1. Product profile

1.1 General description
PNP transistor in a SOT323 (SC-70) plastic package. The NPN complement is 2PC4081.

1.2 Features
- Low current (max. 150 mA)
- Low voltage (max. 50 V)
- Low collector capacitance (typ. 2.5 pF)

1.3 Applications
- General-purpose switching and amplification

2. Pinning information

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
<th>Simplified outline</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>base</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>emitter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>collector</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Ordering information

<table>
<thead>
<tr>
<th>Type number</th>
<th>Package</th>
<th>Description</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>2PA1576Q</td>
<td>SC-70</td>
<td>plastic surface mounted package; 3 leads</td>
<td>SOT323</td>
</tr>
<tr>
<td>2PA1576R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2PA1576S</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. Marking

Table 3. Marking codes

<table>
<thead>
<tr>
<th>Type number</th>
<th>Marking code([1])</th>
</tr>
</thead>
<tbody>
<tr>
<td>2PA1576Q</td>
<td>F*Q</td>
</tr>
<tr>
<td>2PA1576R</td>
<td>F*R</td>
</tr>
<tr>
<td>2PA1576S</td>
<td>F*S</td>
</tr>
</tbody>
</table>

\([1]\) * = -: made in Hong Kong  
* = t: made in Malaysia

5. Limiting values

Table 4. Limiting values  
In accordance with the Absolute Maximum Rating System (IEC 60134).

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Conditions</th>
<th>Min</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_{CBO}</td>
<td>collector-base voltage</td>
<td>open emitter</td>
<td>-</td>
<td>-60</td>
<td>V</td>
</tr>
<tr>
<td>V_{CEO}</td>
<td>collector-emitter voltage</td>
<td>open base</td>
<td>-</td>
<td>-50</td>
<td>V</td>
</tr>
<tr>
<td>V_{EBO}</td>
<td>emitter-base voltage</td>
<td>open collector</td>
<td>-</td>
<td>-6</td>
<td>V</td>
</tr>
<tr>
<td>(I_C)</td>
<td>collector current (DC)</td>
<td></td>
<td>-</td>
<td>-150</td>
<td>mA</td>
</tr>
<tr>
<td>(I_{CM})</td>
<td>peak collector current</td>
<td></td>
<td>-</td>
<td>-200</td>
<td>mA</td>
</tr>
<tr>
<td>(I_{BM})</td>
<td>peak base current</td>
<td></td>
<td>-</td>
<td>-200</td>
<td>mA</td>
</tr>
<tr>
<td>(P_{tot})</td>
<td>total power dissipation</td>
<td>(T_{amb} \leq 25^\circ C)</td>
<td>([1])</td>
<td>-</td>
<td>200</td>
</tr>
<tr>
<td>(T_{stg})</td>
<td>storage temperature</td>
<td></td>
<td>-65</td>
<td>+150</td>
<td>(^\circ C)</td>
</tr>
<tr>
<td>(T_j)</td>
<td>junction temperature</td>
<td></td>
<td>-</td>
<td>150</td>
<td>(^\circ C)</td>
</tr>
<tr>
<td>(T_{amb})</td>
<td>ambient temperature</td>
<td></td>
<td>-65</td>
<td>+150</td>
<td>(^\circ C)</td>
</tr>
</tbody>
</table>

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

6. Thermal characteristics

Table 5. Thermal characteristics

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Conditions</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>(R_{th(j-a)})</td>
<td>thermal resistance from junction to ambient</td>
<td></td>
<td>([1])</td>
<td>-</td>
<td>-</td>
<td>625</td>
</tr>
</tbody>
</table>

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

Table 6. Characteristics

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Conditions</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICBO</td>
<td>collector-base cut-off current</td>
<td>IE = 0 A; VCB = −30 V</td>
<td></td>
<td></td>
<td>−100</td>
<td>nA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IE = 0 A; VCB = −30 V; TJ = 150 °C</td>
<td></td>
<td></td>
<td>−5</td>
<td>μA</td>
</tr>
<tr>
<td>IEOB</td>
<td>emitter-base cut-off current</td>
<td>IC = 0 A; VEB = −4 V</td>
<td></td>
<td></td>
<td>−100</td>
<td>nA</td>
</tr>
<tr>
<td>hFE</td>
<td>DC current gain</td>
<td>IC = −1 mA; VCE = −6 V</td>
<td>120</td>
<td></td>
<td>270</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2PA1576Q</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2PA1576R</td>
<td>180</td>
<td></td>
<td>390</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2PA1576S</td>
<td>270</td>
<td></td>
<td>560</td>
<td></td>
</tr>
<tr>
<td>VCEsat</td>
<td>collector-emitter saturation voltage</td>
<td>IC = −50 mA; IE = −5 mA</td>
<td></td>
<td></td>
<td>−500</td>
<td>mV</td>
</tr>
<tr>
<td>CC</td>
<td>collector capacitance</td>
<td>IE = iE = 0 A; VCB = −12 V; f = 1 MHz</td>
<td></td>
<td>2.5</td>
<td>3.5</td>
<td>pF</td>
</tr>
<tr>
<td>fT</td>
<td>transition frequency</td>
<td>IC = −2 mA; VCE = −12 V; f = 100 MHz</td>
<td>100</td>
<td></td>
<td></td>
<td>MHz</td>
</tr>
</tbody>
</table>

[1] Pulse test: tP ≤ 300 μs; δ ≤ 0.02.
8. Package outline

Plastic surface-mounted package; 3 leads

### Dimensions (mm are the original dimensions)

<table>
<thead>
<tr>
<th>UNIT</th>
<th>A</th>
<th>A&lt;sub&gt;1&lt;/sub&gt; max</th>
<th>b&lt;sub&gt;p&lt;/sub&gt;</th>
<th>c</th>
<th>D</th>
<th>E</th>
<th>e</th>
<th>e&lt;sub&gt;1&lt;/sub&gt;</th>
<th>H&lt;sub&gt;E&lt;/sub&gt;</th>
<th>L&lt;sub&gt;p&lt;/sub&gt;</th>
<th>Q</th>
<th>v</th>
<th>w</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>1.1</td>
<td>0.8</td>
<td>0.1</td>
<td>0.4</td>
<td>0.25</td>
<td>0.10</td>
<td>2.2</td>
<td>1.35</td>
<td>1.15</td>
<td>0.65</td>
<td>2.2</td>
<td>0.45</td>
<td>0.23</td>
</tr>
</tbody>
</table>

### 8. Package outline

#### Fig 1. Package outline SOT323 (SC-70)
# Revision history

<table>
<thead>
<tr>
<th>Document ID</th>
<th>Release date</th>
<th>Data sheet status</th>
<th>Change notice</th>
<th>Supersedes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2PA1576</td>
<td>20091117</td>
<td>Product data sheet</td>
<td>-</td>
<td>2PA1576_5</td>
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</tbody>
</table>

**Modifications:**
- 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 SOT323 (SC-70)”**: updated

<table>
<thead>
<tr>
<th>Document ID</th>
<th>Release date</th>
<th>Data sheet status</th>
<th>Change notice</th>
<th>Supersedes</th>
</tr>
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<tbody>
<tr>
<td>2PA1576_5</td>
<td>20041124</td>
<td>Product data sheet</td>
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<td>2PA1576_4</td>
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<td>2PA1576_4</td>
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<td>Product specification</td>
<td>-</td>
<td>2PA1576_3</td>
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<tr>
<td>2PA1576_3</td>
<td>19970328</td>
<td>Objective specification</td>
<td>-</td>
<td>2PA1576_2</td>
</tr>
<tr>
<td>2PA1576_2</td>
<td>19931213</td>
<td>n.a.</td>
<td>-</td>
<td>n.a.</td>
</tr>
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</table>
10. Legal information

10.1 Data sheet status

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective [short] data sheet</td>
<td>Development</td>
<td>This document contains data from the objective specification for product development.</td>
</tr>
<tr>
<td>Preliminary [short] data sheet</td>
<td>Qualification</td>
<td>This document contains data from the preliminary specification.</td>
</tr>
<tr>
<td>Product [short] data sheet</td>
<td>Production</td>
<td>This document contains the product specification.</td>
</tr>
</tbody>
</table>

[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".
[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL [http://www.nexperia.com](http://www.nexperia.com).

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Notice: All referenced brands, product names, service names and trademarks are the property of their respective owners.
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