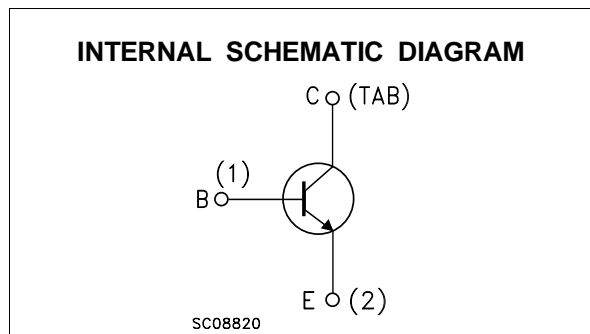
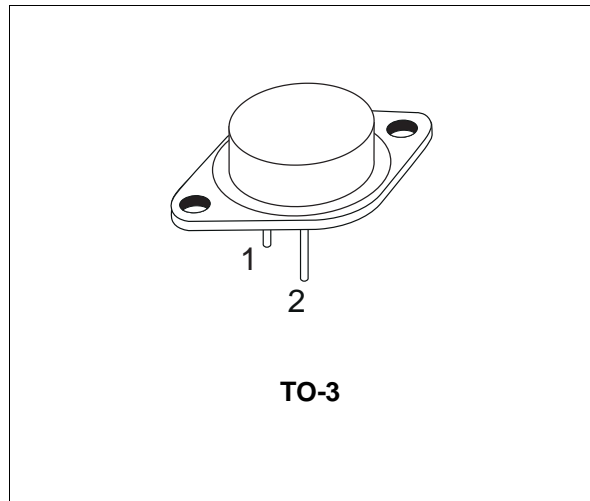


## HIGH POWER NPN SILICON TRANSISTOR

■ SGS-THOMSON PREFERRED SALESTYPES

**DESCRIPTION**

The 2N3771, 2N3772 are silicon epitaxial-base NPN transistors mounted in Jedec TO-3 metal case. They are intended for linear amplifiers and inductive switching applications.



**ABSOLUTE MAXIMUM RATINGS**

| Symbol    | Parameter                                      | Value      |        | Unit       |
|-----------|--|------------|--------|------------|
|           |  | 2N3771     | 2N3772 |            |
| $V_{CEO}$ | Collector-Emitter Voltage ( $I_E = 0$ )        | 40         | 60     | V          |
| $V_{CEV}$ | Collector-Emitter Voltage ( $V_{BE} = -1.5V$ ) | 50         | 80     | V          |
| $V_{CBO}$ | Collector-Base Voltage ( $I_B = 0$ )           | 50         | 100    | V          |
| $V_{EBO}$ | Emitter-Base Voltage ( $I_C = 0$ )             | 5          | 7      | V          |
| $I_C$     | Collector Current                              | 30         | 20     | A          |
| $I_{CM}$  | Collector Peak Current                         | 30         | 30     | A          |
| $I_B$     | Base Current                                   | 7.5        | 5      | A          |
| $I_{BM}$  | Base Peak Current                              | 15         | 15     | A          |
| $P_{tot}$ | Total Dissipation at $T_c \leq 25^\circ C$     | 150        |        | W          |
| $T_{stg}$ | Storage Temperature                            | -65 to 200 |        | $^\circ C$ |
| $T_j$     | Max. Operating Junction Temperature            | 200        |        | $^\circ C$ |

## 2N3771/2N3772

### THERMAL DATA

|                       |                                  |     |      |      |
|-----------------------|----------------------------------|-----|------|------|
| R <sub>thj-case</sub> | Thermal Resistance Junction-case | Max | 1.17 | °C/W |
|-----------------------|----------------------------------|-----|------|------|

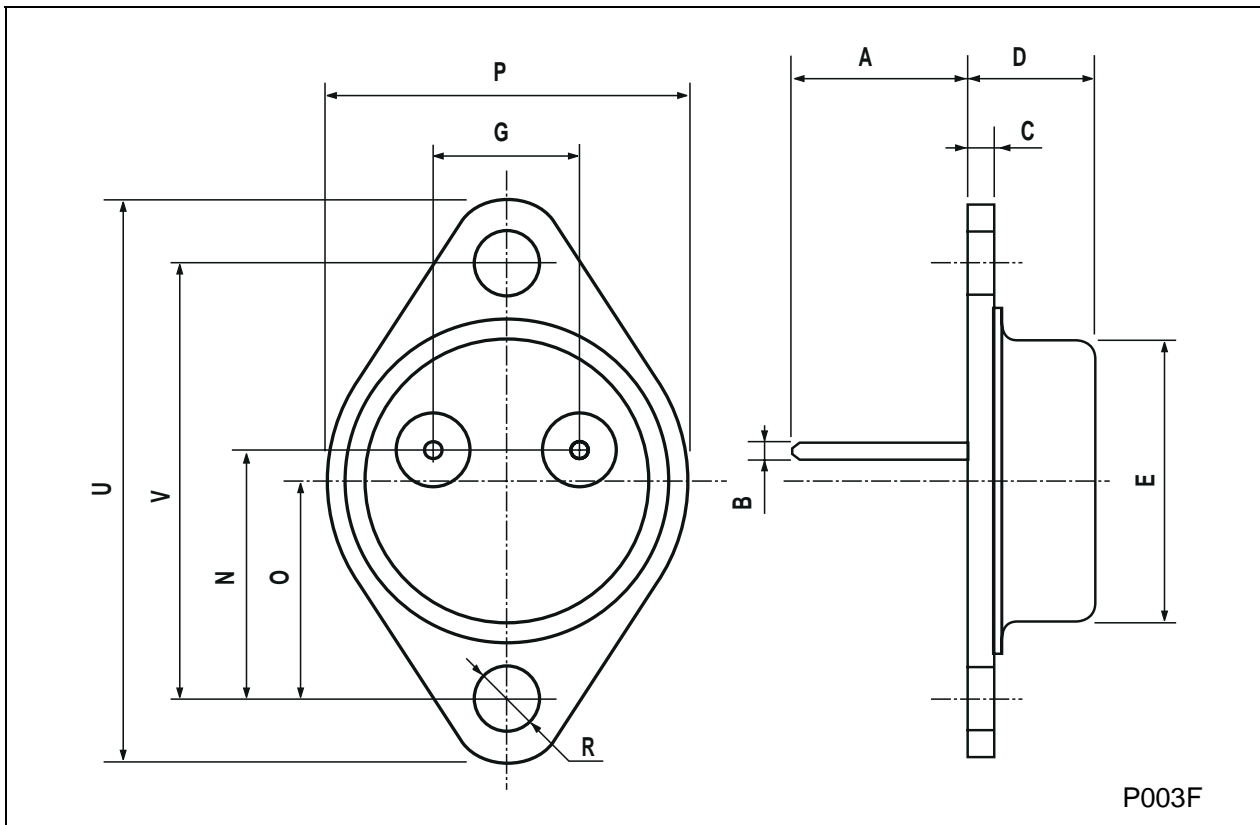
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

| Symbol                 | Parameter  | Test Conditions  | Min.               | Typ. | Max.               | Unit             |
|------------------------|--|--|--------------------|------|--------------------|------------------|
| I <sub>CEV</sub>       | Collector Cut-off Current (V <sub>BE</sub> = -1.5V)            | for <b>2N3771</b> V <sub>CB</sub> = 50 V<br>for <b>2N3772</b> V <sub>CB</sub> = 100 V<br>for all V <sub>CB</sub> = 30 V T <sub>j</sub> = 150 °C  |                    |      | 2<br>5<br>10       | mA<br>mA<br>mA   |
| I <sub>CEO</sub>       | Collector Cut-off Current (I <sub>B</sub> = 0)                 | for <b>2N3771</b> V <sub>CB</sub> = 30 V<br>for <b>2N3772</b> V <sub>CB</sub> = 50 V   |                    |      | 10<br>10           | mA<br>mA         |
| I <sub>CBO</sub>       | Collector Cut-off Current (I <sub>E</sub> = 0)                 | for <b>2N3771</b> V <sub>CB</sub> = 50 V<br>for <b>2N3772</b> V <sub>CB</sub> = 100 V  |                    |      | 4<br>5             | mA<br>mA         |
| I <sub>EBO</sub>       | Emitter Cut-off Current (I <sub>C</sub> = 0)                   | for <b>2N3771</b> V <sub>CB</sub> = 5 V<br>for <b>2N3772</b> V <sub>CB</sub> = 7 V   |                    |      | 5<br>5             | mA<br>mA         |
| V <sub>CEO(sus)*</sub> | Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0)      | I <sub>C</sub> = 0.2 A<br>for <b>2N3771</b><br>for <b>2N3772</b>   | 40<br>60           |      |                    | V<br>V           |
| V <sub>CEV(sus)*</sub> | Collector-Emitter Sustaining Voltage (V <sub>EB</sub> = -1.5V) | I <sub>C</sub> = 0.2 A R <sub>BE</sub> = 100 Ω<br>for <b>2N3771</b><br>for <b>2N3772</b>   | 50<br>80           |      |                    | V<br>V           |
| V <sub>CER(sus)*</sub> | Collector-Emitter Sustaining Voltage (R <sub>BE</sub> = 100 Ω) | I <sub>C</sub> = 0.2 A<br>for <b>2N3771</b><br>for <b>2N3772</b>   | 45<br>70           |      |                    | V<br>V           |
| V <sub>CE(sat)*</sub>  | Collector-Emitter Saturation Voltage                           | for <b>2N3771</b><br>I <sub>C</sub> = 15 A I <sub>B</sub> = 1.5 A<br>I <sub>C</sub> = 30 A I <sub>B</sub> = 6 A<br>for <b>2N3772</b><br>I <sub>C</sub> = 10 A I <sub>B</sub> = 1 A<br>I <sub>C</sub> = 20 A I <sub>B</sub> = 4 A   |                    |      | 2<br>4<br>1.4<br>4 | V<br>V<br>V<br>V |
| V <sub>BE*</sub>       | Base-Emitter Voltage   | for <b>2N3771</b><br>I <sub>C</sub> = 15 A V <sub>CE</sub> = 4 V<br>for <b>2N3772</b><br>I <sub>C</sub> = 10 A V <sub>CE</sub> = 4 V   |                    |      | 2.7<br>2.7         | V<br>V           |
| h <sub>FE*</sub>       | DC Current Gain  | for <b>2N3771</b><br>I <sub>C</sub> = 15 A V <sub>CE</sub> = 4 V<br>I <sub>C</sub> = 30 A V <sub>CE</sub> = 4 V<br>for <b>2N3772</b><br>I <sub>C</sub> = 10 A V <sub>CE</sub> = 4 V<br>I <sub>C</sub> = 20 A V <sub>CE</sub> = 4 V | 15<br>5<br>15<br>5 |      | 60<br>60           |                  |
| h <sub>FE</sub>        | Small Signal Current Gain                                      | I <sub>C</sub> = 1 A V <sub>CE</sub> = 4 V f = 1 KHz   | 40                 |      |                    |                  |
| f <sub>T</sub>         | Transition frequency   | I <sub>C</sub> = 1 A V <sub>CE</sub> = 4 V f = 50 KHz  | 0.2                |      |                    | MHz              |
| I <sub>s/b</sub>       | Second Breakdown Collector Current                             | V <sub>CE</sub> = 25 V t = 1 s (non repetitive)  | 6                  |      |                    | A                |

\* Pulsed: Pulse duration = 300 μs, duty cycle ≤ 2 %

## TO-3 MECHANICAL DATA

| DIM. | mm    |      |       | inch  |      |       |
|------|-------|------|-------|-------|------|-------|
|      | MIN.  | TYP. | MAX.  | MIN.  | TYP. | MAX.  |
| A    | 11.00 |      | 13.10 | 0.433 |      | 0.516 |
| B    | 0.97  |      | 1.15  | 0.038 |      | 0.045 |
| C    | 1.50  |      | 1.65  | 0.059 |      | 0.065 |
| D    | 8.32  |      | 8.92  | 0.327 |      | 0.351 |
| E    | 19.00 |      | 20.00 | 0.748 |      | 0.787 |
| G    | 10.70 |      | 11.10 | 0.421 |      | 0.437 |
| N    | 16.50 |      | 17.20 | 0.649 |      | 0.677 |
| P    | 25.00 |      | 26.00 | 0.984 |      | 1.023 |
| R    | 4.00  |      | 4.09  | 0.157 |      | 0.161 |
| U    | 38.50 |      | 39.30 | 1.515 |      | 1.547 |
| V    | 30.00 |      | 30.30 | 1.187 |      | 1.193 |



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