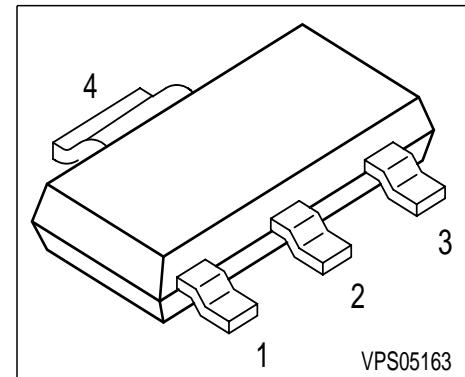


NPN Silicon AF Power Transistor

- For AF driver and output stages
- High collector current
- High current gain
- Low collector-emitter saturation voltage
- Complementary types: BDP952 ... BDP956 (PNP)



Type	Marking	Pin Configuration				Package
BDP951	BDP 951	1 = B	2 = C	3 = E	4 = C	SOT223
BDP953	BDP 953	1 = B	2 = C	3 = E	4 = C	SOT223
BDP955	PDP 955	1 = B	2 = C	3 = E	4 = C	SOT223

Maximum Ratings

Parameter	Symbol	BDP 951	BDP 953	BDP 955	Unit
Collector-emitter voltage	V_{CEO}	80	100	120	V
Collector-base voltage	V_{CBO}	100	120	140	
Emitter-base voltage	V_{EBO}	5	5	5	
DC collector current	I_C		3		A
Peak collector current	I_{CM}		5		
Base current	I_B		200		
Peak base current	I_{BM}		500		mA
Total power dissipation, $T_S = 99^\circ\text{C}$	P_{tot}		3		
Junction temperature	T_j		150		
Storage temperature	T_{stg}		-65 ... 150		°C

Thermal Resistance

Junction - soldering point ¹⁾	R_{thJS}	≤ 17	K/W
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¹⁾For calculation of R_{thJA} please refer to Application Note Thermal Resistance

Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified.

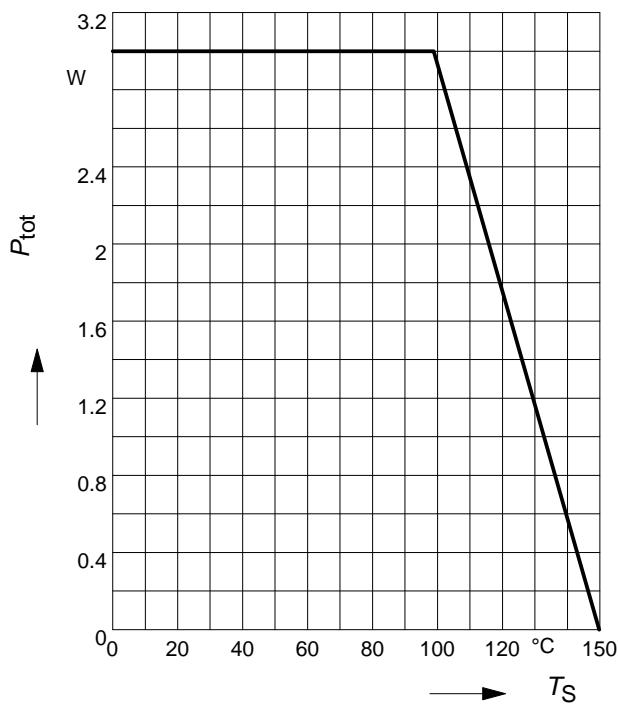
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage $I_C = 10 \text{ mA}, I_B = 0$	$V_{(\text{BR})\text{CEO}}$	80	-	-	V
		100	-	-	
		120	-	-	
Collector-base breakdown voltage $I_C = 100 \mu\text{A}, I_B = 0$	$V_{(\text{BR})\text{CBO}}$	100	-	-	
		120	-	-	
		140	-	-	
Emitter-base breakdown voltage $I_E = 10 \mu\text{A}, I_C = 0$	$V_{(\text{BR})\text{EBO}}$	5	-	-	
		-	-	-	
Collector cutoff current $V_{\text{CB}} = 100 \text{ V}, I_E = 0$	I_{CBO}	-	-	100	nA
Collector cutoff current $V_{\text{CB}} = 100 \text{ V}, I_E = 0, T_A = 150^\circ\text{C}$	I_{CBO}	-	-	20	µA
Emitter cutoff current $V_{\text{EB}} = 4 \text{ V}, I_C = 0$	I_{EBO}	-	-	100	nA
		-	-	-	
		-	-	-	
DC current gain 1) $I_C = 10 \text{ mA}, V_{\text{CE}} = 5 \text{ V}$ $I_C = 500 \text{ mA}, V_{\text{CE}} = 1 \text{ V}$ $I_C = 2 \text{ A}, V_{\text{CE}} = 2 \text{ V}$	h_{FE}	25	-	-	
		40	-	475	
		15	-	-	
Collector-emitter saturation voltage1) $I_C = 2 \text{ A}, I_B = 0.2 \text{ A}$	V_{CEsat}	-	-	0.8	V
		-	-	-	
Base-emitter saturation voltage 1) $I_C = 2 \text{ A}, I_B = 0.2 \text{ A}$	V_{BEsat}	-	-	1.5	

AC Characteristics

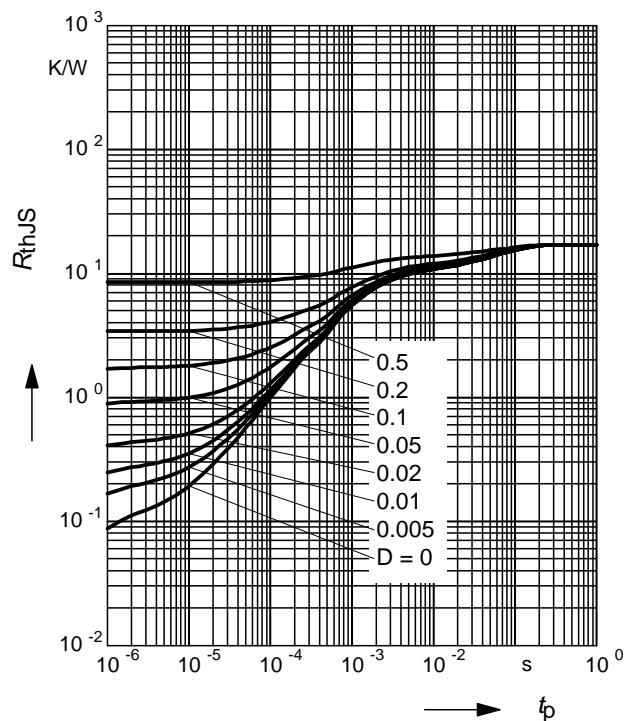
Transition frequency $I_C = 50 \text{ mA}, V_{\text{CE}} = 10 \text{ V}, f = 100 \text{ MHz}$	f_T	-	100	-	MHz
Collector-base capacitance $V_{\text{CB}} = 10 \text{ V}, f = 1 \text{ MHz}$	C_{cb}	-	25	-	pF

1) Pulse test: $t \leq 300 \mu\text{s}$, $D = 2\%$

Total power dissipation $P_{\text{tot}} = f(T_S)$

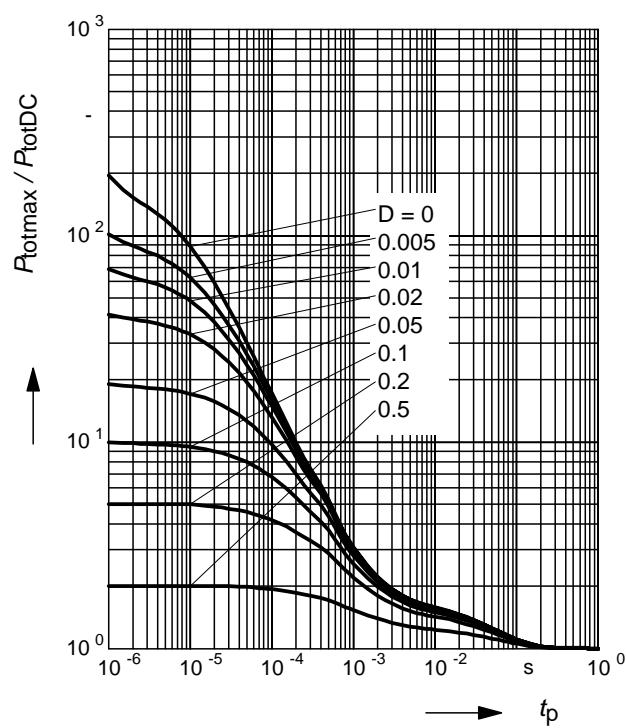


Permissible Pulse Load $R_{\text{thJS}} = f(t_p)$



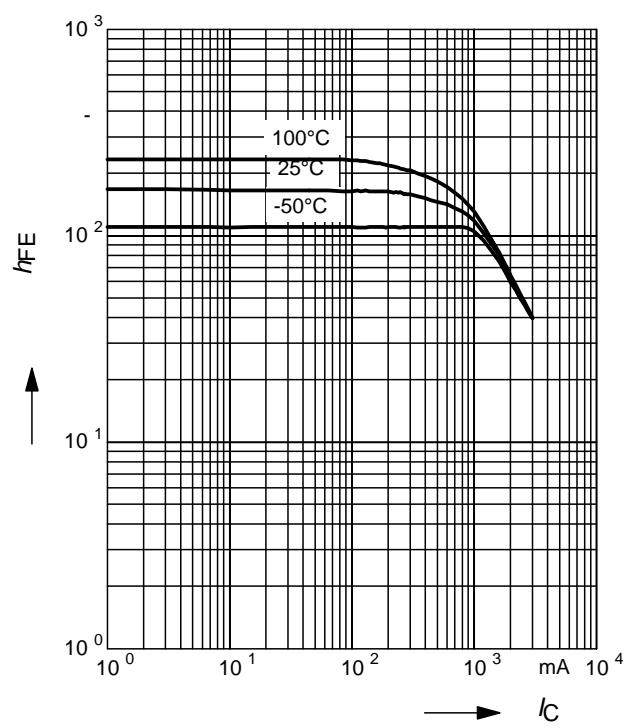
Permissible Pulse Load

$P_{\text{totmax}} / P_{\text{totDC}} = f(t_p)$



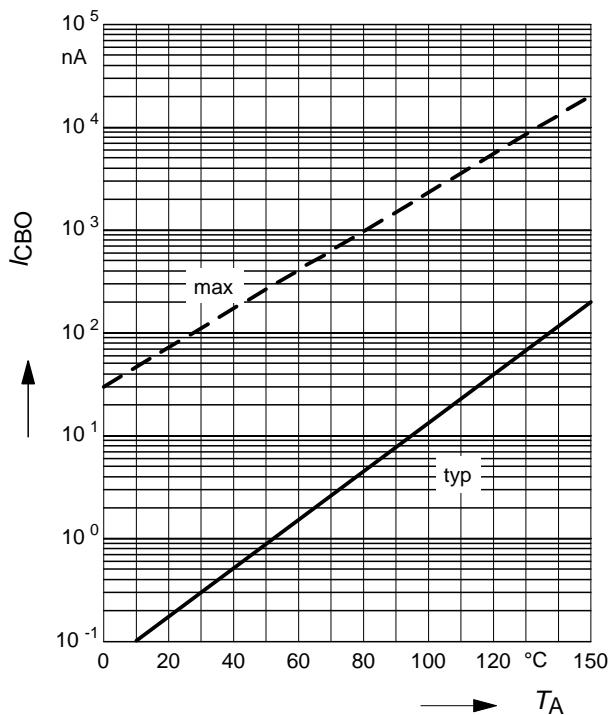
DC current gain $h_{\text{FE}} = f(I_C)$

$V_{\text{CE}} = 2\text{V}$



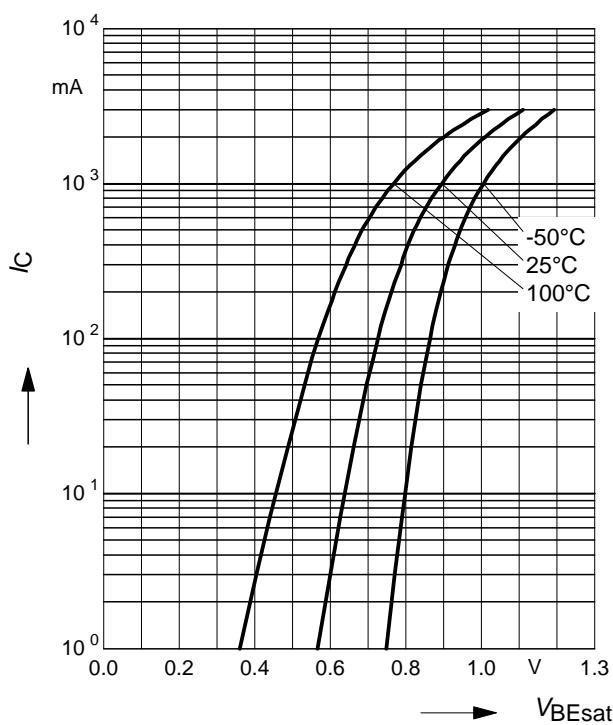
Collector cutoff current $I_{CBO} = f(T_A)$

$V_{CB} = 45V$



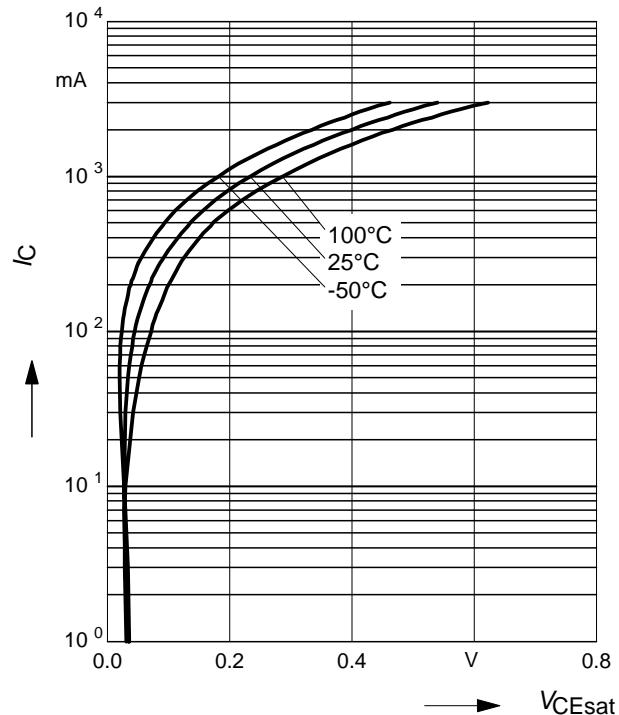
Base-emitter saturation voltage

$I_C = f(V_{BEsat}), h_{FE} = 10$



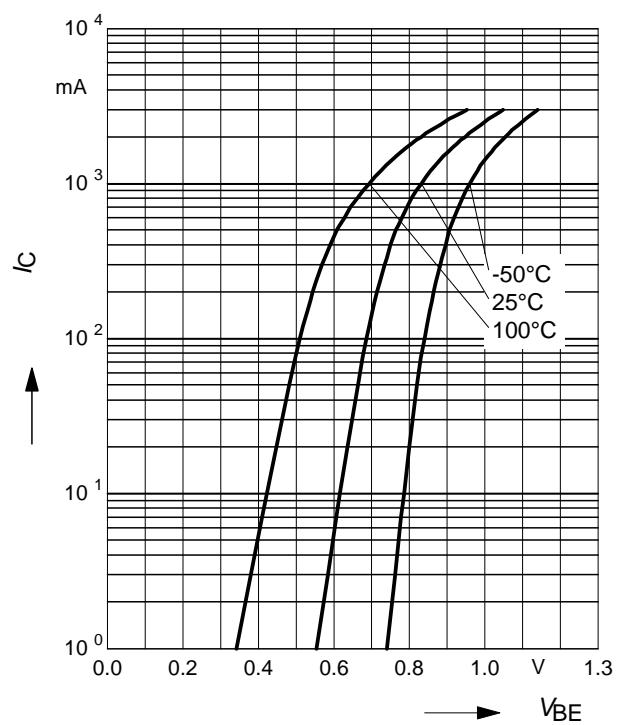
Collector-emitter saturation voltage

$I_C = f(V_{CEsat}), h_{FE} = 10$



Collector current $I_C = f(V_{BE})$

$V_{CE} = 2V$



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