

BC 846W ... BC 850W

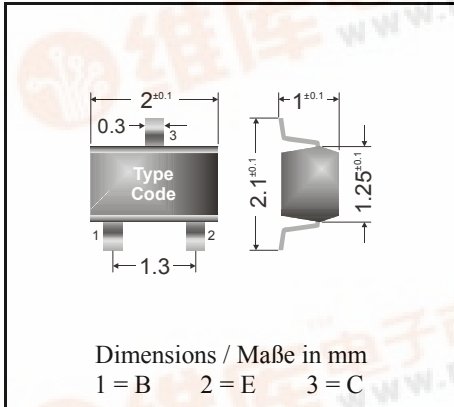


General Purpose Transistors

NPN

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

NPN



Power dissipation – Verlustleistung 200 mW

Plastic case Kunststoffgehäuse SOT-323

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

			BC 846W	BC 847W BC 850W	BC 848W BC 849W
Collector-Emitter-voltage	B open	$V_{CE0}$	65 V	45 V	30 V
Collector-Base-voltage	E open	$V_{CB0}$	80 V	50 V	30 V
Emitter-Base-voltage	C open	$V_{EB0}$	6 V		5 V
Power dissipation – Verlustleistung		$P_{tot}$	200 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		
Peak Emitter current – Emitter-Spitzenstrom		$-I_{EM}$	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 ( $T_j = 25^\circ\text{C}$ )

		Group A	Group B	Group C
DC current gain – Kollektor-Basis-Stromverhältnis <sup>2)</sup>				
$V_{CE} = 5\text{ V}, I_C = 10\ \mu\text{A}$	$h_{FE}$	typ. 90	typ. 150	typ. 270
$V_{CE} = 5\text{ V}, I_C = 2\text{ mA}$	$h_{FE}$	110...220	200...450	420...800
h-Parameters at $V_{CE} = 5\text{ V}, I_C = 2\text{ mA}, f = 1\text{ kHz}$				
Small signal current gain – Stromverstärkung	$h_{fe}$	typ. 220	typ. 330	typ. 600
Input impedance – Eingangs-Impedanz	$h_{ie}$	1.6...4.5 kΩ	3.2...8.5 kΩ	6...15 kΩ
Output admittance – Ausgangs-Leitwert	$h_{oe}$	18 < 30 μS	30 < 60 μS	60 < 110 μS
Reverse voltage transfer ratio Spannungsrückwirkung	$h_{re}$	typ. 1.5 * 10 <sup>-4</sup>	typ. 2 * 10 <sup>-4</sup>	typ. 3 * 10 <sup>-4</sup>

1) 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

2) Tested with pulses  $t = 300\ \mu\text{s}$  duty cycle < 2% – Gemessen mit Impulsen  $t = 300\ \mu\text{s}$  Schaltverhältnis < 2%



Characteristics (T<sub>j</sub> = 25°C)

Kennwerte (T<sub>j</sub> = 25°C)

		Min.	Typ.	Max.	
Collector saturation volt. – Kollektor-Sättigungsspannung <sup>1)</sup>					
I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0.5 mA	V <sub>CEsat</sub>	–	90 mV	250 mV	
I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5 mA	V <sub>CEsat</sub>	–	200 mV	600 mV	
Base saturation voltage – Basis-Sättigungsspannung <sup>1)</sup>					
I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0.5 mA	V <sub>BEsat</sub>	–	700 mV	–	
I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5 mA	V <sub>BEsat</sub>	–	900 mV	–	
Base-Emitter voltage – Basis-Emitter-Spannung <sup>1)</sup>					
V <sub>CE</sub> = 5 V, I <sub>C</sub> = 2 mA	V <sub>BEon</sub>	580 mV	660 mV	700 mV	
V <sub>CE</sub> = 5 V, I <sub>C</sub> = 10 mA	V <sub>BEon</sub>	–	–	770 mV	
Collector-Base cutoff current – Kollektorreststrom					
I <sub>E</sub> = 0, V <sub>CB</sub> = 30 V	I <sub>CB0</sub>	–	–	15 nA	
I <sub>E</sub> = 0, V <sub>CB</sub> = 30 V, T <sub>j</sub> = 150°C	I <sub>CB0</sub>	–	–	5 µA	
Emitter-Base cutoff current – Emittorreststrom					
I <sub>C</sub> = 0, V <sub>EB</sub> = 5 V	I <sub>EB0</sub>	–	–	100 nA	
Gain-Bandwidth Product – Transitfrequenz					
V <sub>CE</sub> = 5 V, I <sub>C</sub> = 10 mA, f = 100 MHz	f <sub>T</sub>	100 MHz		–	
Collector-Base Capacitance – Kollektor-Basis-Kapazität					
V <sub>CB</sub> = 10 V, I <sub>E</sub> = i <sub>c</sub> = 0, f = 1 MHz	C <sub>CB0</sub>	–	3.5 pF	6 pF	
Emitter-Base Capacitance – Emittor-Basis-Kapazität					
V <sub>EB</sub> = 0.5 V, I <sub>C</sub> = i <sub>c</sub> = 0, f = 1 MHz	C <sub>EB0</sub>	–	9 pF	–	
Noise figure – Rauschzahl					
V <sub>CE</sub> = 5 V, I <sub>C</sub> = 200 µA R <sub>G</sub> = 2 kΩ, f = 1 kHz, Δf = 200 Hz	BC 846W... BC 848W	F	–	2 dB	10 dB
	BC 849W... BC 850W	F		1.2 dB	4 dB
V <sub>CE</sub> = 5 V, I <sub>C</sub> = 200 µA R <sub>G</sub> = 2 kΩ, f = 1 kHz, f = 30 ... 15000 Hz	BC 849W	F	–	1.4 dB	4 dB
	BC 850W	F	–	1.4 dB	4 dB
Thermal resistance junction to ambient air Wärmewiderstand Sperrschicht – umgebende Luft		R <sub>thA</sub>			620 K/W <sup>2)</sup>
Recommended complementary PNP transistors Empfohlene komplementäre PNP-Transistoren					BC 856W ... BC 860W

	BC 846AW = 1A	BC 846BW = 1B		
Marking of available current gain groups per type	BC 847AW = 1E	BC 847BW = 1F	BC 847CW = 1G	
Stempelung der lieferbaren Stromverstärkungsgruppen pro Typ	BC 848AW = 1J	BC 848BW = 1K	BC 848CW = 1L	
		BC 849BW = 2B	BC 849CW = 2C	
		BC 850BW = 2F	BC 850CW = 2G	

<sup>1)</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>2)</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 (Lötpad) an jedem Anschluß