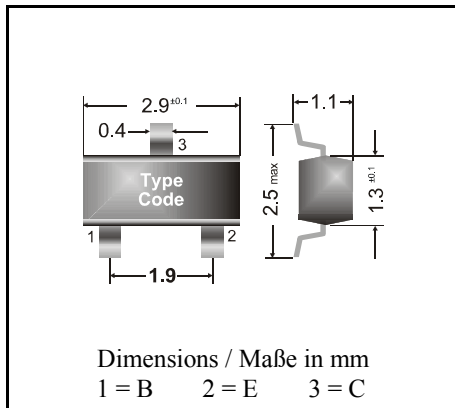


PNP

# 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 ( $T_A = 25^\circ\text{C}$ )

|                                                 |                               |             | BFN 23               |
|-------------------------------------------------|-------------------------------|-------------|----------------------|
| Collector-Emitter-voltage                       | B open                        | - $V_{CE0}$ | 250 V                |
| Collector-Base-voltage                          | E open                        | - $V_{CB0}$ | 250 V                |
| Collector-Emitter-voltage                       | $R_{BE} = 2.7\text{ k}\Omega$ | - $V_{CER}$ | 250 V                |
| Emitter-Base-voltage                            | C open                        | - $V_{EB0}$ | 5 V                  |
| Power dissipation – Verlustleistung             |                               | $P_{tot}$   | 250 mW <sup>1)</sup> |
| Collector current – Kollektorstrom (dc)         |                               | - $I_C$     | 50 mA                |
| Peak Collector current – Kollektor-Spitzenstrom |                               | - $I_{CM}$  | 100 mA               |
| Junction temperature – Sperrschichttemperatur   |                               | $T_j$       | 150°C                |
| Storage temperature – Lagerungstemperatur       |                               | $T_S$       | - 65...+ 150°C       |

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

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

|                                                                                 | Min.        | Typ. | Max.             |
|---------------------------------------------------------------------------------|-------------|------|------------------|
| Collector-Base cutoff current – Kollektorreststrom                              |             |      |                  |
| $I_E = 0, - V_{CB} = 200\text{ V}$                                              | - $I_{CB0}$ | –    | 100 nA           |
| $I_E = 0, - V_{CB} = 200\text{ V}, T_j = 150^\circ\text{C}$                     | - $I_{CB0}$ | –    | 20 $\mu\text{A}$ |
| Collector-Base cutoff current – Kollektorreststrom                              |             |      |                  |
| - $V_{CB} = 250\text{ V}, R_{BE} = 2.7\text{ k}\Omega$                          | - $I_{CBR}$ | –    | 1 $\mu\text{A}$  |
| - $V_{CB} = 250\text{ V}, R_{BE} = 2.7\text{ k}\Omega, T_j = 150^\circ\text{C}$ | - $I_{CBR}$ | –    | 50 $\mu\text{A}$ |
| Emitter-Base cutoff current – Emitterreststrom                                  |             |      |                  |
| $I_C = 0, - V_{EB} = 5\text{ V}$                                                | - $I_{EB0}$ | –    | 10 $\mu\text{A}$ |

<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

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

|                                                                                                                                       | Min.        | Typ.    | Max.                  |
|---------------------------------------------------------------------------------------------------------------------------------------|-------------|---------|-----------------------|
| Collector saturation volt. – Kollektor-Sättigungsspg. <sup>1)</sup><br>- $I_C = 10\text{ mA}$ , - $I_B = 1\text{ mA}$   - $V_{CEsat}$ | –           | –       | 500 mV                |
| Base saturation voltage – Basis-Sättigungsspannung <sup>1)</sup><br>- $I_C = 10\text{ mA}$ , - $I_B = 1\text{ mA}$   - $V_{BEsat}$    | –           | –       | 1 V                   |
| DC current gain – Kollektor-Basis-Stromverhältnis <sup>1)</sup><br>- $V_{CE} = 20\text{ V}$ , - $I_C = 25\text{ mA}$   $h_{FE}$       | 50          | –       | –                     |
| Gain-Bandwidth Product – Transitfrequenz<br>- $V_{CE} = 10\text{ V}$ , - $I_C = 10\text{ mA}$ , $f = 20\text{ MHz}$   $f_T$           | –           | 100 MHz | –                     |
| Collector-Base Capacitance – Kollektor-Basis-Kapazität<br>- $V_{CB} = 30\text{ V}$ , $I_E = i_e = 0$ , $f = 1\text{ MHz}$   $C_{CB0}$ | –           | 0.8 pF  | –                     |
| 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                                                | BFN 22      |         |                       |
| Marking - Stempelung                                                                                                                  | BFN 23 = HC |         |                       |

<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