

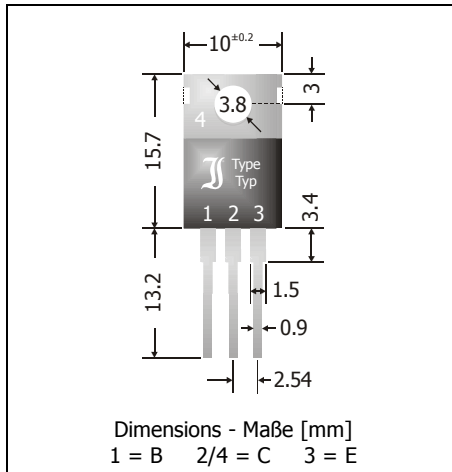
## TIP125 ... TIP127

PNP

**Si-Epitaxial Planar Darlingon Power Transistors**  
**Si-Epitaxial Planar Darlingon-Leistungs-Transistoren**

PNP

Version 2006-10-17



Max. power dissipation with cooling

65 W

Max. Verlustleistung mit Kühlung

Collector current

5 A

Kollektorstrom

Plastic case

TO-220AB

Kunststoffgehäuse

Weight approx.

2.2 g

Gewicht ca.

Plastic material has UL classification 94V-0

Gehäusematerial UL94V-0 klassifiziert

Standard packaging in tubes

Standard Lieferform in Stangen

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

|  |                          |             | TIP125            | TIP126 | TIP127 |
|--|--------------------------|-------------|-------------------|--------|--------|
| Collector-Emitter-volt. – Kollektor-Emitter-Spg. | B open                   | - $V_{CE0}$ | 60 V              | 80 V   | 100 V  |
| Collector-Base-voltage – Kollektor-Basis-Spg.    | E open                   | - $V_{CBO}$ | 60 V              | 80 V   | 100 V  |
| Emitter-Base-voltage – Emitter-Basis-Spannung    | C open                   | - $V_{EBO}$ | 5 V               |        |        |
| Power dissipation – Verlustleistung              |                          |             |                   |        |        |
| without cooling – ohne Kühlung                   | $T_A = 25^\circ\text{C}$ | $P_{tot}$   | 2 W <sup>1)</sup> |        |        |
| with cooling – mit Kühlung                       | $T_C = 25^\circ\text{C}$ | $P_{tot}$   | 65 W              |        |        |
| Collector current – Kollektorstrom (dc)          |                          | - $I_C$     | 5 A               |        |        |
| Peak Collector current – Kollektor-Spitzenstrom  |                          | - $I_{CM}$  | 8 A               |        |        |
| Base current – Basisstrom (dc)                   |                          | - $I_B$     | 120 mA            |        |        |
| Junction temperature – Sperrschichttemperatur    |                          | $T_j$       | -55...+150°C      |        |        |
| Storage temperature – Lagerungstemperatur        |                          | $T_s$       | -55...+150°C      |        |        |

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

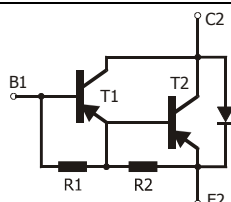
|   |          | Min. | Typ. | Max. |
|---|----------|------|------|------|
| DC current gain – Kollektor-Basis-Stromverhältnis <sup>2)</sup>     |          |      |      |      |
| - $I_C = 0.5\text{ A}$ , - $V_{CE} = 3\text{ V}$                    | $h_{FE}$ | 1000 | –    | –    |
| - $I_C = 3\text{ A}$ , - $V_{CE} = 3\text{ V}$                      | $h_{FE}$ | 1000 | –    | –    |
| Small signal current gain – Kleinsignal-Stromverstärkung            |          |      |      |      |
| - $I_C = 3\text{ A}$ , - $V_{CE} = 4\text{ V}$ , $f = 1\text{ MHz}$ | $h_{fe}$ | 4    |      |      |

1 Valid, if leads are kept at ambient temperature at a distance of 5 mm from case

Gültig wenn die Anschlussdrähte in 5 mm Abstand vom Gehäuse auf Umgebungstemperatur gehalten werden

2 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<sub>j</sub> = 25°C)**
**Kennwerte (T<sub>j</sub> = 25°C)**

|   | Min.  | Typ.                         | Max. |        |
|---|---|------------------------------|------|--------|
| Collector-Emitter saturation volt. – Kollektor-Emitter-Sättigungsspg. <sup>2)</sup>         |   |                              |      |        |
| - I <sub>C</sub> = 3 A, I <sub>B</sub> = 12 mA  | - V <sub>CEsat</sub>  | –                            | –    | 2 V    |
| - I <sub>C</sub> = 5 A, I <sub>B</sub> = 20 mA  | - V <sub>CEsat</sub>  | –                            | –    | 4 V    |
| Base-Emitter voltage – Basis-Emitter-Spannung <sup>2)</sup>                                 |   |                              |      |        |
| - I <sub>C</sub> = 3 A, - V <sub>CE</sub> = 3 V   | - V <sub>BE</sub>   | –                            | –    | 2.5 V  |
| Collector-Emitter cutoff current – Kollektor-Emitter-Reststrom                              |   |                              |      |        |
| - V <sub>CE</sub> = 30 V, (B open) TIP125   | - I <sub>CEO</sub>  | –                            | –    | 500 nA |
| - V <sub>CE</sub> = 40 V, (B open) TIP126   | - I <sub>CEO</sub>  | –                            | –    | 500 nA |
| - V <sub>CE</sub> = 50 V, (B open) TIP127   | - I <sub>CEO</sub>  | –                            | –    | 500 nA |
| Collector-Base cutoff current – Kollektor-Basis-Reststrom                                   |   |                              |      |        |
| - V <sub>CB</sub> = 60 V, (E open) TIP125   | - I <sub>CBO</sub>  | –                            | –    | 200 nA |
| - V <sub>CB</sub> = 80 V, (E open) TIP126   | - I <sub>CBO</sub>  | –                            | –    | 200 nA |
| - V <sub>CB</sub> = 100 V, (E open) TIP127  | - I <sub>CBO</sub>  | –                            | –    | 200 nA |
| Collector-Base Capacitance – Kollektor-Basis-Kapazität                                      |   |                              |      |        |
| - V <sub>CB</sub> = 10 V, I <sub>E</sub> = i <sub>e</sub> = 0, f = 100 kHz                  | C <sub>CB0</sub>  | –                            | –    | 200 pF |
| Thermal resistance junction to ambient air<br>Wärmewiderstand Sperrschicht – umgebende Luft | R <sub>thA</sub>  | < 63 K/W <sup>1)</sup>       |      |        |
| Thermal resistance junction to case<br>Wärmewiderstand Sperrschicht – Gehäuse               | R <sub>thC</sub>  | < 3 K/W                      |      |        |
| Admissible torque for mounting<br>Zulässiges Anzugsdrehmoment                               | M4  | 9 ± 10% lb.in.<br>1 ± 10% Nm |      |        |
| Recommended complementary NPN transistors<br>Empfohlene komplementäre NPN-Transistoren      | TIP120 ... TIP122   |                              |      |        |
| Equivalent Circuit – Ersatzschaltbild   |  |                              |      |        |

<sup>2)</sup> Tested with pulses t<sub>p</sub> = 300 μs, duty cycle ≤ 2% – Gemessen mit Impulsen t<sub>p</sub> = 300 μs, Schaltverhältnis ≤ 2%

<sup>1)</sup> Valid, if leads are kept at ambient temperature at a distance of 2 mm from case

Gültig wenn die Anschlussdrähte in 2 mm Abstand vom Gehäuse auf Umgebungstemperatur gehalten werden