

## Inchange Semiconductor

## Product Specification

### Silicon NPN Power Transistors

### 2N5067 2N5068 2N5069

#### DESCRIPTION

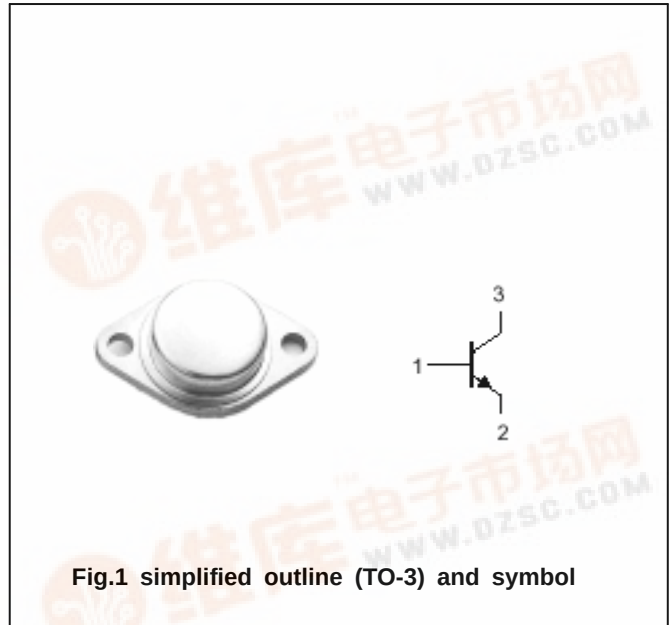
- With TO-3 package
- Complement to type 2N4901/4902/4903
- Low collector saturation voltage

#### APPLICATIONS

- For general-purpose switching and power amplifier applications.

#### PINNING

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



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

| SYMBOL    | PARAMETER                   | CONDITIONS               | VALUE   | UNIT               |
|-----------|-----------------------------|--------------------------|---------|--------------------|
| $V_{CBO}$ | Collector-base voltage      | 2N5067                   | 40      | V                  |
|           |                             | 2N5068                   | 60      |                    |
|           |                             | 2N5069                   | 80      |                    |
| $V_{CEO}$ | Collector-emitter voltage   | 2N5067                   | 40      | V                  |
|           |                             | 2N5068                   | 60      |                    |
|           |                             | 2N5069                   | 80      |                    |
| $V_{EBO}$ | Emitter-base voltage        | Open collector           | 5       | V                  |
| $I_C$     | Collector current           |                          | 5       | A                  |
| $I_{CM}$  | Collector current-peak      |                          | 10      | A                  |
| $I_B$     | Base current                |                          | 1       | A                  |
| $P_C$     | Collector power dissipation | $T_C=25^{\circ}\text{C}$ | 87.5    | W                  |
| $T_j$     | Junction temperature        |                          | 150     | $^{\circ}\text{C}$ |
| $T_{stg}$ | Storage temperature         |                          | -65~200 | $^{\circ}\text{C}$ |

#### THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                           | VALUE | UNIT                 |
|---------------|-------------------------------------|-------|----------------------|
| $R_{th\ j-c}$ | Thermal resistance junction to case | 2.0   | $^{\circ}\text{C/W}$ |

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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 | 2N5067 | I <sub>C</sub> =0.2A ; I <sub>B</sub> =0                                                       | 40  |      |            | V    |
|                       |                                      | 2N5068 |                                                                                                | 60  |      |            |      |
|                       |                                      | 2N5069 |                                                                                                | 80  |      |            |      |
| V <sub>CEsat-1</sub>  | Collector-emitter saturation voltage |        | I <sub>C</sub> =1A; I <sub>B</sub> =0.1A                                                       |     |      | 0.4        | V    |
| V <sub>CEsat-2</sub>  | Collector-emitter saturation voltage |        | I <sub>C</sub> =5A ; I <sub>B</sub> =1A                                                        |     |      | 1.5        | V    |
| V <sub>BE</sub>       | Base-emitter on voltage              |        | I <sub>C</sub> =1A ; V <sub>CE</sub> =2V                                                       |     |      | 1.2        | V    |
| I <sub>CEO</sub>      | Collector cut-off current            |        | V <sub>CE</sub> =Rated V <sub>CEO</sub> ; I <sub>B</sub> =0                                    |     |      | 1.0        | mA   |
| I <sub>CBO</sub>      | Collector cut-off current            |        | V <sub>CB</sub> =Rated V <sub>CBO</sub> ; I <sub>E</sub> =0                                    |     |      | 0.1        | mA   |
| 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> =150°C |     |      | 1.0<br>2.0 | mA   |
| I <sub>EBO</sub>      | Emitter cut-off current              |        | V <sub>EB</sub> =5V; I <sub>C</sub> =0                                                         |     |      | 1.0        | mA   |
| h <sub>FE-1</sub>     | DC current gain                      |        | I <sub>C</sub> =1A ; V <sub>CE</sub> =2V                                                       | 20  |      | 80         |      |
| h <sub>FE-2</sub>     | DC current gain                      |        | I <sub>C</sub> =5A ; V <sub>CE</sub> =2V                                                       | 7   |      |            |      |
| f <sub>T</sub>        | Transition frequency                 |        | I <sub>C</sub> =1A ; V <sub>CE</sub> =10V                                                      | 4   |      |            | MHz  |

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PACKAGE OUTLINE

