

2PC4617

NPN general-purpose transistor

Rev. 05 — 17 November 2009

Product data sheet

1. Product profile

1.1 General description

NPN transistor in a SOT416 (SC-75) plastic package. The PNP complement is 2PA1774.

1.2 Features

- Low current (max. 150 mA)
- Low voltage (max. 50 V)

1.3 Applications

- General-purpose switching and amplification in communication, Electronic Data Processing (EDP) and consumer applications.

2. Pinning information

Table 1. Pinning

| Pin | Description | Simplified outline | Symbol |
|-----|-------------|--------------------|--------|
| 1 | base | | |
| 2 | emitter | | |
| 3 | collector | | |

3. Ordering information

Table 2. Ordering information

| Type number | Package | | |
|-------------|---------|--|---------|
| | Name | Description | Version |
| 2PC4617Q | SC-75 | plastic surface mounted package; 3 leads | SOT416 |
| 2PC4617R | | | |
| 2PC4617S | | | |

4. Marking

Table 3. Marking codes

| Type number | Marking code |
|-------------|--------------|
| 2PC4617Q | ZQ |
| 2PC4617R | ZR |
| 2PC4617S | ZS |

5. Limiting values

Table 4. 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 | - | 60 | V |
| V_{CEO} | collector-emitter voltage | open base | - | 50 | V |
| V_{EBO} | emitter-base voltage | open collector | - | 7 | V |
| I_C | collector current (DC) | | - | 150 | mA |
| I_{CM} | peak collector current | | - | 200 | mA |
| I_{BM} | peak base current | | - | 200 | mA |
| P_{tot} | total power dissipation | $T_{amb} \leq 25\text{ °C}$ | [1] | 150 | mW |
| T_{stg} | storage temperature | | -65 | +150 | °C |
| T_j | junction temperature | | - | 150 | °C |
| T_{amb} | ambient temperature | | -65 | +150 | °C |

[1] Transistor mounted on an FR4 printed-circuit board, single-sided copper, tin-plated and standard footprint.

6. Thermal characteristics

Table 5. Thermal characteristics

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---------------|---|------------|-----|-----|-----|------|
| $R_{th(j-a)}$ | thermal resistance from junction to ambient | | [1] | - | 833 | K/W |

[1] Transistor mounted on an FR4 printed-circuit board, single-sided copper, tin-plated and standard footprint.

7. Characteristics

Table 6. 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 | $I_E = 0\text{ A}$; $V_{CB} = 30\text{ V}$ | - | - | 100 | nA |
| | | $I_E = 0\text{ A}$; $V_{CB} = 30\text{ V}$; $T_j = 150\text{ }^{\circ}\text{C}$ | - | - | 5 | μA |
| I_{EBO} | emitter-base cut-off current | $I_C = 0\text{ A}$; $V_{EB} = 4\text{ V}$ | - | - | 100 | nA |
| h_{FE} | DC current gain | $I_C = 1\text{ mA}$; $V_{CE} = 6\text{ V}$ | [1] | | | |
| | | 2PC4617Q | 120 | - | 270 | |
| | | 2PC4617R | 180 | - | 390 | |
| | | 2PC4617S | 270 | - | 560 | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = 50\text{ mA}$; $I_B = 5\text{ mA}$ | [1] | - | 200 | mV |
| C_c | collector capacitance | $I_E = i_e = 0\text{ A}$; $V_{CB} = 12\text{ V}$; $f = 1\text{ MHz}$ | - | - | 1.5 | pF |
| f_T | transition frequency | $I_C = 2\text{ mA}$; $V_{CE} = 12\text{ V}$; $f = 100\text{ MHz}$ | [1] | 100 | - | MHz |

[1] Pulse test: $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$.

8. Package outline

Plastic surface-mounted package; 3 leads

SOT416

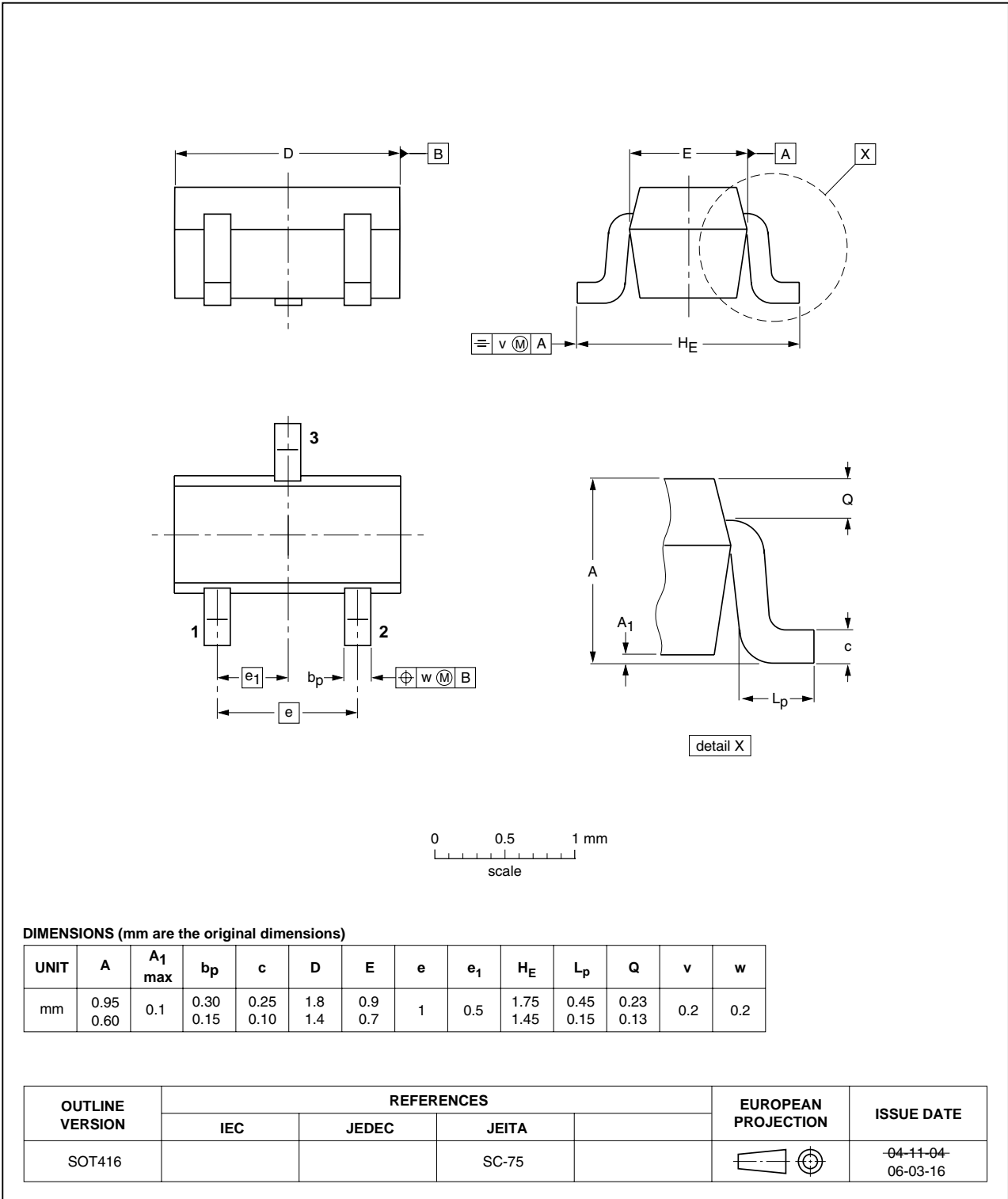


Fig 1. Package outline SOT416 (SC-75)

9. Revision history

Table 7. Revision history

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|----------------|--------------|--|---------------|------------|
| 2PC4617_5 | 20091117 | Product data sheet | - | 2PC4617_4 |
| Modifications: | | <ul style="list-style-type: none">This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content.Figure 1 "Package outline SOT416 (SC-75)"; updated | | |
| 2PC4617_4 | 20041125 | Product data sheet | - | 2PC4617_3 |
| 2PC4617_3 | 19990521 | Product specification | - | 2PC4617_2 |
| 2PC4617_2 | 19980721 | Product specification | - | 2PC4617_1 |
| 2PC4617_1 | 19970709 | Product specification | - | - |

10. Legal information

10.1 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. |
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[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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