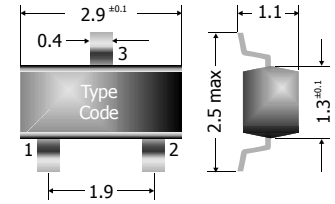
Diotec Semiconductor

MMBT5400 / MMBT5401

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

Version 2006-05-16



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	

RoHS Pb WEEE ELV

Maximum ratings (T_A = 25°C) — Grenzwerte (T_A = 25°C)

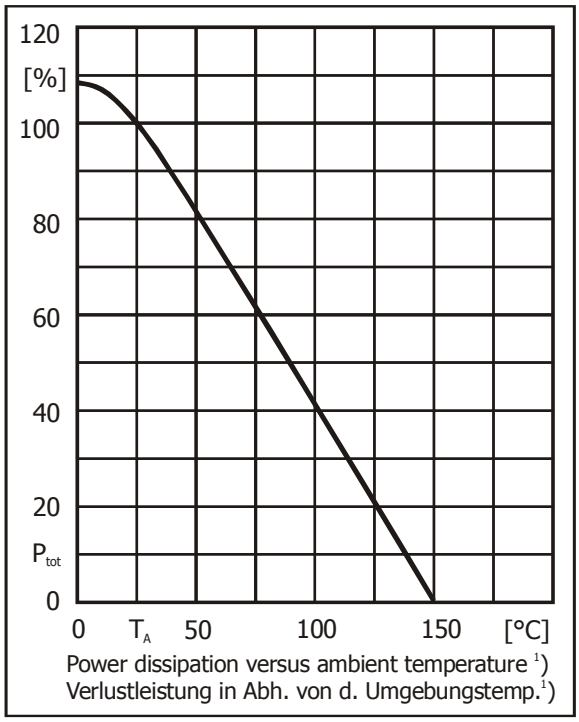
			MMBT5400	MMBT5401
Collector-Emitter-volt. – Kollektor-Emitter-Spannung	B open	$-V_{CEO}$	120 V	150 V
Collector-Base-voltage – Kollektor-Basis-Spannung	E open	$-V_{CBO}$	130 V	160 V
Emitter-Base-voltage – Emitter-Basis-Spannung	C open	$-V_{EBO}$	5 V	
Power dissipation – Verlustleistung		P_{tot}	250 mW [1])	
Collector current – Kollektorstrom (dc)		$-I_C$	600 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])					
$-V_{CE}$ = 5 V, $-I_C$ = 1 mA	MMBT5400	h_{FE}	30	–	–
$-V_{CE}$ = 5 V, $-I_C$ = 10 mA	MMBT5400	h_{FE}	40	–	180
$-V_{CE}$ = 5 V, $-I_C$ = 50 mA	MMBT5400	h_{FE}	40	–	–
$-V_{CE}$ = 5 V, $-I_C$ = 1 mA	MMBT5401	h_{FE}	50	–	–
$-V_{CE}$ = 5 V, $-I_C$ = 10 mA	MMBT5401	h_{FE}	60	–	240
$-V_{CE}$ = 5 V, $-I_C$ = 50 mA	MMBT5401	h_{FE}	50	–	–
Collector-Emitter saturation voltage – Kollektor-Emitter-Sättigungsspg. [2])					
$-I_C$ = 10 mA, $-I_B$ = 1 mA		$-V_{CEsat}$	–	–	0.2 V
$-I_C$ = 50 mA, $-I_B$ = 5 mA		$-V_{CEsat}$	–	–	0.5 V
Base-Emitter saturation voltage – Basis-Emitter-Sättigungsspannung [2])					
$-I_C$ = 10 mA, $-I_B$ = 1 mA		$-V_{BEsat}$	–	–	1.0 V
$-I_C$ = 50 mA, $-I_B$ = 5 mA		$-V_{BEsat}$	–	–	1.0 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)		
Collector-Base cutoff current – Kollektor-Basis-Reststrom					
- V_{CB} = 100 V, (E open)	MMBT5400	- I_{CBO}	–	–	50 nA
- V_{CB} = 120 V, (E open)	MMBT5401	- I_{CBO}	–	–	50 nA
- V_{CB} = 100 V, T_j = 100°C, (E open)	MMBT5400	- I_{CBO}	–	–	50 µA
- V_{CB} = 120 V, T_j = 100°C, (E open)	MMBT5401	- I_{CBO}	–	–	50 µA
Emitter-Base-cutoff current – Emitter-Basis-Reststrom					
- V_{EB} = 4 V, (C open)		- I_{EBO}	–	–-	50 nA
Gain-Bandwidth Product – Transitfrequenz					
- I_C = 10 mA, - V_{CE} = 10 V, f = 100 MHz		f_T	100 MHz	–	300 MHz
Collector-Base Capacitance – Kollektor-Basis-Kapazität					
- V_{CB} = 10 V, I_E = i_e = 0, f = 1 MHz		C_{CBO}	–	–	6 pF
Noise figure – Rauschzahl					
- V_{CE} = 5 V, - I_C = 200 µA,	MMBT5400	F	–	–	–
R_S = 10 Ω, f = 1 kHz	MMBT5401	F	–	–	8 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			MMBT5550 / MMBT5551		
Marking - Stempelung			MMBT5400 = 2L MMBT5401 = 2Lx		



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