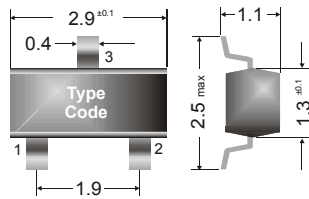


NPN

Surface mount Si-Epitaxial Planar Transistors

Si-Epitaxial Planar Transistoren für die Oberflächenmontage

NPN



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

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 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 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⁾				
$V_{CE} = 5\text{ V}, I_C = 10\text{ }\mu\text{A}$	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 $t_p = 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$ – Gemessen mit Impulsen $t_p = 300\text{ }\mu\text{s}$, 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 – Transistfrequenz				
$V_{CE} = 5\text{ V}, I_C = 10\text{ mA}, f = 100\text{ MHz}$	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 BC 849/850	F F F	– – –	2 dB 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 BC 850	F F	– –	1.4 dB 1.4 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
Stempelung der lieferbaren Stromverstärkungsgruppen pro Typ	BC 848A = 1J	BC 848B = 1K	BC 848C = 1L
		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