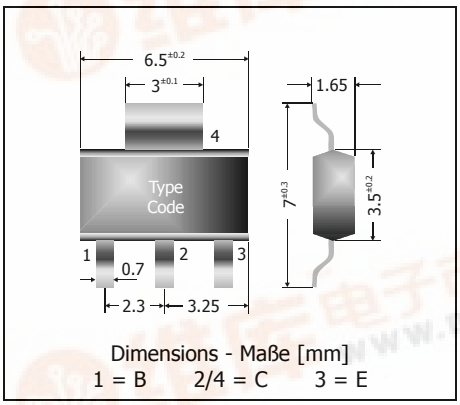
Diotec Semiconductor

BCP51 ... BCP53

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

Version 2006-06-26



Dimensions - Maße [mm]
1 = B 2/4 = C 3 = E

Power dissipation 1.3 W
Verlustleistung

Plastic case SOT-223
Kunststoffgehäuse

Weight approx. 0.04 g
Gewicht ca.

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)

			BCP51	BCP52	BCP53
Collector-Emitter-volt. – Kollektor-Emitter-Spannung	B open	$-V_{CEO}$	45 V	60 V	80 V
Collector-Base-voltage – Kollektor-Basis-Spannung	E open	$-V_{CBO}$	45 V	60 V	100 V
Collector-Base-voltage – Kollektor-Basis-Spannung	C open	$-V_{EBO}$	5 V		
Power dissipation – Verlustleistung		P_{tot}	1.3 W [1])		
Collector current – Kollektorstrom (dc)		$-I_C$	1 A		
Peak Collector current – Kollektor-Spitzenstrom		$-I_{CM}$	1.5 A		
Peak Base current – Basis-Spitzenstrom		$-I_{BM}$	200 mA		
Junction temperature – Sperrschichttemperatur Storage temperature – Lagerungstemperatur		T_j T_S	-55...+150°C -55...+150°C		

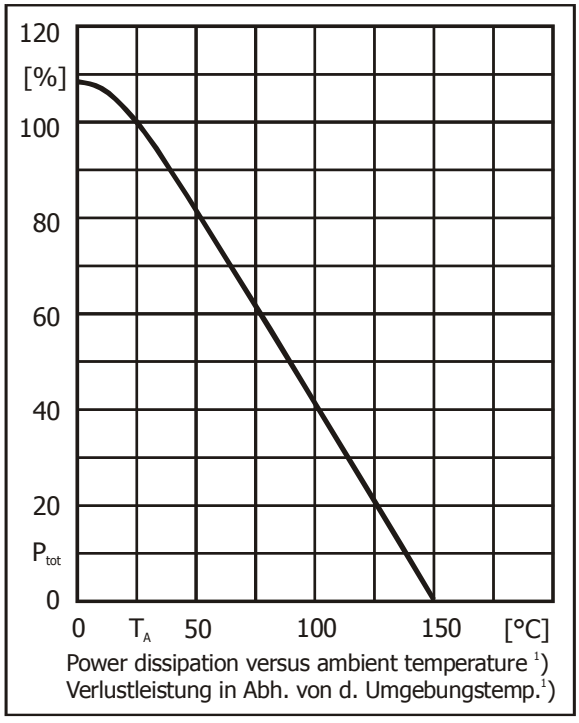
Characteristics (T_j = 25°C) Kennwerte (T_j = 25°C)

			Min.	Typ.	Max.
DC current gain – Kollektor-Basis-Stromverhältnis [2])					
$-V_{CE}$ = 2 V, $-I_C$ = 5 mA	all groups	h_{FE}	25		
$-V_{CE}$ = 2 V, $-I_C$ = 150 mA	Group -6	h_{FE}	40	–	100
	Group -10	h_{FE}	63	–	160
	Group -16	h_{FE}	100	–	250
$-V_{CE}$ = 2 V, $-I_C$ = 500 mA	all groups	h_{FE}	25	–	–
Collector-Emitter saturation voltage – Kollektor-Emitter-Sättigungsspg. [2])					
$-I_C$ = 500 mA, $-I_B$ = 50 mA		$-V_{CEsat}$	–	–	0.5 V
Base-Emitter voltage – Basis-Emitter-Spannung [2])					
$-I_C$ = 500 mA, $-I_B$ = 50 mA		$-V_{BE}$	–	–	1 V

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.
Collector-Base cutoff current – Kollektor-Basis-Reststrom				
- V_{CB} = 30 V, (E open)	- I_{CB0}	–	–	100 nA
- V_{CB} = 30 V, T_j = 125°C, (E open)	- I_{CB0}	–	–	10 µA
Emitter-Base cutoff current – Emitter-Basis-Reststrom				
- V_{EB} = 5 V, (C open)	- I_{EB0}	–	–	100 nA
Gain-Bandwidth Product – Transitfrequenz				
- V_{CE} = 5 V, - I_C = 10 mA, f = 100 MHz	f_T	–	120 MHz	–
DC current gain ratio of the complementary pairs Verhältnis der Stromverstärkungen komplementärer Paare				
$\lvert I_C \rvert$ = 150 mA, $\lvert V_{CE} \rvert$ = 2 V	h_{FE1}/h_{FE2}	–	–	1.6
Thermal resistance junction to ambient air Wärmewiderstand Sperrschicht – umgebende Luft	R_{thA}	< 93 K/W [1])		
Thermal resistance junction to soldering point Wärmewiderstand Sperrschicht – Lötpad	R_{thS}	< 27 K/W		
Recommended complementary NPN transistors Empfohlene komplementäre NPN-Transistoren		BCP54 ... BCP56		



Power dissipation versus ambient temperature [1])
Verlustleistung in Abh. von d. Umgebungstemp.[1])

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