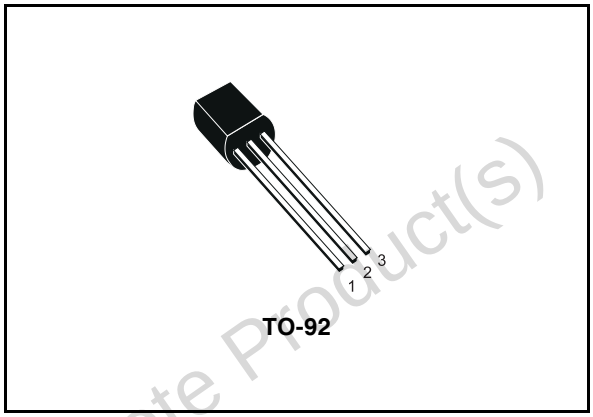
# STX817A

## PNP Medium power transistor

## General features

- TO-92 package suitable for through-hole PCB assembly
- In compliance with the 2002/93/EC European Directive



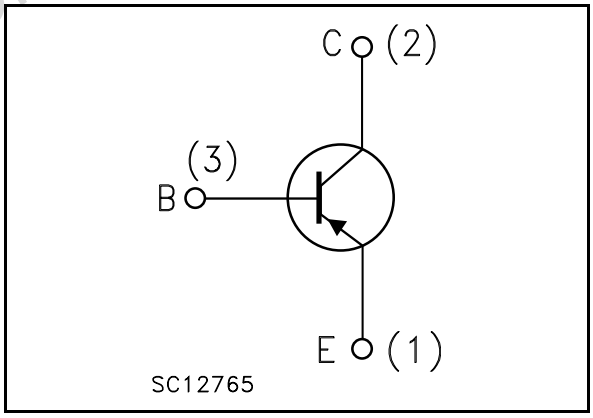

## Applications

- Voltage regulation
- Relay driver
- Generic switch

## Description

The STX817A is a PNP transistor manufactured using Planar Technology resulting in rugged high performance devices.

## Internal schematic diagram






## Order codes

| Part Number | Marking | Package | Packing |
|---|---|---|---|
| STX817A | X817A | TO-92 | Bulk |
| STX817A-AP | X817A | TO-92 AP | Ammopack |

# Contents

# 1 Electrical ratings

**Table 1. Absolute maximum rating**

| 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 | -1.5 | A |
| $I_{CM}$ | Collector peak current ($t_P$ < 5ms) | -2 | A |
| $I_B$ | Base current | -0.3 | A |
| $I_{BM}$ | Base peak current ($t_P$ < 5ms) | -0.6 | A |
| $P_{tot}$ | Total dissipation at $T_{amb}$ = 25°C | 0.9 | W |
| $T_{stg}$ | Storage temperature | -65 to 150 | °C |
| $T_J$ | Max. operating junction temperature | 150 | °C |

**Table 2. Thermal data**

| Symbol | Parameter | | Value | Unit |
|---|---|---|---|---|
| $R_{thj\text{-}amb}$ | Thermal resistance junction-amb | max | 139 | °C/W |

# 2 Electrical characteristics

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

**Table 3. Electrical characteristics**

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| $I_{CES}$ | Collector cut-off current ($V_{BE}$ =0) | $V_{CE}$ =-80V | | | -500 | µA |
| $I_{CEO}$ | Collector cut-off current ($I_B$ =0) | $V_{CE}$ =-80V | | | -1 | mA |
| $I_{EBO}$ | Emitter cut-off current ($I_C$ =0) | $V_{EB}$ =-5V | | | -100 | µA |
| $V_{CEO(sus)}$ (1) | Collector-emitter sustaining voltage ($I_B$ =0) | $I_C$ =-10mA | -80 | | | V |
| $V_{CE(sat)}$ (1) | Collector-emitter saturation voltage | $I_C$ =-100mA $I_B$ =-10mA<br>$I_C$ =-1A $I_B$ =-100mA | | | -0.25<br>-0.5 | V<br>V |
| $V_{BE(sat)}$ (1) | Base-emitter saturation voltage | $I_C$ =-100mA $I_B$ =-10mA<br>$I_C$ =-1A $I_B$ =-100mA | | | -1<br>-1.1 | V<br>V |
| $h_{FE}$ (1) | DC current gain | $I_C$ =-100mA $V_{CE}$ =-2V<br>$I_C$ =-500mA $V_{CE}$ =-2V<br>$I_C$ =-1A $V_{CE}$ =- 2V | 140<br>80<br>25 | | | |
| $f_t$ | Transition frequency | $I_C$ =-0.1A $V_{CE}$ =-10V | | 50 | | MHz |

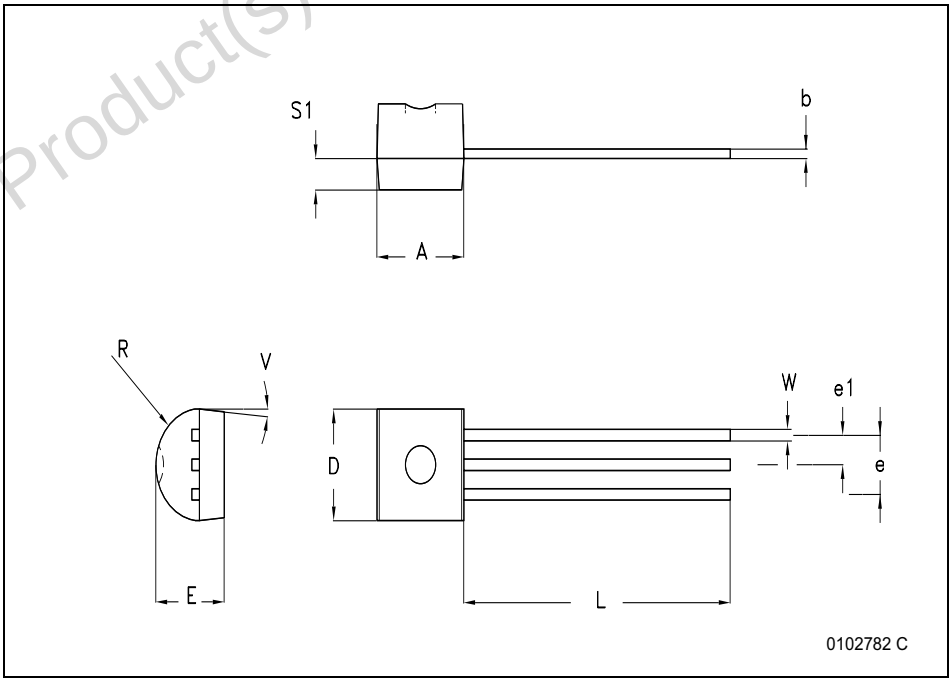
Note (1) Pulsed duration = 300µs, duty cycle ≤1.5%

# 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

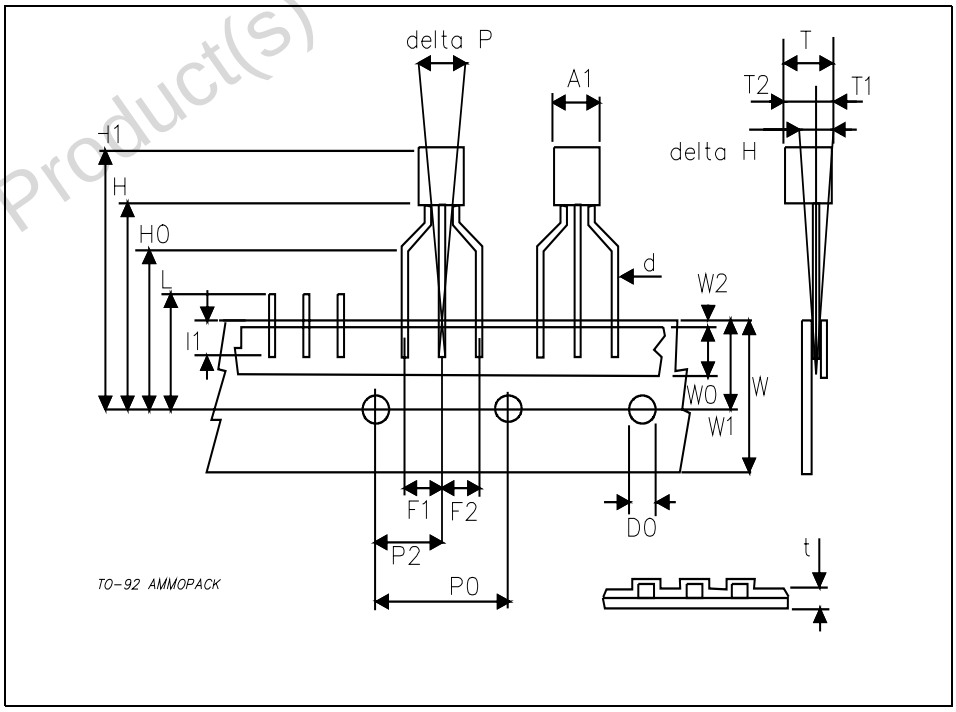
## TO-92 BULK SHIPMENT MECHANICAL DATA

| DIM. | mm. | | |
|---|---|---|---|
| | MIN. | TYP | MAX. |
| A | 4.32 | | 4.95 |
| b | 0.36 | | 0.51 |
| D | 4.45 | | 4.95 |
| E | 3.30 | | 3.94 |
| e | 2.41 | | 2.67 |
| e1 | 1.14 | | 1.40 |
| L | 12.70 | | 15.49 |
| R | 2.16 | | 2.41 |
| S1 | 0.92 | | 1.52 |
| W | 0.41 | | 0.56 |
| V | | 5 $^{o}$ | |



## TO-92 AMMOPACK SHIPMENT (Suffix"-AP") MECHANICAL DATA

| DIM. | mm. | | |
|---|---|---|---|
| | MIN. | TYP | MAX. |
| A1 | | | 4.80 |
| T | | | 3.80 |
| T1 | | | 1.60 |
| T2 | | | 2.30 |
| d | | | 0.48 |
| P0 | 12.50 | 12.70 | 12.90 |
| P2 | 5.65 | 6.35 | 7.05 |
| F1,F2 | 2.44 | 2.54 | 2.94 |
| delta H | -2.00 | | 2.00 |
| W | 17.50 | 18.00 | 19.00 |
| W0 | 5.70 | 6.00 | 6.30 |
| W1 | 8.50 | 9.00 | 9.25 |
| W2 | | | 0.50 |
| H | 18.50 | | 20.50 |
| H0 | 15.50 | 16.00 | 16.50 |
| H1 | | | 25.00 |
| D0 | 3.80 | 4.00 | 4.20 |
| t | | | 0.90 |
| L | | | 11.00 |
| I1 | 3.00 | | |
| delta P | -1.00 | | 1.00 |



# 4 Revision history

**Table 4. Revision history**

| Date | Revision | Changes |
|---|---|---|
| 06-July-2004 | 1 | Initial release. |
| 22-Jan-2006 | 2 | The minimum hfe value has been modified on page 4. |

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