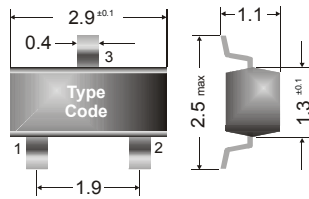


PNP

Surface mount Si-Epitaxial Planar Transistors

Si-Epitaxial Planar Transistoren für die Oberflächenmontage

PNP



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 856	BC 857/860	BC 858/859
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	$-V_{EB0}$	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 mA, - I _B = 0.5 mA	- V _{CEsat}	–	90 mV	250 mV	
- I _C = 100 mA, - I _B = 5 mA	- V _{CEsat}	–	200 mV	600 mV	
Base saturation voltage – Basis-Sättigungsspannung ¹⁾					
- I _C = 10 mA, - I _B = 0.5 mA	- V _{BEsat}	–	700 mV	–	
- I _C = 100 mA, - I _B = 5 mA	- V _{BEsat}	–	900 mV	–	
Base-Emitter voltage – Basis-Emitter-Spannung ¹⁾					
- V _{CE} = 5 V, - I _C = 2 mA	- V _{BEon}	600 mV	650 mV	750 mV	
- V _{CE} = 5 V, - I _C = 10 mA	- V _{BEon}	–	–	820 mV	
Collector-Base cutoff current – Kollektorreststrom					
I _E = 0, - V _{CB} = 30 V	- I _{CB0}	–	–	15 nA	
I _E = 0, - V _{CB} = 30 V, T _j = 150°C	- I _{CB0}	–	–	5 µA	
Emitter-Base cutoff current – Emitterreststrom					
I _C = 0, - V _{EB} = 5 V	- I _{EB0}	–	–	100 nA	
Gain-Bandwidth Product – Transittfrequenz					
- 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}	–	–	6 pF	
Noise figure – Rauschzahl					
- V _{CE} = 5 V, - I _C = 200 µA R _G = 2 kΩ, f = 1 kHz, Δf = 200 Hz	BC 856... BC 858 BC 859/860	F F F	– – –	2 dB 1 dB –	10 dB 4 dB –
- V _{CE} = 5 V, - I _C = 200 µA R _G = 2 kΩ, f = 30...15 kHz	BC 859 BC 860	F F	– –	1.2 dB 1.2 dB	4 dB 4 dB
Equivalent noise voltage – Äquivalente Rauschspannung					
- V _{CE} = 5 V, - I _C = 200 µA R _G = 2 kΩ, f = 10 ... 50 Hz	BC 860	u _F	–	–	0.11 µV
Thermal resistance junction to ambient air Wärmewiderstand Sperrschicht – umgebende Luft			R _{thA} 420 K/W ²⁾		
Recommended complementary NPN transistors Empfohlene komplementäre NPN-Transistoren			BC 846 ... BC 850		

	BC 856A = 3A	BC 856B = 3B	
Marking of available current gain groups per type	BC 857A = 3E	BC 857B = 3F	BC 857C = 3G
Stempelung der lieferbaren Stromverstärkungsgruppen pro Typ	BC 858A = 3J	BC 858B = 3K	BC 858C = 3L
		BC 859B = 4B	BC 859C = 4C
		BC 860B = 4F	BC 860C = 4G

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