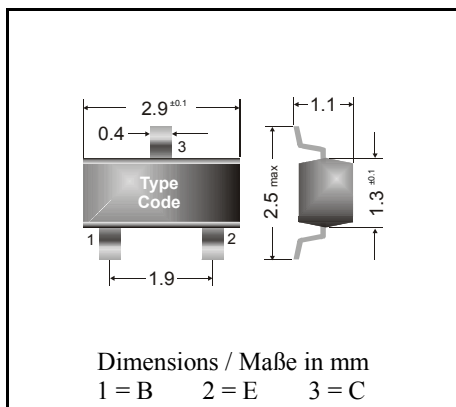


NPN

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

NPN



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 klassifiziertStandard 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 846	BC 847/850	BC 848/849
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}	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		
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 ²⁾	$V_{CE} = 5\text{ V}, I_C = 10\ \mu\text{A}$	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 Kleinsignal-Stromverstärkung	h_{fe}	typ. 220	typ. 330	typ. 600
Input impedance – Eingangs-Impedanz	h_{ie}	1.6...4.5 k Ω	3.2...8.5 k Ω	6...15 k Ω
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 ⁻⁴	typ. 2 * 10 ⁻⁴	typ. 3 * 10 ⁻⁴

¹⁾ Mounted on P.C. board with 3 mm² copper pad at each terminal
 Montage auf Leiterplatte mit 3 mm² Kupferbelag (Löt-pad) an jedem Anschluß

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

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

		Min.	Typ.	Max.	
Collector saturation volt. – Kollektor-Sättigungsspannung ¹⁾)					
$I_C = 10\text{ mA}, I_B = 0.5\text{ mA}$	V_{CEsat}	–	90 mV	250 mV	
$I_C = 100\text{ mA}, I_B = 5\text{ mA}$	V_{CEsat}	–	200 mV	600 mV	
Base saturation voltage – Basis-Sättigungsspannung ¹⁾)					
$I_C = 10\text{ mA}, I_B = 0.5\text{ mA}$	V_{BEsat}	–	700 mV	–	
$I_C = 100\text{ mA}, I_B = 5\text{ mA}$	V_{BEsat}	–	900 mV	–	
Base-Emitter voltage – Basis-Emitter-Spannung ¹⁾)					
$V_{CE} = 5\text{ V}, I_C = 2\text{ mA}$	V_{BEon}	580 mV	660 mV	700 mV	
$V_{CE} = 5\text{ V}, I_C = 10\text{ mA}$	V_{BEon}	–	–	770 mV	
Collector-Base cutoff current – Kollektorreststrom					
$I_E = 0, V_{CB} = 30\text{ V}$	I_{CB0}	–	–	15 nA	
$I_E = 0, V_{CB} = 30\text{ V}, T_j = 150^\circ\text{C}$	I_{CB0}	–	–	5 μA	
Emitter-Base cutoff current – Emitterreststrom					
$I_C = 0, V_{EB} = 5\text{ V}$	I_{EB0}	–	–	100 nA	
Gain-Bandwidth Product – Transitfrequenz					
$V_{CE} = 5\text{ V}, I_C = 10\text{ mA}, f = 100\text{ MHz}$	f_T	100 MHz	–	–	
Collector-Base Capacitance – Kollektor-Basis-Kapazität					
$V_{CB} = 10\text{ V}, I_E = i_c = 0, f = 1\text{ MHz}$	C_{CB0}	–	3.5 pF	6 pF	
Emitter-Base Capacitance – Emitter-Basis-Kapazität					
$V_{EB} = 0.5\text{ V}, I_C = i_c = 0, f = 1\text{ MHz}$	C_{EB0}	–	9 pF	–	
Noise figure – Rauschzahl					
$V_{CE} = 5\text{ V}, I_C = 200\text{ }\mu\text{A}$ $R_G = 2\text{ k}\Omega, f = 1\text{ kHz},$ $\Delta f = 200\text{ Hz}$	BC 846... BC 848	F	–	2 dB	10 dB
	BC 849/850	F	–	1.2 dB	4 dB
$V_{CE} = 5\text{ V}, I_C = 200\text{ }\mu\text{A}$ $R_G = 2\text{ k}\Omega, f = 1\text{ kHz},$ $f = 30 \dots 15000\text{ Hz}$	BC 849	F	–	1.4 dB	4 dB
	BC 850	F	–	1.4 dB	3 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		BC 856 ... BC 860			

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

¹⁾) 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 $\leq 2\%$

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