

## Silicon NPN Power Transistors

## 2N5873 2N5874

## DESCRIPTION

- With TO-3 package
- Low collector saturation voltage

## APPLICATIONS

- For medium-speed switching and amplifier applications

## PINNING

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



Fig.1 simplified outline (TO-3) and symbol

Absolute maximum ratings( $T_a = \square$ )

| SYMBOL    | PARAMETER                 |        | CONDITIONS        | VALUE   | UNIT      |
|-----------|---------------------------|--------|-------------------|---------|-----------|
| $V_{CBO}$ | Collector-base voltage    | 2N5873 | Open emitter      | 60      | V         |
|           |                           | 2N5874 |                   | 80      |           |
| $V_{CEO}$ | Collector-emitter voltage | 2N5873 | Open base         | 60      | V         |
|           |                           | 2N5874 |                   | 80      |           |
| $V_{EBO}$ | Emitter-base voltage      |        | Open collector    | 5       | V         |
| $I_C$     | Collector current         |        |                   | 7       | A         |
| $P_D$     | Total Power Dissipation   |        | $T_C = 25\square$ | 115     | W         |
| $T_j$     | Junction temperature      |        |                   | 150     | $\square$ |
| $T_{stg}$ | Storage temperature       |        |                   | -65~200 | $\square$ |

## THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                           | VALUE | UNIT        |
|---------------|-------------------------------------|-------|-------------|
| $R_{th\ j-c}$ | Thermal resistance junction to case | 1.17  | $\square/W$ |

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## CHARACTERISTICS

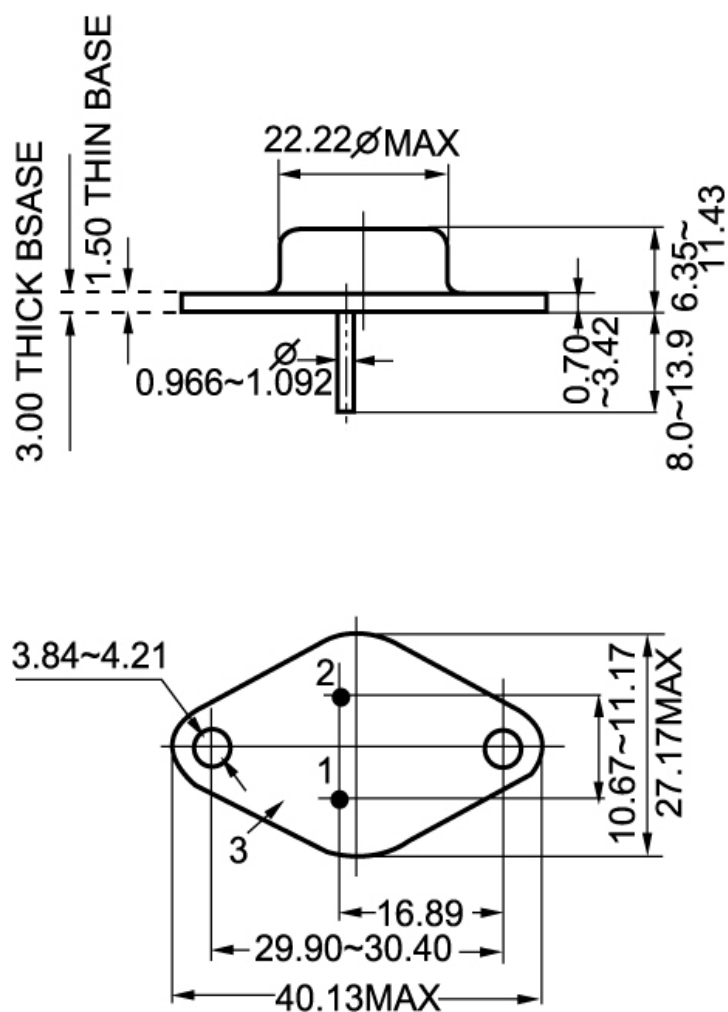
T<sub>j</sub>=25°C unless otherwise specified

| SYMBOL                | PARAMETER                            |        | CONDITIONS                                                  | MIN | TYP. | MAX | UNIT |
|-----------------------|--------------------------------------|--------|-------------------------------------------------------------|-----|------|-----|------|
| V <sub>CEO(SUS)</sub> | Collector-emitter sustaining voltage | 2N5873 | I <sub>C</sub> =0.1A ; I <sub>B</sub> =0                    | 60  |      |     | V    |
|                       |                                      | 2N5874 |                                                             | 80  |      |     |      |
| V <sub>CEsat</sub>    | Collector-emitter saturation voltage |        | I <sub>C</sub> =5A; I <sub>B</sub> =0.5A                    |     |      | 1.0 | V    |
| V <sub>BEsat</sub>    | Base-emitter saturation voltage      |        | I <sub>C</sub> =5A; I <sub>B</sub> =0.5A                    |     |      | 1.5 | V    |
| I <sub>CBO</sub>      | Collector cut-off current            |        | V <sub>CB</sub> =rated V <sub>CBO</sub> ; I <sub>B</sub> =0 |     |      | 1.0 | mA   |
| I <sub>CEO</sub>      | Collector cut-off current            | 2N5873 | V <sub>CE</sub> =30V; I <sub>B</sub> =0                     |     |      | 2.0 | mA   |
|                       |                                      | 2N5874 | V <sub>CE</sub> =40V; I <sub>B</sub> =0                     |     |      |     |      |
| I <sub>EBO</sub>      | Emitter cut-off current              |        | V <sub>EB</sub> =5V; I <sub>C</sub> =0                      |     |      | 1.0 | mA   |
| h <sub>FE</sub>       | DC current gain                      |        | I <sub>C</sub> =2.5A ; V <sub>CE</sub> =4V                  | 20  |      | 100 |      |
| f <sub>T</sub>        | Transistion frequency                |        | I <sub>C</sub> =0.5A ; V <sub>CE</sub> =10V                 | 4   |      |     | MHz  |

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## PACKAGE OUTLINE

Fig.2 outline dimensions (unindicated tolerance:  $\pm 0.10\text{mm}$ )