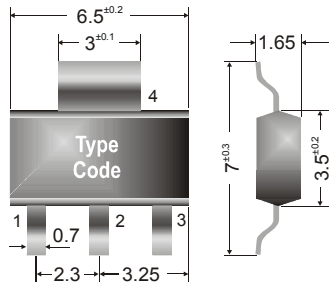
PNP **Surface mount Si-Epitaxial PlanarTransistors**
Si-Epitaxial PlanarTransistoren für die Oberflächenmontage **PNP**



Dimensions / Maße in mm
1 = B 2, 4 = C 3 = E

Power dissipation – Verlustleistung 1.3 W

Plastic case SOT-223
Kunststoffgehäuse

Weight approx. – Gewicht ca. 0.04 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˚C) **Grenzwerte (T_A = 25˚C)**

			BSP 30 BSP 31	BSP 32 BSP 33
Collector-Emitter-voltage	B open	$-V_{CE0}$	60 V	80 V
Collector-Base-voltage	E open	$-V_{CB0}$	70 V	90 V
Emitter-Base-voltage	C open	$-V_{EB0}$	5 V	
Power dissipation – Verlustleistung		P_{tot}	1.3 W [1])	
Collector current – Kollektorstrom (dc)		$-I_C$	1 A	
Peak Collector current – Koll.-Spitzenstrom		$-I_{CM}$	2 A	
Peak Base current – Basis-Spitzenstrom		$-I_{BM}$	200 mA	
Junction temp. – Sperrschichttemperatur		T_j	150˚C	
Storage temperature – Lagerungstemperatur		T_S	- 65…+ 150˚C	

Characteristics (T_j = 25˚C) **Kennwerte (T_j = 25˚C)**

		Min.	Typ.	Max.
Collector-Base cutoff current – Kollektorreststrom				
$I_E = 0, -V_{CB} = 60$ V	$-I_{CB0}$	–	–	100 nA
$I_E = 0, -V_{CB} = 60$ V, $T_j = 150$˚C	$-I_{CB0}$	–	–	50 µA
Emitter-Base cutoff current – Emitterreststrom				
$I_C = 0, -V_{EB} = 5$ V	$-I_{EB0}$	–	–	100 nA
Collector saturation volt. – Kollektor-Sättigungsspg. [2])				
$-I_C = 150$ mA, $-I_B = 15$ mA	$-V_{CEsat}$	–	–	250 mV
$-I_C = 500$ mA, $-I_B = 50$ mA	$-V_{CEsat}$	–	–	500 mV

[1]) Mounted on P.C. board with 3 mm² copper pad at each terminal
Montage auf Leiterplatte mit 3 mm² Kupferbelag (Lötpad) an jedem Anschluß
[2]) Tested with pulses t_p = 300 µs, duty cycle ≤ 2% – Gemessen mit Impulsen t_p = 300 µs, Schaltverhältnis ≤ 2%

Characteristics (T_j = 25˚C) **Kennwerte (T_j = 25˚C)**

			Min.	Typ.	Max.
Base saturation voltage – Basis-Sättigungsspannung [1]					
- I_C = 150 mA, - I_B = 15 mA		- V_{BEsat}	–	–	1 V
- I_C = 500 mA, - I_B = 50 mA		- V_{BEsat}	–	–	1.2 V
DC current gain – Kollektor-Basis-Stromverhältnis [1]					
- V_{CE} = 5 V, - I_C = 100 µA	BSP 30 BSP 32	h_{FE}	10	–	–
- V_{CE} = 5 V, - I_C = 100 mA	BSP 30 BSP 32	h_{FE}	40	–	120
- V_{CE} = 5 V, - I_C = 500 mA	BSP 30 BSP 32	h_{FE}	30	–	–
- V_{CE} = 5 V, - I_C = 100 µA	BSP 31 BSP 33	h_{FE}	30	–	–
- V_{CE} = 5 V, - I_C = 100 mA	BSP 31 BSP 33	h_{FE}	100	–	300
- V_{CE} = 5 V, - I_C = 500 mA	BSP 31 BSP 33	h_{FE}	50	–	–
Gain-Bandwidth Product – Transitfrequenz					
- V_{CE} = 5 V, - I_C = 10 mA, f = 100 MHz		f_T	100 MHz	–	–
Collector-Base Capacitance – Kollektor-Basis-Kapazität					
- V_{CB} = 10 V, I_E = i_e = 0, f = 1 MHz		C_{CB0}	–	20 pF	–
Emitter-Base Capacitance – Emitter-Basis-Kapazität					
- V_{EB} = 0.5 V, I_C = i_c = 0, f = 1 MHz		C_{EB0}	–	120 pF	–
Switching times – Schaltzeiten					
turn-on time - I_{Con} = 100 mA, - I_{Bon} = 5 mA, I_{Boff} = 5 mA		t_{on}	–	–	500 ns
turn-off time - I_{Con} = 100 mA, - I_{Bon} = 5 mA, I_{Boff} = 5 mA		t_{off}	–	–	600 ns

Thermal resistance – Wärmewiderstand		
junction to ambient air – Sperrschicht zu umgebender Luft	R_{thA}	93 K/W [2]
junction to soldering point – Sperrschicht zu Lötpad	R_{thS}	12 K/W
Recommended complementary NPN transistors Empfohlene komplementäre NPN-Transistoren		BSP 40, BSP 41, BSP 42, BSP 43

[1] Tested with pulses t_p = 300 µs, duty cycle ≤ 2% – Gemessen mit Impulsen t_p = 300 µs, Schaltverhältnis ≤ 2%
[2] Mounted on P.C. board with 3 mm² copper pad at each terminal
Montage auf Leiterplatte mit 3 mm² Kupferbelag (Lötpad) an jedem Anschluß