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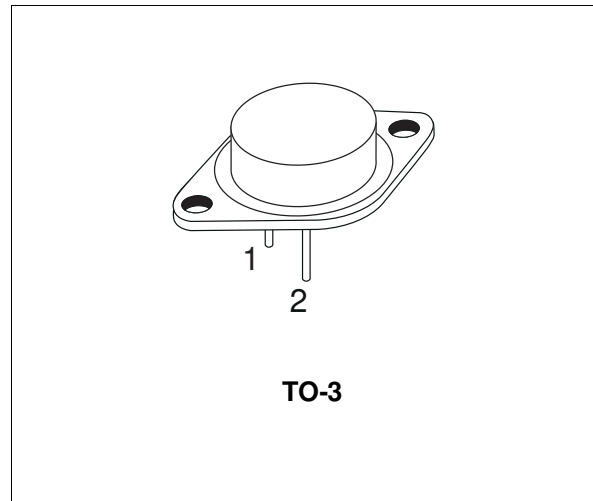


HIGH POWER NPN SILICON TRANSISTOR

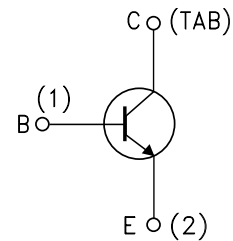
- STMicroelectronics PREFERRED SALESTYPES

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.



INTERNAL SCHEMATIC DIAGRAM



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 | | $^\circ C$ |

2N3771/2N3772

THERMAL DATA

| | | | | |
|-----------------------|----------------------------------|-----|------|------|
| R _{thj-case} | Thermal Resistance Junction-case | Max | 1.17 | °C/W |
|-----------------------|----------------------------------|-----|------|------|

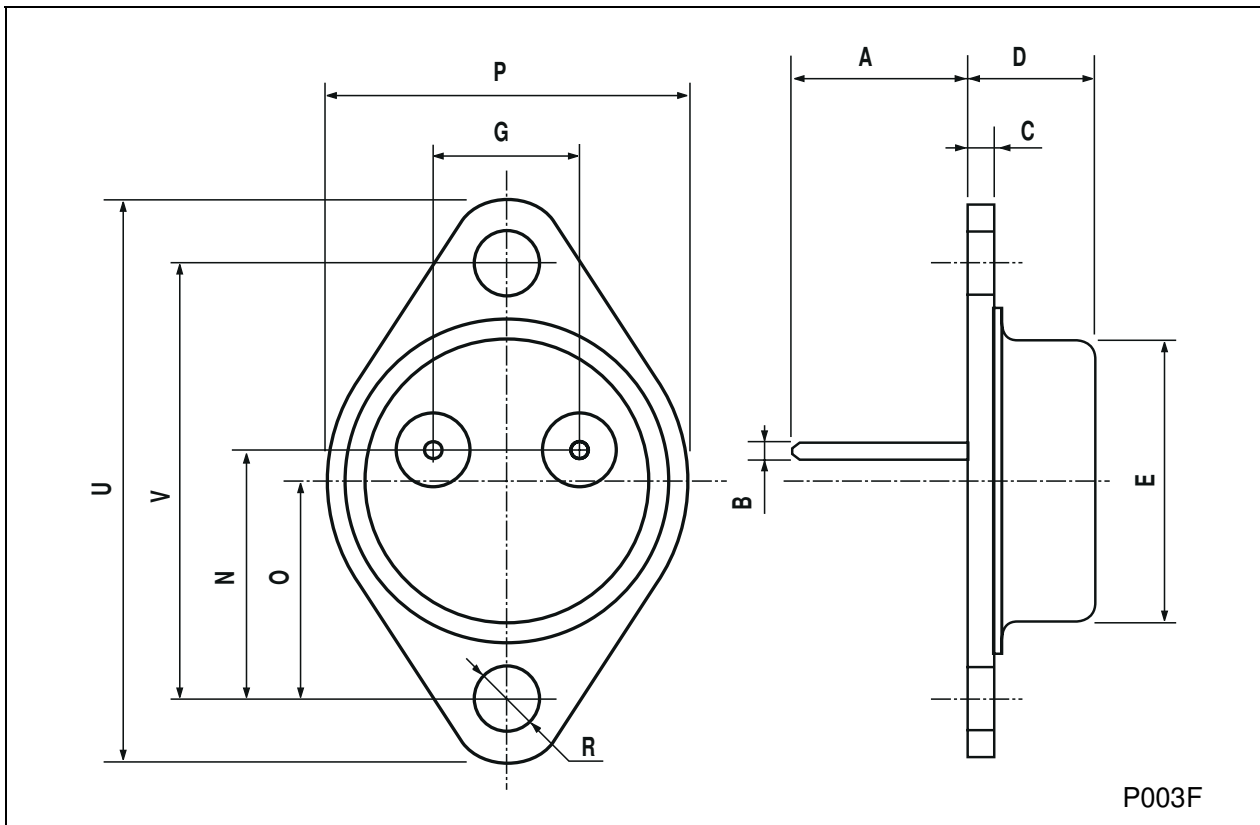
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

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