1. General description

NPN general-purpose transistors in a small SOT23 Surface-Mounted Device (SMD) plastic package.

Table 1. Product overview

<table>
<thead>
<tr>
<th>Type number</th>
<th>Package</th>
<th>JEDEC</th>
<th>PNP complement:</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC817K-16H-Q</td>
<td>SOT23</td>
<td>TO-236AB</td>
<td>BC807-16H-Q</td>
</tr>
<tr>
<td>BC817K-40H-Q</td>
<td></td>
<td></td>
<td>BC807-40H-Q</td>
</tr>
</tbody>
</table>

2. Features and benefits

- Three current gain selections
- High power dissipation capability
- High-temperature applications up to 175 °C
- Qualified according to AEC-Q101 and recommended for use in automotive applications

3. Applications

- General-purpose switching and amplification

4. Quick reference data

Table 2. Quick reference data

<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>$V_{CEO}$</td>
<td>collector-emitter voltage</td>
<td>open base</td>
<td>-</td>
<td>-</td>
<td>45</td>
<td>V</td>
</tr>
<tr>
<td>$I_C$</td>
<td>collector current</td>
<td>$T_{amb} = 25 ^\circ C$</td>
<td>-</td>
<td>-</td>
<td>500</td>
<td>mA</td>
</tr>
<tr>
<td>$I_{CM}$</td>
<td>peak collector current</td>
<td>single pulse; $t_p \leq 1$ ms; $T_{amb} = 25 ^\circ C$</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>$h_{FE}$</td>
<td>DC current gain</td>
<td>$V_{CE} = 1$ V; $I_C = 100$ mA; $T_{amb} = 25 ^\circ C$</td>
<td>[1]</td>
<td>100</td>
<td>-</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$BC817K-16H-Q$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[1] pulsed; $t_p \leq 300$ µs; $\delta \leq 0.02$
5. Pinning information

Table 3. Pinning

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

6. Ordering information

Table 4. Ordering information

<table>
<thead>
<tr>
<th>Type number</th>
<th>Package</th>
<th>Name</th>
<th>Description</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC817K-16H-Q</td>
<td>SOT23</td>
<td>plastic, surface-mounted package; 3 leads</td>
<td>SOT23</td>
<td></td>
</tr>
<tr>
<td>BC817K-25H-Q</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BC817K-40H-Q</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. Marking

Table 5. Marking

<table>
<thead>
<tr>
<th>Type number</th>
<th>Marking code [1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC817K-16H-Q</td>
<td>%HD</td>
</tr>
<tr>
<td>BC817K-25H-Q</td>
<td>%HE</td>
</tr>
<tr>
<td>BC817K-40H-Q</td>
<td>%HF</td>
</tr>
</tbody>
</table>

[1] % = placeholder for manufacturing site code
8. Limiting values

Table 6. 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>50</td>
<td>V</td>
</tr>
<tr>
<td>V_{CEO}</td>
<td>collector-emitter voltage</td>
<td>open base</td>
<td>-</td>
<td>45</td>
<td>V</td>
</tr>
<tr>
<td>V_{EBO}</td>
<td>emitter-base voltage</td>
<td>open collector</td>
<td>-</td>
<td>7</td>
<td>V</td>
</tr>
<tr>
<td>I_C</td>
<td>collector current</td>
<td></td>
<td>-</td>
<td>500</td>
<td>mA</td>
</tr>
<tr>
<td>I_{CM}</td>
<td>peak collector current</td>
<td>single pulse; t_p ≤ 1 ms</td>
<td>-</td>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>I_{BM}</td>
<td>peak base current</td>
<td>single pulse; t_p ≤ 1 ms</td>
<td>-</td>
<td>200</td>
<td>mA</td>
</tr>
<tr>
<td>P_{tot}</td>
<td>total power dissipation</td>
<td>T_{amb} ≤ 25 °C</td>
<td>[1]</td>
<td>425</td>
<td>mW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[2]</td>
<td>700</td>
<td>mW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[3]</td>
<td>700</td>
<td>mW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[4]</td>
<td>950</td>
<td>mW</td>
</tr>
<tr>
<td>T_j</td>
<td>junction temperature</td>
<td></td>
<td>-</td>
<td>175</td>
<td>°C</td>
</tr>
<tr>
<td>T_{amb}</td>
<td>ambient temperature</td>
<td></td>
<td>-55</td>
<td>175</td>
<td>°C</td>
</tr>
<tr>
<td>T_{stg}</td>
<td>storage temperature</td>
<td></td>
<td>-65</td>
<td>175</td>
<td>°C</td>
</tr>
</tbody>
</table>

[1] Device mounted on an FR4 Printed-Circuit-Board (PCB); single-sided copper; tin-plated and standard footprint.
[2] Device mounted on an FR4 PCB; single-sided copper; tin-plated; mounting pad for collector 1 cm².
[3] Device mounted on an FR4 PCB; 4-layer copper; tin plated and standard footprint.
[4] Device mounted on an FR4 PCB; 4-layer copper; tin-plated; mounting pad for collector 1 cm².

Fig. 1. Power derating curves

(1) FR4 PCB; 4-layer copper, 1 cm²
(2) FR4 PCB; single-sided copper, 1 cm²
(3) FR4 PCB; 4-layer copper; standard footprint
(4) FR4 PCB; single-sided copper; standard footprint
Fig. 2. Safe operating area; junction to ambient; continuous and peak collector currents as a function of collector-emitter voltage

FR4 PCB; single-sided copper; standard footprint; single pulse

$T_{\text{amb}} = 25 \, ^\circ\text{C}$
9. Thermal characteristics

Table 7. 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>in free air; $T_{amb} = 25 , ^\circ C$</td>
<td>[1]</td>
<td>-</td>
<td>-</td>
<td>353  K/W</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[4]</td>
<td>-</td>
<td>-</td>
<td>158  K/W</td>
</tr>
<tr>
<td>$R_{th(j-sp)}$</td>
<td>thermal resistance from junction to solder point</td>
<td></td>
<td>-</td>
<td>-</td>
<td>60</td>
<td>K/W</td>
</tr>
</tbody>
</table>

[2] Device mounted on an FR4 PCB; single-sided copper; tin-plated; mounting pad for collector 1 cm$^2$.
[3] Device mounted on an FR4 PCB; 4-layer copper; tin-plated and standard footprint.
[4] Device mounted on an FR4 PCB; 4-layer copper; tin-plated; mounting pad for collector 1 cm$^2$.

Fig. 3. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values

Fig. 4. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values
FR4 PCB; 4-layer copper; tin-plated and standard footprint

Fig. 5. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values

FR4 PCB; 4-layer copper; tin-plated; mounting pad for collector 1 cm²

Fig. 6. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values
## 10. Characteristics

### Table 8. 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>$V_{(BR)CBO}$</td>
<td>collector-base breakdown voltage</td>
<td>$I_C = 100 \mu A; I_E = 0 A; T_{amb} = 25 ^\circ C$</td>
<td>50</td>
<td>-</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>$V_{(BR)CEO}$</td>
<td>collector-emitter breakdown voltage</td>
<td>$I_C = 10 mA; I_B = 0 A; T_{amb} = 25 ^\circ C$</td>
<td>45</td>
<td>-</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>$V_{(BR)EBO}$</td>
<td>emitter-base breakdown voltage</td>
<td>$I_E = 100 \mu A; I_C = 0 A; T_{amb} = 25 ^\circ C$</td>
<td>7</td>
<td>-</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>$I_{CBO}$</td>
<td>collector-base cut-off current</td>
<td>$V_{CB} = 25 V; I_E = 0 A; T_{amb} = 25 ^\circ C$</td>
<td>-</td>
<td>-</td>
<td>100 nA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$V_{CB} = 25 V; I_E = 0 A; T_J = 150 ^\circ C$</td>
<td>-</td>
<td>-</td>
<td>5 \mu A</td>
<td></td>
</tr>
<tr>
<td>$I_{EBO}$</td>
<td>emitter-base cut-off current</td>
<td>$V_{EB} = 5 V; I_C = 0 A; T_{amb} = 25 ^\circ C$</td>
<td>-</td>
<td>-</td>
<td>100 nA</td>
<td></td>
</tr>
<tr>
<td>$h_{FE}$</td>
<td>DC current gain</td>
<td>$V_{CE} = 1 V; I_C = 100 mA; T_{amb} = 25 ^\circ C$</td>
<td>100</td>
<td>-</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$V_{CE} = 1 V; I_C = 500 mA; T_{amb} = 25 ^\circ C$</td>
<td>40</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>$V_{CEsat}$</td>
<td>collector-emitter saturation voltage</td>
<td>$I_C = 500 mA; I_B = 50 mA; T_{amb} = 25 ^\circ C$</td>
<td>-</td>
<td>-</td>
<td>700 mV</td>
<td></td>
</tr>
<tr>
<td>$V_{BEsat}$</td>
<td>base-emitter saturation voltage</td>
<td>$I_C = 500 mA; I_B = 50 mA; T_{amb} = 25 ^\circ C$</td>
<td>-</td>
<td>-</td>
<td>1.2 V</td>
<td></td>
</tr>
<tr>
<td>$V_{BE}$</td>
<td>base-emitter voltage</td>
<td>$V_{CE} = 1 V; I_C = 500 mA; T_{amb} = 25 ^\circ C$</td>
<td>-</td>
<td>-</td>
<td>1.2 V</td>
<td></td>
</tr>
<tr>
<td>$f_T$</td>
<td>transition frequency</td>
<td>$V_{CE} = 5 V; I_C = 10 mA; f = 100 MHz; T_{amb} = 25 ^\circ C$</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>MHz</td>
</tr>
<tr>
<td>$C_c$</td>
<td>collector capacitance</td>
<td>$V_{CB} = 10 V; I_E = I_E = 0 A; f = 1 MHz; T_{amb} = 25 ^\circ C$</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>pF</td>
</tr>
<tr>
<td>$C_e$</td>
<td>emitter capacitance</td>
<td>$V_{BE} = 0.5 V; I_C = I_E = 0 A; f = 1 MHz; T_{amb} = 25 ^\circ C$</td>
<td>-</td>
<td>44</td>
<td>-</td>
<td>pF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$V_{BE} = 0.5 V; I_C = I_E = 0 A; f = 1 MHz; T_{amb} = 25 ^\circ C$</td>
<td>-</td>
<td>39</td>
<td>-</td>
<td>pF</td>
</tr>
</tbody>
</table>

[1] pulsed; $t_p \leq 300 \mu s; \delta \leq 0.02$
BC817KH-Q series
45 V, 500 mA NPN general-purpose transistors

Fig. 7. BC817K-16H-Q: DC current gain as a function of collector current; typical values

V_{CE} = 1 V
(1) T_{amb} = 175 °C
(2) T_{amb} = 150 °C
(3) T_{amb} = 125 °C
(4) T_{amb} = 100 °C
(5) T_{amb} = 85 °C
(6) T_{amb} = 25 °C
(7) T_{amb} = -40 °C
(8) T_{amb} = -55 °C

Fig. 8. BC817K-16H-Q: DC current gain as a function of collector current; typical values

T_{amb} = 25 °C
(1) V_{CE} = 5 V
(2) V_{CE} = 2 V
(3) V_{CE} = 1 V

Fig. 9. BC817K-16H-Q: Base-emitter voltage as a function of collector current; typical values

V_{CE} = 1 V
(1) T_{amb} = -55 °C
(2) T_{amb} = -40 °C
(3) T_{amb} = 25 °C
(4) T_{amb} = 85 °C
(5) T_{amb} = 100 °C
(6) T_{amb} = 125 °C
(7) T_{amb} = 150 °C
(8) T_{amb} = 175 °C

Fig. 10. BC817K-16H-Q: Base-emitter voltage as a function of collector current; typical values

T_{amb} = 25 °C
(1) V_{CE} = 1 V
(2) V_{CE} = 2 V
(3) V_{CE} = 5 V
Fig. 11. BC817K-16H-Q: Base-emitter saturation voltage as a function of collector current; typical values

IC/IB = 10
(1) $T_{\text{amb}} = -55 \, ^\circ\text{C}$
(2) $T_{\text{amb}} = -40 \, ^\circ\text{C}$
(3) $T_{\text{amb}} = 25 \, ^\circ\text{C}$
(4) $T_{\text{amb}} = 85 \, ^\circ\text{C}$
(5) $T_{\text{amb}} = 100 \, ^\circ\text{C}$
(6) $T_{\text{amb}} = 125 \, ^\circ\text{C}$
(7) $T_{\text{amb}} = 150 \, ^\circ\text{C}$
(8) $T_{\text{amb}} = 175 \, ^\circ\text{C}$

Fig. 12. BC817K-16H-Q: Base-emitter saturation voltage as a function of collector current; typical values

$T_{\text{amb}} = 25 \, ^\circ\text{C}$
(1) IC/IB = 10
(2) IC/IB = 20
(3) IC/IB = 50
(4) IC/IB = 100

Fig. 13. BC817K-16H-Q: Collector-emitter saturation voltage as a function of collector current; typical values

IC/IB = 10
(1) $T_{\text{amb}} = 175 \, ^\circ\text{C}$
(2) $T_{\text{amb}} = 85 \, ^\circ\text{C}$
(3) $T_{\text{amb}} = 25 \, ^\circ\text{C}$
(4) $T_{\text{amb}} = 40 \, ^\circ\text{C}$

Fig. 14. BC817K-16H-Q: Collector-emitter saturation voltage as a function of collector current; typical values

$T_{\text{amb}} = 25 \, ^\circ\text{C}$
(1) IC/IB = 100
(2) IC/IB = 50
(3) IC/IB = 20
(4) IC/IB = 10
**Fig. 15. BC817K-16H-Q: Collector current as a function of collector-emitter voltage; typical values**

- **Figure Description:** The graph shows the collector current ($I_C$) as a function of collector-emitter voltage ($V_{CE}$) at a temperature of $25 \, ^\circ C$. The collector current values range from 0 to 1 A, with labels indicating typical values at different points.

- **Details:**
  - $I_C (mA) = 16.0$
  - $I_C = 12.8$
  - $I_C = 9.6$
  - $I_C = 6.4$
  - $I_C = 4.8$
  - $I_C = 3.2$
  - $I_C = 1.6$

**Fig. 16. BC817K-16H-Q: Collector capacitance as a function of collector-base voltage; typical values**

- **Figure Description:** The graph illustrates the collector capacitance ($C_C$) as a function of collector-base voltage ($V_{CB}$) at a frequency of 1 MHz and a temperature of $25 \, ^\circ C$.

**Fig. 17. BC817K-16H-Q: Emitter capacitance as a function of emitter-base voltage; typical values**

- **Figure Description:** The graph displays the emitter capacitance ($C_E$) as a function of emitter-base voltage ($V_{BE}$) at a frequency of 1 MHz and a temperature of $25 \, ^\circ C$.

- **Details:** $f = 1 \, MHz$
  - $T_{amb} = 25 \, ^\circ C$

**Fig. 18. BC817K-16H-Q: Transition frequency as a function of collector current; typical values**

- **Figure Description:** The graph shows the transition frequency ($f_T$) as a function of collector current ($I_C$) at a frequency of 100 MHz and a temperature of $25 \, ^\circ C$.

- **Details:**
  - $f = 100 \, MHz$
  - $T_{amb} = 25 \, ^\circ C$
  - $V_{CE} = 5 \, V$
  - $V_{CE} = 1 \, V$
**BC817KH-Q series**

45 V, 500 mA NPN general-purpose transistors

---

**Fig. 19. BC817K-25H-Q: DC current gain as a function of collector current; typical values**

<table>
<thead>
<tr>
<th>I_C (mA)</th>
<th>h_FE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10^-1</td>
<td>200</td>
</tr>
<tr>
<td>1</td>
<td>300</td>
</tr>
<tr>
<td>10</td>
<td>400</td>
</tr>
<tr>
<td>10^2</td>
<td>500</td>
</tr>
</tbody>
</table>

- V_CE = 1 V
- (1) T_amb = 175 °C
- (2) T_amb = 150 °C
- (3) T_amb = 125 °C
- (4) T_amb = 100 °C
- (5) T_amb = 85 °C
- (6) T_amb = 25 °C
- (7) T_amb = -40 °C
- (8) T_amb = -55 °C

---

**Fig. 20. BC817K-25H-Q: DC current gain as a function of collector current; typical values**

<table>
<thead>
<tr>
<th>I_C (mA)</th>
<th>h_FE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10^-1</td>
<td>200</td>
</tr>
<tr>
<td>1</td>
<td>300</td>
</tr>
<tr>
<td>10^2</td>
<td>400</td>
</tr>
<tr>
<td>10^3</td>
<td>500</td>
</tr>
</tbody>
</table>

- T_amb = 25 °C
- (1) V_CE = 5 V
- (2) V_CE = 2 V
- (3) V_CE = 1 V

---

**Fig. 21. BC817K-25H-Q: Base-emitter voltage as a function of collector current; typical values**

<table>
<thead>
<tr>
<th>I_C (mA)</th>
<th>V_BE (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10^-1</td>
<td>0.4</td>
</tr>
<tr>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>10^2</td>
<td>1.2</td>
</tr>
<tr>
<td>10^3</td>
<td>1.0</td>
</tr>
</tbody>
</table>

- V_CE = 1 V
- (1) T_amb = -55 °C
- (2) T_amb = -40 °C
- (3) T_amb = 25 °C
- (4) T_amb = 85 °C
- (5) T_amb = 100 °C
- (6) T_amb = 125 °C
- (7) T_amb = 150 °C
- (8) T_amb = 175 °C

---

**Fig. 22. BC817K-25H-Q: Base-emitter voltage as a function of collector current; typical values**

<table>
<thead>
<tr>
<th>I_C (mA)</th>
<th>V_BE (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10^-1</td>
<td>0.5</td>
</tr>
<tr>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>10^2</td>
<td>0.7</td>
</tr>
<tr>
<td>10^3</td>
<td>0.8</td>
</tr>
</tbody>
</table>

- T_amb = 25 °C
- (1) V_CE = 1 V
- (2) V_CE = 2 V
- (3) V_CE = 5 V
Nexperia

BC817KH-Q series

45 V, 500 mA NPN general-purpose transistors

**Fig. 23.** BC817K-25H-Q: Base-emitter saturation voltage as a function of collector current; typical values

IC/IB = 10
1. T<sub>amb</sub> = -55 °C
2. T<sub>amb</sub> = -40 °C
3. T<sub>amb</sub> = 25 °C
4. T<sub>amb</sub> = 85 °C
5. T<sub>amb</sub> = 100 °C
6. T<sub>amb</sub> = 125 °C
7. T<sub>amb</sub> = 25 °C
8. T<sub>amb</sub> = 175 °C

**Fig. 24.** BC817K-25H-Q: Base-emitter saturation voltage as a function of collector current; typical values

T<sub>amb</sub> = 25 °C
1. IC/IB = 10
2. IC/IB = 20
3. IC/IB = 50
4. IC/IB = 100

**Fig. 25.** BC817K-25H-Q: Collector-emitter saturation voltage as a function of collector current; typical values

IC/IB = 10
1. T<sub>amb</sub> = 175 °C
2. T<sub>amb</sub> = 85 °C
3. T<sub>amb</sub> = 25 °C
4. T<sub>amb</sub> = -40 °C

**Fig. 26.** BC817K-25H-Q: Collector-emitter saturation voltage as a function of collector current; typical values

T<sub>amb</sub> = 25 °C
1. IC/IB = 100
2. IC/IB = 50
3. IC/IB = 20
4. IC/IB = 10
BC817KH-Q series
45 V, 500 mA NPN general-purpose transistors

**Fig. 27.** BC817K-25H-Q: Collector current as a function of collector-emitter voltage; typical values

**Fig. 28.** BC817K-25H-Q: Collector capacitance as a function of collector-base voltage; typical values

**Fig. 29.** BC817K-25H-Q: Emitter capacitance as a function of emitter-base voltage; typical values

**Fig. 30.** BC817K-25H-Q: Transition frequency as a function of collector current; typical values
**Nexperia**

**BC817KH-Q series**

45 V, 500 mA NPN general-purpose transistors

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**Fig. 31. BC817K-40H-Q: DC current gain as a function of collector current; typical values**

- $V_{CE} = 1$ V
- (1) $T_{amb} = 175$ °C
- (2) $T_{amb} = 150$ °C
- (3) $T_{amb} = 125$ °C
- (4) $T_{amb} = 100$ °C
- (5) $T_{amb} = 85$ °C
- (6) $T_{amb} = 25$ °C
- (7) $T_{amb} = -40$ °C
- (8) $T_{amb} = -55$ °C

---

**Fig. 32. BC817K-40H-Q: DC current gain as a function of collector current; typical values**

- $T_{amb} = 25$ °C
- (1) $V_{CE} = 5$ V
- (2) $V_{CE} = 2$ V
- (3) $V_{CE} = 1$ V

---

**Fig. 33. BC817K-40H-Q: Base-emitter voltage as a function of collector current; typical values**

- $V_{CE} = 1$ V
- (1) $T_{amb} = -55$ °C
- (2) $T_{amb} = -40$ °C
- (3) $T_{amb} = 25$ °C
- (4) $T_{amb} = 85$ °C
- (5) $T_{amb} = 100$ °C
- (6) $T_{amb} = 125$ °C
- (7) $T_{amb} = 150$ °C
- (8) $T_{amb} = 175$ °C

---

**Fig. 34. BC817K-40H-Q: Base-emitter voltage as a function of collector current; typical values**

- $T_{amb} = 25$ °C
- (1) $V_{CE} = 1$ V
- (2) $V_{CE} = 2$ V
- (3) $V_{CE} = 5$ V
Fig. 35. BC817K-40H-Q: Base-emitter saturation voltage as a function of collector current; typical values

Fig. 36. BC817K-40H-Q: Base-emitter saturation voltage as a function of collector current; typical values

Fig. 37. BC817K-40H-Q: Collector-emitter saturation voltage as a function of collector current; typical values

Fig. 38. BC817K-40H-Q: Collector-emitter saturation voltage as a function of collector current; typical values
11. Test information

11.1. 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.
12. Package outline

Fig. 43. Package outline SOT23
13. Soldering

Fig. 44. Reflow soldering footprint for SOT23

Fig. 45. Wave soldering footprint for SOT23
14. Revision history

Table 9. Revision history

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Data sheet status

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