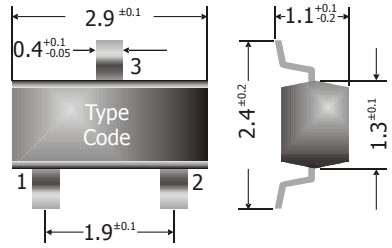
Diotec Semiconductor

BC856 ... BC860

PNP **Surface Mount General Purpose Si-Epi-Planar Transistors**
Si-Epi-Planar Universaltransistoren für die Oberflächenmontage **PNP**

Version 2015-05-12



Dimensions - Maße [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)

			BC856	BC857 BC860	BC858 BC859
Collector-Emitter-volt. – Kollektor-Emitter-Spannung	B open	$-V_{CEO}$	65 V	45 V	30 V
Collector-Base-voltage – Kollektor-Basis-Spannung	E open	$-V_{CBO}$	80 V	50 V	30 V
Emitter-Base-voltage – Emitter-Basis-Spannung	C open	$-V_{EBO}$	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		
Junction temperature – Sperrschichttemperatur Storage temperature – Lagerungstemperatur		T_j T_S	-55...+150°C -55...+150°C		

Characteristics (T_j = 25°C) Kennwerte (T_j = 25°C)

			Min.	Typ.	Max.
DC current gain – Kollektor-Basis-Stromverhältnis					
$-V_{CE}$ = 5 V, $-I_C$ = 10 µA	Group A	H_{FE}	–	90	–
	Group B	h_{FE}	–	150	–
	Group C	h_{FE}	–	270	–
$-V_{CE}$ = 5 V, $-I_C$ = 2 mA	Group A	H_{FE}	125	180	250
	Group B	h_{FE}	220	290	475
	Group C	h_{FE}	420	520	800
Collector-Emitter saturation voltage – Kollektor-Sättigungsspannung [2])					
I_C = 10 mA, I_B = 0.5 mA		$-V_{CEsat}$	–	–	300 mV
I_C = 100 mA, I_B = 5 mA		$-V_{CEsat}$	–	–	650 mV
Base-Emitter saturation voltage – Basis-Sättigungsspannung [2])					
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	–

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-Emitter-voltage – Basis-Emitter-Spannung [2]					
- V_{CE} = 5 V, I_C = - 2 mA		- V_{BE}	600 mV	–	750 mV
- V_{CE} = 5 V, I_C = - 10 mA		- V_{BE}	–	–	720 mV
Collector-Base cutoff current – Kollektor-Basis-Reststrom					
- V_{CB} = 30 V, (E open)		- I_{CBO}	–	–	15 nA
- V_{CE} = 30 V, T_j = 125°C, (E open)		- I_{CBO}	–	–	4 µA
Emitter-Base cutoff current					
- V_{EB} = 5 V, (C open)		- I_{EBO}	–	–	100 nA
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_{CBO}	–	–	4.5 pF
Emitter-Base Capacitance – Emitter-Basis-Kapazität					
- V_{EB} = 0.5 V, I_C = i_c = 0, f = 1 MHz		C_{EB0}	–	9 pF	–
Noise figure – Rauschzahl					
- V_{CE} = 5 V, - I_C = 200 µA	BC856 ... BC858	F	–	2 dB	10 dB
R_G = 2 kΩ, f = 1 kHz, Δf = 200 Hz	BC859 ... BC860	F	–	1.2 dB	4 dB
Thermal resistance junction to ambient air Wärmewiderstand Sperrschicht – umgebende Luft		R_{thA}	< 420 K/W [1]		
Recommended complementary NPN transistors Empfohlene komplementäre NPN-Transistoren			BC846 ... BC850		
Marking of available current gain groups Stempelung der lieferbaren Stromverstärkungsgruppen	BC856A = 3A BC856B = 3B BC856C = 3C		BC857A = 3E BC857B = 3F BC857C = 3G BC860B = 3F BC860C = 3G or 4G	BC858A = 3E BC858B = 3F BC858C = 3G BC859B = 3F BC859C = 3G or 4C	

2 Tested with pulses t_p = 300 µs, duty cycle ≤ 2% – Gemessen mit Impulsen t_p = 300 µs, Schaltverhältnis ≤ 2%

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