

HIGH CURRENT SILICON NPN POWER TRANSISTOR

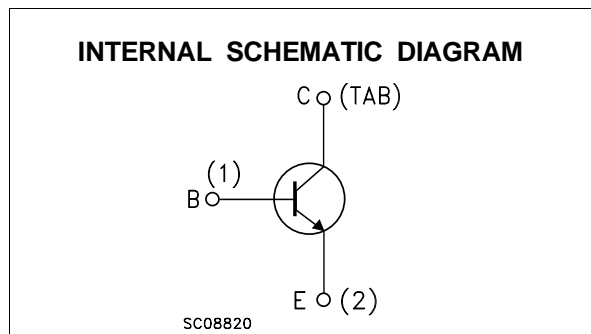
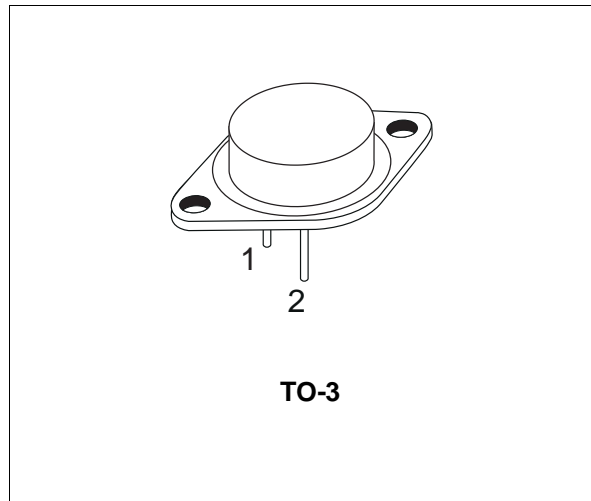
- STMicroelectronics PREFERRED SALESTYPE
- HIGH CURRENT CAPABILITY

APPLICATIONS

- GENERAL PURPOSE SWITCHING AND AMPLIFIER
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

DESCRIPTION

The 2N5886 is a silicon Epitaxial-Base NPN power transistor mounted in Jedec TO-3 metal case. It is intended for use in power linear amplifiers and switching applications.



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|-----------|--|------------|------------------|
| V_{CBO} | Collector-Base Voltage ($I_E = 0$) | 80 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | 80 | V |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | 5 | V |
| I_C | Collector Current | 25 | A |
| I_{CM} | Collector Peak Current | 50 | A |
| I_B | Base Current | 7.5 | A |
| P_{tot} | Total Dissipation at $T_c \leq 25^\circ\text{C}$ | 200 | W |
| T_{stg} | Storage Temperature | -65 to 200 | $^\circ\text{C}$ |
| T_j | Max. Operating Junction Temperature | 200 | $^\circ\text{C}$ |

THERMAL DATA

| | | | | |
|-----------------------|----------------------------------|-----|-------|------|
| R _{thj-case} | Thermal Resistance Junction-case | Max | 0.875 | °C/W |
|-----------------------|----------------------------------|-----|-------|------|

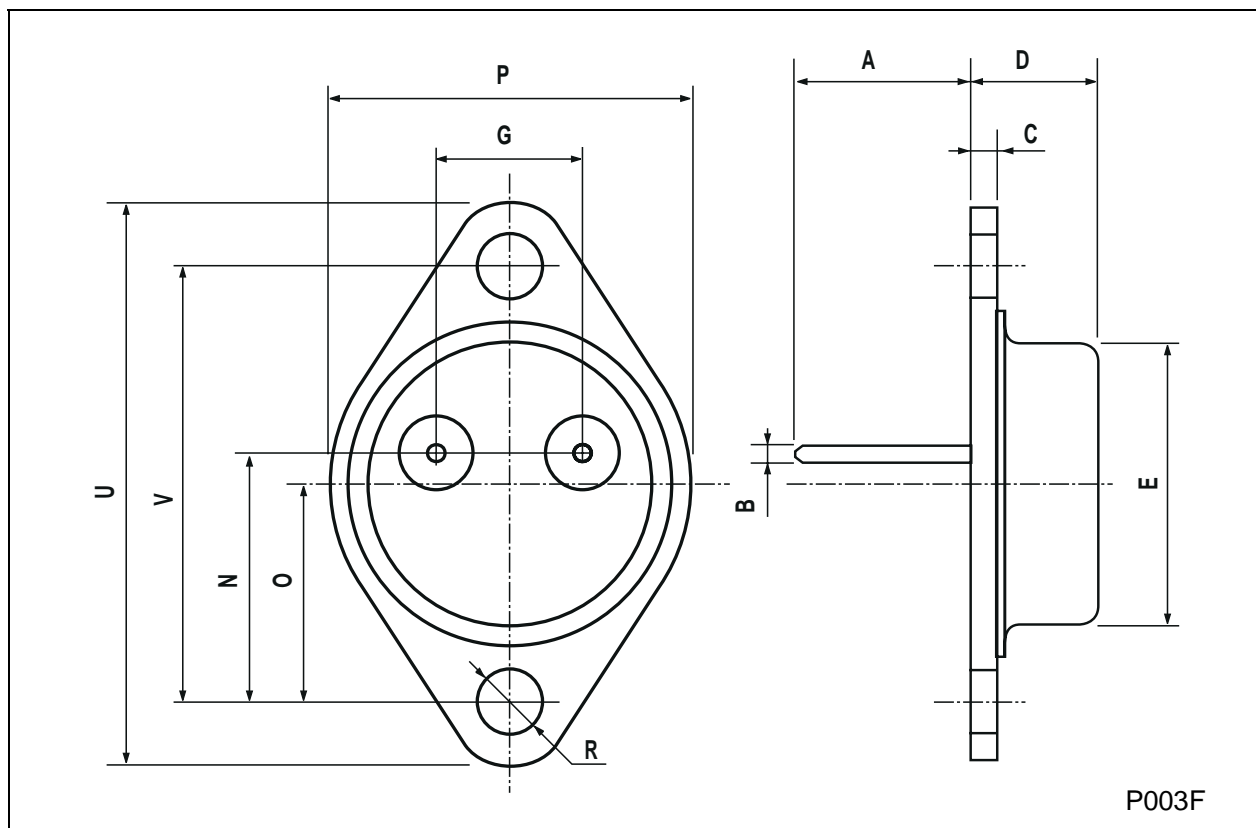
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|--|---|---|---------------|------|-----------------|----------------|
| I _{CEV} | Collector Cut-off Current (V _{BE} = -1.5V) | V _{CE} = 80 V V _{CE} = 80 V T _c = 150 °C | | | 1 10 | mA mA |
| I _{CBO} | Collector Cut-off Current (I _E = 0) | V _{CB} = 80 V | | | 1 | mA |
| I _{CEO} | Collector Cut-off Current (I _B = 0) | V _{CE} = 40 V | | | 2 | mA |
| I _{EBO} | Emitter Cut-off Current (I _C = 0) | V _{EB} = 5 V | | | 1 | mA |
| V _{CEO(sus)*} | Collector-Emitter Sustaining Voltage (I _B = 0) | I _C = 200 mA | 80 | | | V |
| V _{CE(sat)*} | Collector-Emitter Saturation Voltage | I _C = 15 A I _B = 1.5 A I _C = 25 A I _B = 6.25 A | | | 1 4 | V V |
| V _{BE(sat)*} | Base-Emitter Saturation Voltage | I _C = 25 A I _B = 6.25 A | | | 2.5 | V |
| V _{BE*} | Base-Emitter Voltage | I _C = 10 A V _{CE} = 4 V | | | 1.5 | V |
| h _{FE*} | DC Current Gain | I _C = 3 A V _{CE} = 4 V I _C = 10 A V _{CE} = 4 V I _C = 25 A V _{CE} = 4 V | 35 20 4 | | 100 | |
| h _{fe} | Small Signal Current Gain | I _C = 3 A V _{CE} = 4 V f = 1KHz | 20 | | | |
| f _T | Transition frequency | I _C = 1 A V _{CE} = 10 V f = 1 MHz | 4 | | | MHz |
| C _{CBO} | Collector Base Capacitance | I _E = 0 V _{CB} = 10 V f = 1MHz | | | 500 | pF |
| t _r t _s t _f | RESISTIVE LOAD Rise Time Storage Time Fall Time | I _C = 10 A V _{CC} = 30 V I _{B1} = -I _{B2} = 1A | | | 0.7 1 0.8 | μs μs μs |

* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

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 |



Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specification mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a trademark of STMicroelectronics

© 2000 STMicroelectronics – Printed in Italy – All Rights Reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - China - Finland - France - Germany - Hong Kong - India - Italy - Japan - Malaysia - Malta - Morocco -
Singapore - Spain - Sweden - Switzerland - United Kingdom - U.S.A.

<http://www.st.com>