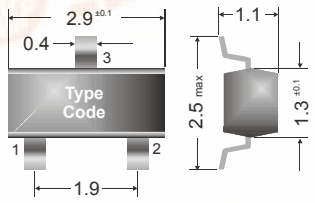
NPN

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

NPN



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

Power dissipation – Verlustleistung	250 mW
Plastic case Kunststoffgehäuse	SOT-23 (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°C) **Grenzwerte (T_A = 25°C)**

			BCW 31, BCW 32, BCW 33
Collector-Emitter-voltage	B open	V_{CE0}	32 V
Collector-Base-voltage	E open	V_{CB0}	32 V
Emitter-Base-voltage	C open	V_{EB0}	5 V
Power dissipation – Verlustleistung		P_{tot}	250 mW [1])
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°C) **Kennwerte (T_j = 25°C)**

		Min.	Typ.	Max.
Collector-Base cutoff current – Kollektorreststrom				
I_E = 0, V_{CB} = 32 V	I_{CB0}	–	–	100 nA
I_E = 0, V_{CB} = 32 V, T_j = 100°C	I_{CB0}	–	–	10 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 = 10 mA, I_B = 0.5 mA	V_{CEsat}	–	120 mV	250 mV
I_C = 50 mA, I_B = 5 mA	V_{CEsat}	–	210 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 = 10 mA, I_B = 0.5 mA		V_{BEsat}	–	750 mV	–
I_C = 50 mA, I_B = 2.5 mA		V_{BEsat}	–	850 mV	–
DC current gain – Kollektor-Basis-Stromverhältnis [1]					
V_{CE} = 5 V, I_C = 10 µA	BCW 31	h_{FE}	–	190	–
	BCW 32	h_{FE}	–	330	–
	BCW 33	h_{FE}	–	600	–
V_{CE} = 5 V, I_C = 2 mA	BCW 31	h_{FE}	110	–	220
	BCW 32	h_{FE}	200	–	450
	BCW 33	h_{FE}	420	–	800
Base-Emitter voltage – Basis-Emitter-Spannung [1]					
V_{CE} = 5 V, I_C = 2 mA		V_{BEon}	550 mV	–	700 mV
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}	–	2.5 pF	–
Noise figure – Rauschzahl					
V_{CE} = 5 V, I_C = 200 µA, R_G = 2 kΩ, f = 1 kHz, Δf = 200 Hz		F	–	–	10 dB

Thermal resistance junction to ambient air Wärmewiderstand Sperrschicht – umgebende Luft	R_{thA}	420 K/W [2]
Recommended complementary PNP transistors Empfohlene komplementäre PNP-Transistoren	BCW 29, BCW 30	

Marking – Stempelung	BCW 31 = D1	BCW 32 = D2	BCW 33 = D3

[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