

PXTA92

300 V, 100 mA PNP high-voltage transistor

Rev. 6 — 27 September 2011

Product data sheet

1. Product profile

1.1 General description

PNP high-voltage transistor in a medium power and flat lead SOT89 (SC-62) Surface-Mounted Device (SMD) plastic package.

NPN complement: PXTA42.

1.2 Features and benefits

- High breakdown voltage
- AEC-Q101 qualified
- Medium power and flat lead SMD plastic package

1.3 Applications

- Electronic ballast for fluorescent lighting
- LED driver for LED chain module
- High Intensity Discharge (HID) front lighting
- Automotive motor management
- Hook switch for wired telecom
- Switch Mode Power Supply (SMPS)

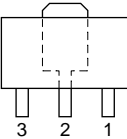
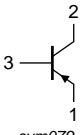
1.4 Quick reference data

Table 1. Quick reference data

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|-----------|---------------------------|-------------------------------------|-----|-----|------|------|
| V_{CEO} | collector-emitter voltage | open base | - | - | -300 | V |
| I_C | collector current | | - | - | -100 | mA |
| I_{CM} | peak collector current | | - | - | -200 | mA |
| h_{FE} | DC current gain | $V_{CE} = -10$ V; $I_C = -10$ mA | 40 | - | - | |

2. Pinning information

Table 2. Pinning

| Pin | Description | Simplified outline | Graphic symbol |
|-----|-------------|---|---|
| 1 | emitter |  |  sym079 |
| 2 | collector | | |
| 3 | base | | |

3. Ordering information

Table 3. Ordering information

| Type number | Package | | |
|-------------|---------|--|---------|
| | Name | Description | Version |
| PXTA92 | SC-62 | plastic surface-mounted package; exposed die pad for good heat transfer; 3 leads | SOT89 |

4. Marking

Table 4. Marking codes

| Type number | Marking code ^[1] |
|-------------|-----------------------------|
| PXTA92 | *2D |

[1] * = placeholder for manufacturing site code

5. Limiting values

Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

| Symbol | Parameter | Conditions | Min | Max | Unit |
|-----------|---------------------------|-----------------------------|------------------|------|------|
| V_{CBO} | collector-base voltage | open emitter | - | -300 | V |
| V_{CEO} | collector-emitter voltage | open base | - | -300 | V |
| V_{EBO} | emitter-base voltage | open collector | - | -5 | V |
| I_C | collector current | | - | -100 | mA |
| I_{CM} | peak collector current | | - | -200 | mA |
| I_{BM} | peak base current | | - | -100 | mA |
| P_{tot} | total power dissipation | $T_{amb} \leq 25\text{ °C}$ | ^[1] - | 1300 | mW |
| T_j | junction temperature | | - | 150 | °C |
| T_{amb} | ambient temperature | | -65 | +150 | °C |
| T_{stg} | storage temperature | | -65 | +150 | °C |

[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated, mounting pad for collector 6 cm².

6. Thermal characteristics

Table 6. Thermal characteristics

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|----------------|--|-------------|-----|-----|-----|------|
| $R_{th(j-a)}$ | thermal resistance from junction to ambient | in free air | [1] | - | 96 | K/W |
| $R_{th(j-sp)}$ | thermal resistance from junction to solder point | | - | - | 16 | K/W |

[1] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for collector 6 cm².

7. Characteristics

Table 7. Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|-------------|--------------------------------------|--|-----|-----|------|------|
| I_{CBO} | collector-base cut-off current | $V_{CB} = -200\text{ V}$; $I_E = 0\text{ A}$ | - | - | -250 | nA |
| I_{EBO} | emitter-base cut-off current | $V_{EB} = -3\text{ V}$; $I_C = 0\text{ A}$ | - | - | -100 | nA |
| h_{FE} | DC current gain | $V_{CE} = -10\text{ V}$; $I_C = -1\text{ mA}$ | 25 | - | - | |
| | | $V_{CE} = -10\text{ V}$; $I_C = -10\text{ mA}$ | 40 | - | - | |
| | | $V_{CE} = -10\text{ V}$; $I_C = -30\text{ mA}$ | 25 | - | - | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = -20\text{ mA}$; $I_B = -2\text{ mA}$ | - | - | -500 | mV |
| V_{BEsat} | base-emitter saturation voltage | $I_C = -20\text{ mA}$; $I_B = -2\text{ mA}$ | - | - | -900 | mV |
| f_T | transition frequency | $V_{CE} = -20\text{ V}$; $I_C = -10\text{ mA}$; $f = 100\text{ MHz}$ | 50 | - | - | MHz |
| C_C | collector capacitance | $V_{CB} = -20\text{ V}$; $I_E = I_E = 0\text{ A}$; $f = 1\text{ MHz}$ | - | - | 6 | pF |

8. Test information

8.1 Quality information

This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard Q101 - *Stress test qualification for discrete semiconductors*, and is suitable for use in automotive applications.

9. Package outline

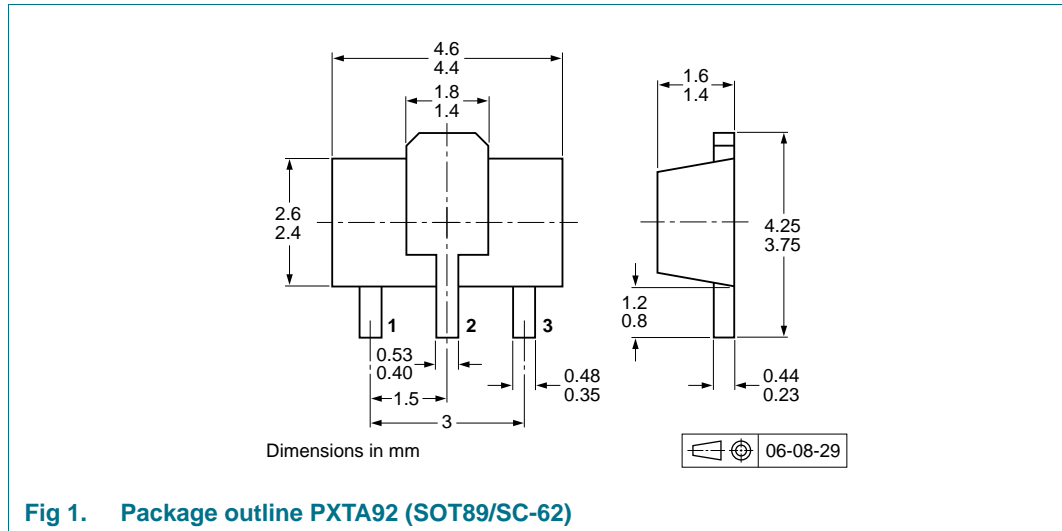


Fig 1. Package outline PXTA92 (SOT89/SC-62)

10. Packing information

Table 8. Packing methods

The indicated -xxx are the last three digits of the 12NC ordering code.^[1]

| Type number | Package | Description | Packing quantity | |
|-------------|---------|-------------------------------------|---------------------|------|
| | | | 1000 | 4000 |
| PXTA92 | SOT89 | 8 mm pitch, 12 mm tape and reel; T1 | ^[2] -115 | -135 |
| | | 8 mm pitch, 12 mm tape and reel; T3 | ^[3] -120 | - |

[1] For further information and the availability of packing methods, see [Section 14](#).

[2] T1: normal taping

[3] T3: 90° taping

12. Revision history

Table 9. Revision history

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|-------------------|-------------------------------|-----------------------|---------------|-------------------|
| PXTA92 v.6 | 20110927 | Product data sheet | - | PXTA92 v.5 |
| Modifications: | • Descriptive title corrected | | | |
| PXTA92 v.5 | 20110711 | Product data sheet | - | PXTA92 v.4 |
| PXTA92 v.4 | 20041209 | Product specification | - | PXTA92 v.3 |
| PXTA92 v.3 | 19990429 | Product specification | - | PXTA92_93_CNV v.2 |
| PXTA92_93_CNV v.2 | 19970620 | Product specification | - | - |

13. Legal information

13.1 Data sheet status

| Document status ^{[1][2]} | Product status ^[3] | Definition |
|-----------------------------------|-------------------------------|---|
| Objective [short] data sheet | Development | This document contains data from the objective specification for product development. |
| Preliminary [short] data sheet | Qualification | This document contains data from the preliminary specification. |
| Product [short] data sheet | Production | This document contains the product specification. |

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

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