

PNP MEDIUM POWER TRANSISTOR

Features

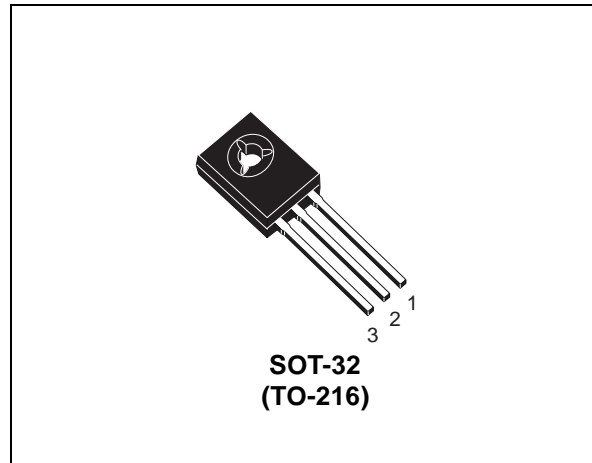
- HIGH CURRENT
- LOW SATURATION VOLTAGE
- COMPLEMENT TO 2SD882

Applications

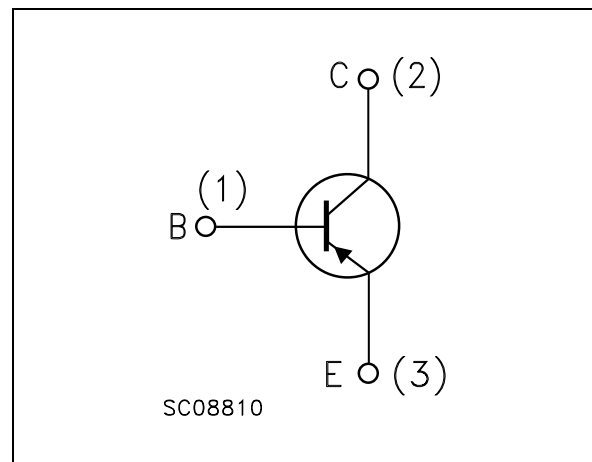
- VOLTAGE REGULATION
- RELAY DRIVER
- GENERIC SWITCH
- AUDIO POWER AMPLIFIER
- DC-DC CONVERTER

Description

The device is a PNP transistor manufactured by using planar Technology resulting in rugged high performance devices. The complementary PNP type is 2SD882.



Internal Schematic Diagram



Order Codes

| Part Number | Marking | Package | Packing |
|-------------|---------|---------|---------|
| 2SB772 | B772 | SOT-32 | TUBE |

1 Absolute Maximum Ratings

Table 1. Absolute Maximum Rating

| Symbol | Parameter | Value | Unit |
|-----------|---|------------|------------------|
| V_{CBO} | Collector-Base Voltage ($I_E = 0$) | -60 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | -30 | V |
| V_{EBO} | Collector-Base Voltage ($I_C = 0$) | -5 | V |
| I_C | Collector Current | -3 | A |
| I_{CM} | Collector Peak Current ($t_p < 5\text{ms}$) | -6 | A |
| I_B | Base Current | -1 | A |
| I_{BM} | Base Peak Current ($t_p < 5\text{ms}$) | -2 | A |
| P_{TOT} | Total dissipation at $T_c = 25^\circ\text{C}$ | -12.5 | W |
| T_{STG} | Storage Temperature | -65 to 150 | $^\circ\text{C}$ |
| T_J | Max. Operating Junction Temperature | 150 | $^\circ\text{C}$ |

Table 2. Thermal Data

| Symbol | Parameter | Value | Unit |
|----------------|---|-------|--------------------|
| $R_{thJ-case}$ | Thermal Resistance Junction-Case Max | 10 | $^\circ\text{C/W}$ |

2 Electrical Characteristics

Table 3. Electrical Characteristics ($T_{CASE} = 25^{\circ}C$; unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---------------------------------|--|---|-----------------|------|----------------------|-------------|
| I_{CES} | Collector Cut-off Current ($V_{BE} = 0$) | $V_{CE} = -60$ V | | | -10 | μA |
| I_{CEO} | Collector Cut-off Current ($I_B = 0$) | $V_{CE} = -30$ V | | | -100 | μA |
| I_{EBO} | Emitter Cut-off Current ($I_C = 0$) | $V_{EB} = -5$ V | | | -10 | μA |
| $V_{(BR)CEO}$ <i>Note: 1</i> | Collector-Emitter Breakdown Voltage ($I_B = 0$) | $I_C = -10$ mA | -30 | | | V |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage ($I_E = 0$) | $I_C = -100$ μA | -60 | | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage ($I_C = 0$) | $I_E = -100$ μA | -5 | | | V |
| $V_{CE(sat)}$ <i>Note: 1</i> | Collector-Emitter Saturation Voltage | $I_C = -1$ A $I_B = -50$ mA $I_C = -2$ A $I_B = -100$ mA $I_C = -3$ A $I_B = -150$ mA | | | -0.4 -0.7 -1.1 | V V V |
| $V_{BE(sat)}$ <i>Note: 1</i> | Base-Emitter Saturation Voltage | $I_C = -2$ A $I_B = -100$ mA | | | -1.2 | V |
| hFE | DC Current Gain | $I_C = -100$ mA $V_{CE} = -2$ V $I_C = -1$ A $V_{CE} = -2$ V $I_C = -3$ A $V_{CE} = -2$ V | 100 80 30 | | 300 | |
| fT | Transition Frequency | $I_C = -0.1$ A $V_{CE} = -10$ V | | 100 | | MHz |

Note: 1 Pulsed duration = 300 μs , duty cycle $\leq 1.5\%$.

2.1 Typical characteristics

Figure 1. Reverse biased area

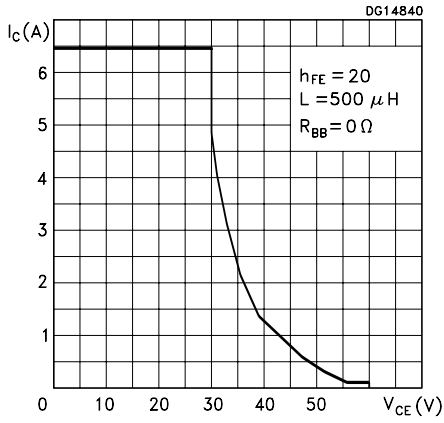


Figure 2. DC current gain

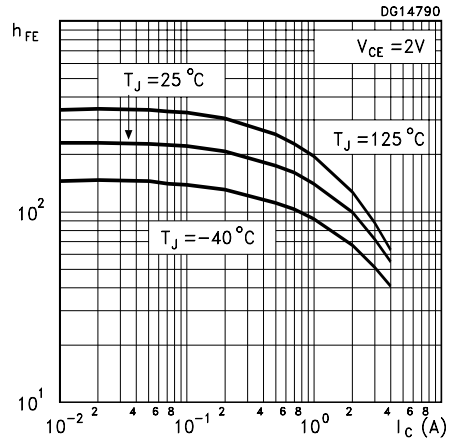
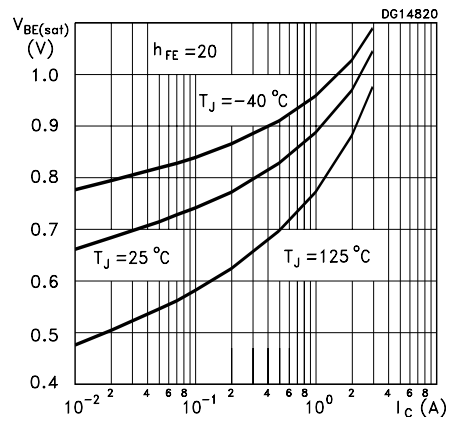
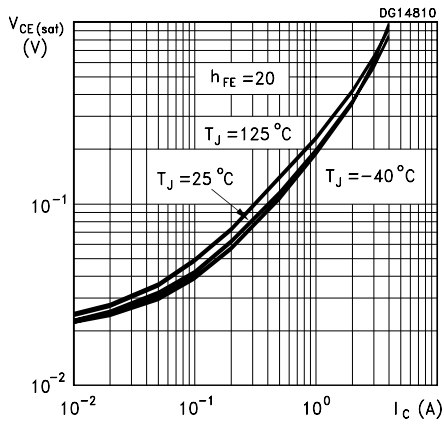


Figure 3. Collector-emitter saturation voltage Figure 4. Base-emitter saturation voltage

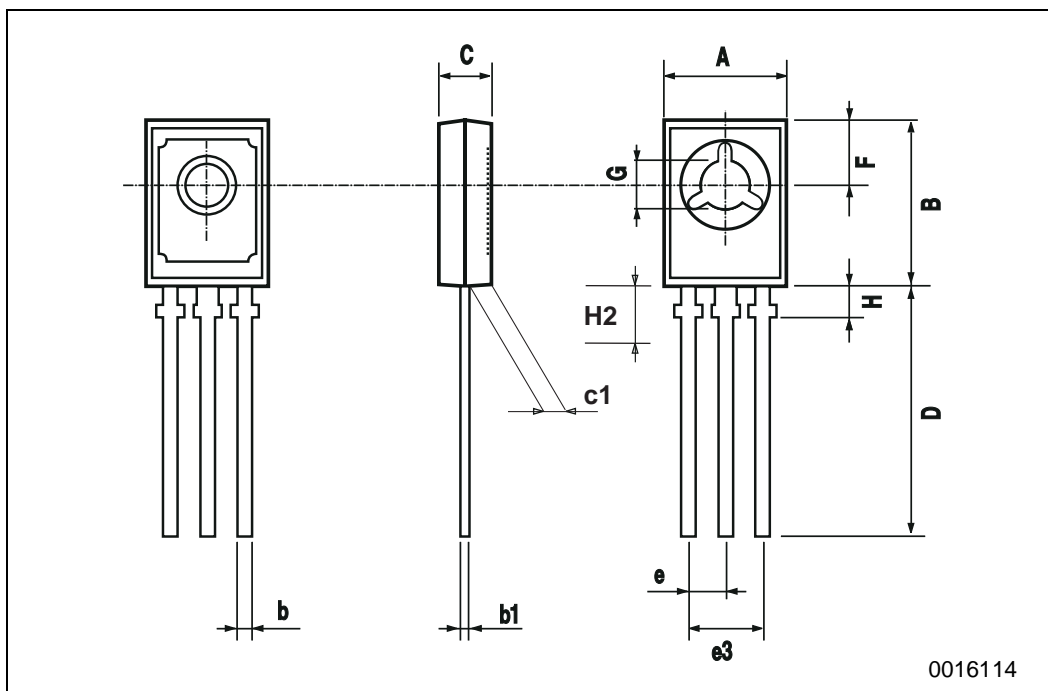


3 Package Mechanical Data

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect . The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: www.st.com

SOT-32 (TO-126) MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|------|------|------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 7.4 | | 7.8 | 0.291 | | 0.307 |
| B | 10.5 | | 10.8 | 0.413 | | 0.445 |
| b | 0.7 | | 0.9 | 0.028 | | 0.035 |
| b1 | 0.49 | | 0.75 | 0.019 | | 0.030 |
| C | 2.4 | | 2.7 | 0.040 | | 0.106 |
| c1 | 1.0 | | 1.3 | 0.039 | | 0.050 |
| D | 15.4 | | 16.0 | 0.606 | | 0.629 |
| e | | 2.2 | | | 0.087 | |
| e3 | 4.15 | | 4.65 | 0.163 | | 0.183 |
| F | | 3.8 | | | 0.150 | |
| G | 3 | | 3.2 | 0.118 | | 0.126 |
| H | | | 2.54 | | | 0.100 |
| H2 | | 2.15 | | | 0.084 | |



4 Revision History

| Date | Revision | Changes |
|-------------|----------|-----------------------------|
| 09-Sep-2005 | 2 | Final version. New template |

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. Specifications 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 registered trademark of STMicroelectronics.
All other names are the property of their respective owners

© 2005 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan -
Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com