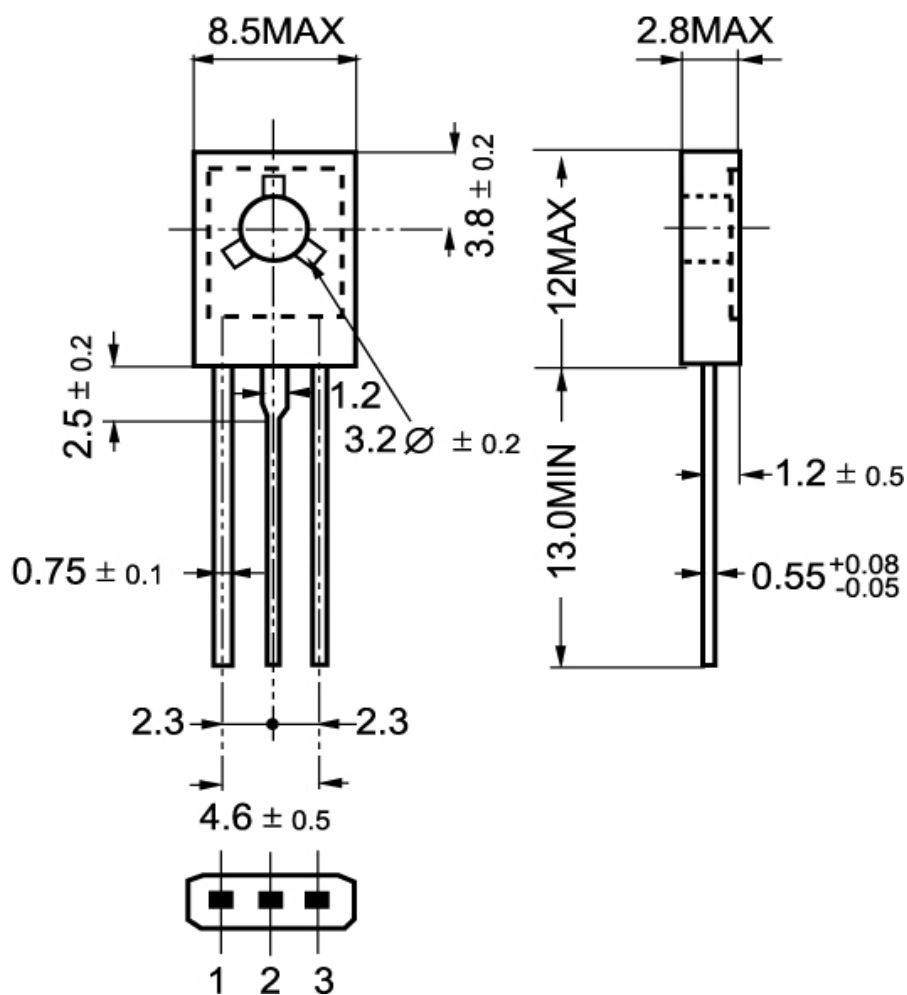


Fig.2 Outline dimensions