

## Silicon NPN Power Transistors

## 2N5758 2N5759 2N5760

## DESCRIPTION

- With TO-3 package
- Low collector saturation voltage
- Excellent safe operating area

## APPLICATIONS

- For use in high power audio amplifier applications and high voltage switching regulator circuits

## 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    | 2N5758 | Open emitter      | 100     | V         |
|           |                           | 2N5759 |                   | 120     |           |
|           |                           | 2N5760 |                   | 140     |           |
| $V_{CEO}$ | Collector-emitter voltage | 2N5758 | Open base         | 100     | V         |
|           |                           | 2N5759 |                   | 120     |           |
|           |                           | 2N5760 |                   | 140     |           |
| $V_{EBO}$ | Emitter-base voltage      |        | Open collector    | 7       | V         |
| $I_C$     | Collector current         |        |                   | 6       | A         |
| $I_{CM}$  | Collector current-peak    |        |                   | 10      | A         |
| $I_B$     | Base current              |        |                   | 4       | A         |
| $P_D$     | Total Power Dissipation   |        | $T_C = 25\square$ | 150     | 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 | 2N5758 | I <sub>C</sub> =0.2A ; I <sub>B</sub> =0                                                    | 100 |      |            | V    |
|                       |                                      | 2N5759 |                                                                                             | 120 |      |            |      |
|                       |                                      | 2N5760 |                                                                                             | 140 |      |            |      |
| V <sub>CEsat-1</sub>  | Collector-emitter saturation voltage |        | I <sub>C</sub> =3A ; I <sub>B</sub> =0.3A                                                   |     |      | 1.0        | V    |
| V <sub>CEsat-2</sub>  | Collector-emitter saturation voltage |        | I <sub>C</sub> =6A ; I <sub>B</sub> =1.2A                                                   |     |      | 2.0        | V    |
| V <sub>BE</sub>       | Base-emitter on voltage              |        | I <sub>C</sub> =3A ; V <sub>CE</sub> =2V                                                    |     |      | 1.5        | V    |
| I <sub>CEO</sub>      | Collector cut-off current            | 2N5758 | V <sub>CE</sub> =50V ; I <sub>B</sub> =0                                                    |     |      | 1.0        | mA   |
|                       |                                      | 2N5759 | V <sub>CE</sub> =60V ; I <sub>B</sub> =0                                                    |     |      |            |      |
|                       |                                      | 2N5760 | V <sub>CE</sub> =70V ; I <sub>B</sub> =0                                                    |     |      |            |      |
| I <sub>CEX</sub>      | Collector cut-off current            |        | V <sub>CE</sub> =ratedV <sub>CB</sub> ; V <sub>BE(off)</sub> =1.5V<br>T <sub>C</sub> =150°C |     |      | 1.0<br>5.0 | mA   |
| I <sub>CBO</sub>      | Collector cut-off current            |        | V <sub>CE</sub> =ratedV <sub>CB</sub> ; I <sub>B</sub> =0                                   |     |      | 1.0        | mA   |
| I <sub>EBO</sub>      | Emitter cut-off current              |        | V <sub>EB</sub> =7V ; I <sub>C</sub> =0                                                     |     |      | 1.0        | mA   |
| h <sub>FE-1</sub>     | DC current gain                      | 2N5758 | I <sub>C</sub> =3A ; V <sub>CE</sub> =2V                                                    | 25  |      | 100        |      |
|                       |                                      | 2N5759 |                                                                                             | 20  |      | 80         |      |
|                       |                                      | 2N5760 |                                                                                             | 15  |      | 60         |      |
| h <sub>FE-2</sub>     | DC current gain                      |        | I <sub>C</sub> =6A ; V <sub>CE</sub> =2V                                                    | 5.0 |      |            |      |
| C <sub>OB</sub>       | Output capacitance                   |        | I <sub>E</sub> =0 ; V <sub>CB</sub> =10V ; f=0.1MHz                                         |     |      | 300        | pF   |
| f <sub>T</sub>        | Transition frequency                 |        | I <sub>C</sub> =0.5A ; V <sub>CE</sub> =20V                                                 | 1.0 |      |            | MHz  |

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PACKAGE OUTLINE

