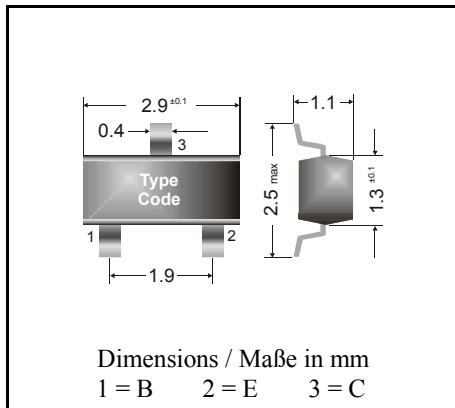


PNP

**Surface mount Si-Epitaxial Planar Transistors**  
**Si-Epitaxial Planar Transistoren für die Oberflächenmontage**

PNP



Power dissipation – Verlustleistung 250 mW

Plastic case SOT-23  
 Kunststoffgehäuse (TO-236)

Weight approx. – Gewicht ca. 0.01 g

Plastic material has UL classification 94V-0  
 Gehäusematerial UL94V-0 klassifiziert

Standard packaging taped and reeled  
 Standard Lieferform gegurtet auf Rolle

**Maximum ratings ( $T_A = 25^\circ\text{C}$ )****Grenzwerte ( $T_A = 25^\circ\text{C}$ )**

|   |        |            | <b>BCX 71</b>        |
|---|--------|------------|----------------------|
| Collector-Emitter-voltage                       | B open | $-V_{CE0}$ | 45 V                 |
| Collector-Base-voltage                          | E open | $-V_{CB0}$ | 45 V                 |
| Emitter-Base-voltage                            | C open | $-V_{EB0}$ | 5 V                  |
| Power dissipation – Verlustleistung             |        | $P_{tot}$  | 250 mW <sup>1)</sup> |
| Collector current – Kollektorstrom (DC)         |        | $-I_C$     | 100 mA               |
| Peak Collector current – Kollektor-Spitzenstrom |        | $-I_{CM}$  | 200 mA               |
| Peak Base current – Basis-Spitzenstrom          |        | $-I_{BM}$  | 200 mA               |
| Junction temperature – Sperrschichttemperatur   |        | $T_j$      | 150°C                |
| Storage temperature – Lagerungstemperatur       |        | $T_S$      | - 65...+ 150°C       |

**Characteristics ( $T_j = 25^\circ\text{C}$ )****Kennwerte ( $T_j = 25^\circ\text{C}$ )**

|   |              | <b>Min.</b> | <b>Typ.</b> | <b>Max.</b>      |
|---|--------------|-------------|-------------|------------------|
| Collector-Base cutoff current – Kollektorreststrom                  |              |             |             |                  |
| $I_E = 0, -V_{CB} = 32\text{ V}$                                    | $-I_{CB0}$   | –           | –           | 20 nA            |
| $I_E = 0, -V_{CB} = 32\text{ V}, T_j = 150^\circ\text{C}$           | $-I_{CB0}$   | –           | –           | 20 $\mu\text{A}$ |
| Emitter-Base cutoff current – Emitterreststrom                      |              |             |             |                  |
| $I_C = 0, -V_{EB} = 4\text{ V}$                                     | $-I_{EB0}$   | –           | –           | 20 nA            |
| Collector saturation volt. – Kollektor-Sättigungsspg. <sup>2)</sup> |              |             |             |                  |
| $-I_C = 10\text{ mA}, -I_B = 0.25\text{ mA}$                        | $-V_{CEsat}$ | 60 mV       | –           | 250 mV           |
| $-I_C = 50\text{ mA}, -I_B = 1.25\text{ mA}$                        | $-V_{CEsat}$ | 120 mV      | –           | 550 mV           |

<sup>1)</sup> Mounted on P.C. board with 3 mm<sup>2</sup> copper pad at each terminal  
 Montage auf Leiterplatte mit 3 mm<sup>2</sup> Kupferbelag (Löt-pad) an jedem Anschluß

<sup>2)</sup> Tested with pulses  $t_p = 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$  – Gemessen mit Impulsen  $t_p = 300\ \mu\text{s}$ , Schaltverhältnis  $\leq 2\%$

Characteristics ( $T_j = 25^\circ\text{C}$ )Kennwerte ( $T_j = 25^\circ\text{C}$ )

|  |               | Min.          | Typ.   | Max.                  |
|--|---------------|---------------|--------|-----------------------|
| Base saturation voltage – Basis-Sättigungsspannung <sup>1)</sup>   |               |               |        |                       |
| - $I_C = 10\text{ mA}$ , - $I_B = 0.25\text{ mA}$  | - $V_{BEsat}$ | 600 mV        | –      | 850 mV                |
| - $I_C = 50\text{ mA}$ , - $I_B = 1.25\text{ mA}$  | - $V_{BEsat}$ | 700 mV        | –      | 1050 mV               |
| DC current gain – Kollektor-Basis-Stromverhältnis <sup>1)</sup>  |               |               |        |                       |
| - $V_{CE} = 5\text{ V}$ , - $I_C = 10\text{ }\mu\text{A}$  | BCX 71G       | $h_{FE}$      | –      | –                     |
|  | BCX 71H       | $h_{FE}$      | 30     | –                     |
|  | BCX 71J       | $h_{FE}$      | 40     | –                     |
|  | BCX 71K       | $h_{FE}$      | 100    | –                     |
| - $V_{CE} = 5\text{ V}$ , - $I_C = 2\text{ mA}$  | BCX 71G       | $h_{FE}$      | 120    | –                     |
|  | BCX 71H       | $h_{FE}$      | 180    | –                     |
|  | BCX 71J       | $h_{FE}$      | 250    | –                     |
|  | BCX 71K       | $h_{FE}$      | 380    | –                     |
| - $V_{CE} = 1\text{ V}$ , - $I_C = 50\text{ mA}$   | BCX 71G       | $h_{FE}$      | 60     | –                     |
|  | BCX 71H       | $h_{FE}$      | 80     | –                     |
|  | BCX 71J       | $h_{FE}$      | 100    | –                     |
|  | BCX 71K       | $h_{FE}$      | 110    | –                     |
| Base-Emitter voltage – Basis-Emitter-Spannung <sup>1)</sup>  |               |               |        |                       |
| - $V_{CE} = 5\text{ V}$ , - $I_C = 10\text{ }\mu\text{A}$  | - $V_{BEon}$  | –             | 550 mV | –                     |
| - $V_{CE} = 5\text{ V}$ , - $I_C = 2\text{ mA}$  | - $V_{BEon}$  | 600 mV        | 650 mV | 750 mV                |
| - $V_{CE} = 1\text{ V}$ , - $I_C = 50\text{ mA}$   | - $V_{BEon}$  | –             | 720 mV | –                     |
| Gain-Bandwidth Product – Transitfrequenz   |               |               |        |                       |
| - $V_{CE} = 5\text{ V}$ , - $I_C = 10\text{ mA}$ , $f = 100\text{ MHz}$  | $f_T$         | 100 MHz       | –      | –                     |
| Collector-Base Capacitance – Kollektor-Basis-Kapazität   |               |               |        |                       |
| - $V_{CB} = 10\text{ V}$ , $I_E = i_c = 0$ , $f = 1\text{ MHz}$  | $C_{CB0}$     | –             | 4.5 pF | –                     |
| Emitter-Base Capacitance – Emitter-Basis-Kapazität   |               |               |        |                       |
| - $V_{EB} = 0.5\text{ V}$ , $I_C = i_c = 0$ , $f = 1\text{ MHz}$   | $C_{EB0}$     | –             | 11 pF  | –                     |
| Noise figure – Rauschzahl  |               |               |        |                       |
| - $V_{CE} = 5\text{ V}$ , - $I_C = 200\text{ }\mu\text{A}$ , $R_G = 2\text{ k}\Omega$ ,<br>$f = 1\text{ kHz}$ , $\Delta f = 200\text{ Hz}$ | F             | –             | 2 dB   | 6 dB                  |
| Thermal resistance junction to ambient air<br>Wärmewiderstand Sperrschicht – umgebende Luft  |               | $R_{thA}$     |        | 420 K/W <sup>2)</sup> |
| Recommended complementary NPN transistors<br>Empfohlene komplementäre NPN-Transistoren   |               | BCX 70 series |        |                       |

|                       |              |              |              |              |
|-----------------------|--------------|--------------|--------------|--------------|
| Marking<br>Stempelung | BCX 71G = BG | BCX 71H = BH | BCX 71J = BJ | BCX 71K = BK |
|-----------------------|--------------|--------------|--------------|--------------|

<sup>1)</sup> Tested with pulses  $t_p = 300\text{ }\mu\text{s}$ , duty cycle  $\leq 2\%$  – Gemessen mit Impulsen  $t_p = 300\text{ }\mu\text{s}$ , Schaltverhältnis  $\leq 2\%$

<sup>2)</sup> Mounted on P.C. board with  $3\text{ mm}^2$  copper pad at each terminal  
Montage auf Leiterplatte mit  $3\text{ mm}^2$  Kupferbelag (Lötpad) an jedem Anschluß