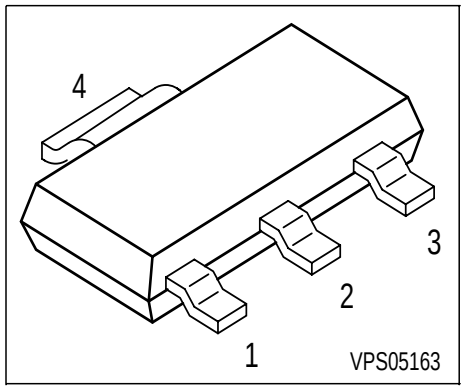
PNP Silicon AF Power Transistors

- For AF driver and output stages
- High current gain
- Low collector-emitter saturation voltage
- Complementary types: BDP951...BDP955 (NPN)



Type	Marking	Pin Configuration				Package
BDP952	BDP 952	1 = B	2 = C	3 = E	4 = C	SOT223
BDP954	BDP 954	1 = B	2 = C	3 = E	4 = C	SOT223
BDP956	BDP 956	1 = B	2 = C	3 = E	4 = C	SOT223

Maximum Ratings

Parameter	Symbol	BDP952	BDP954	BDP956	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			mA
Peak base current	I_{BM}	500			
Total power dissipation, T_S = 99 °C	P_{tot}	3			W
Junction temperature	T_j	150			°C
Storage temperature	T_{stg}	-65 ... 150			

Thermal Resistance

Junction - soldering point[1)]	R_{thJS}	≤17	K/W

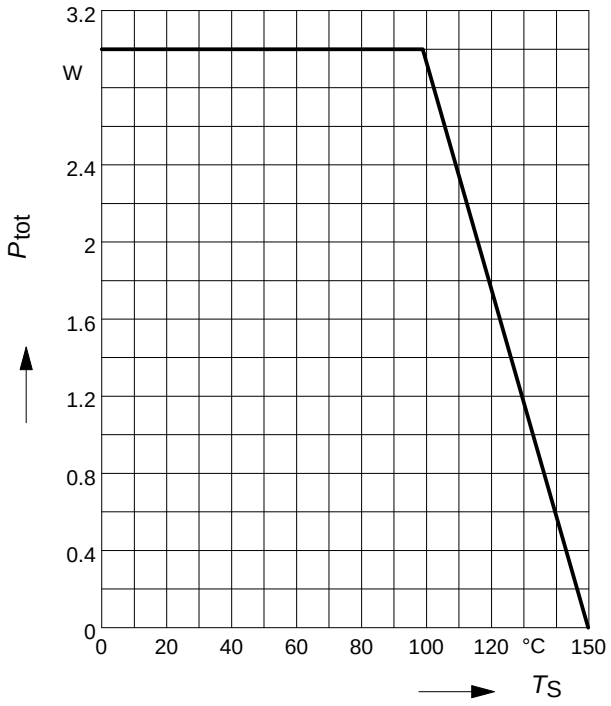
[1]For calculation of R_{thJA} please refer to Application Note Thermal Resistance

Electrical Characteristics at T_A = 25°C, unless otherwise specified.

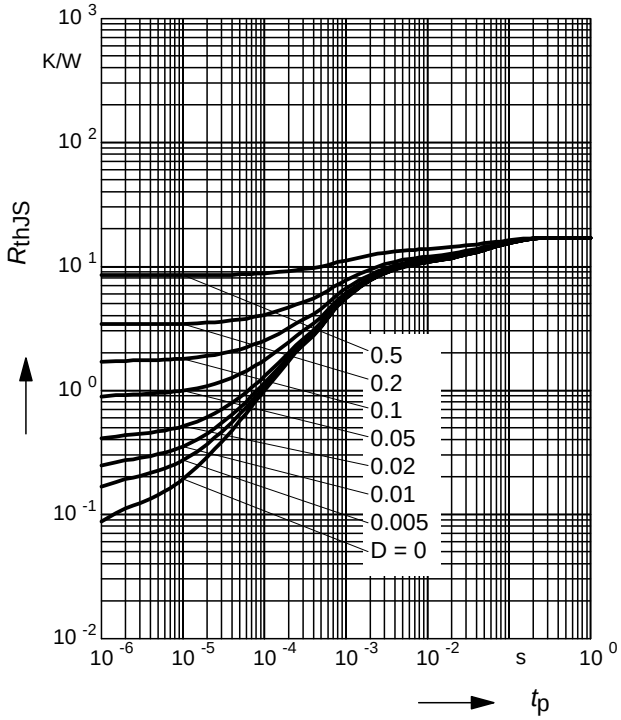
Parameter		Symbol	Values			Unit
			min.	typ.	max.	
DC Characteristics						
Collector-emitter breakdown voltage		$V_{(BR)CEO}$				V
I_C = 10 mA, I_B = 0	BDP952		80	-	-	
	BDP954		100	-	-	
	BDP956		120	-	-	
Collector-base breakdown voltage		$V_{(BR)CBO}$				
I_C = 100 µA, I_B = 0	BDP952		100	-	-	
	BDP954		120	-	-	
	BDP956		140	-	-	
Emitter-base breakdown voltage I_E = 10 µA, I_C = 0		$V_{(BR)EBO}$	5	-	-	
Collector cutoff current V_{CB} = 100 V, I_E = 0		I_{CBO}	-	-	100	nA
Collector cutoff current V_{CB} = 100 V, I_E = 0 , T_A = 150 °C		I_{CBO}	-	-	20	µA
Emitter cutoff current V_{EB} = 4 V, I_C = 0		I_{EBO}	-	-	100	nA
DC current gain 1)		h_{FE}				-
I_C = 10 mA, V_{CE} = 5 V			25	-	-	
I_C = 500 mA, V_{CE} = 1 V			40	-	475	
I_C = 2 A, V_{CE} = 2 V			15	-	-	
Collector-emitter saturation voltage1) I_C = 2 A, I_B = 0.2 A		V_{CEsat}	-	-	0.8	V
Base-emitter saturation voltage 1) I_C = 2 A, I_B = 0.2 A		V_{BEsat}	-	-	1.5	
AC Characteristics						
Transition frequency I_C = 50 mA, V_{CE} = 10 V, f = 100 MHz		f_T	-	100	-	MHz
Collector-base capacitance V_{CB} = 10 V, f = 1 MHz		C_{cb}	-	40	-	pF

1) Pulse test: t ≤ 300µs, D = 2%

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

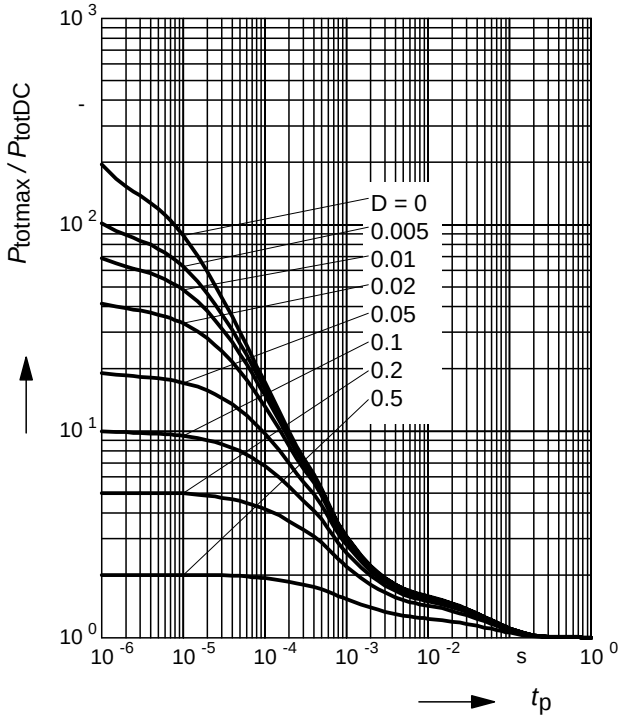


Permissible Pulse Load $R_{thJS} = f(t_p)$



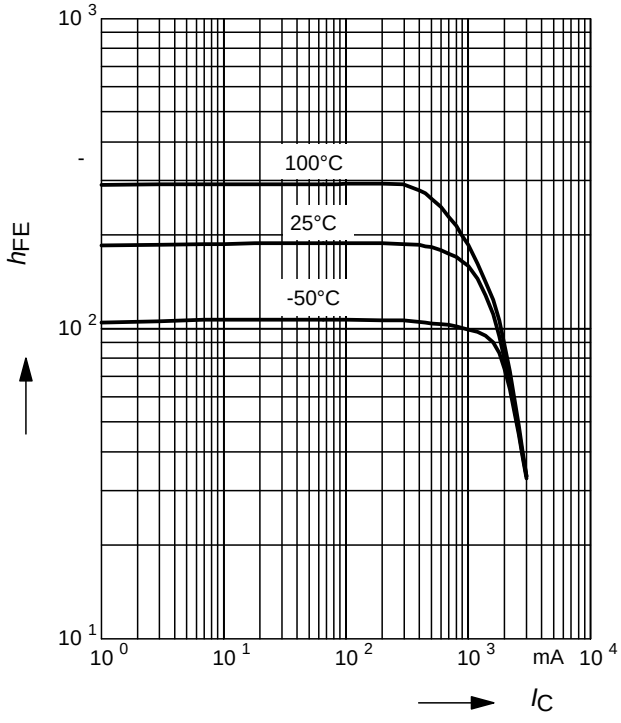
Permissible Pulse Load

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



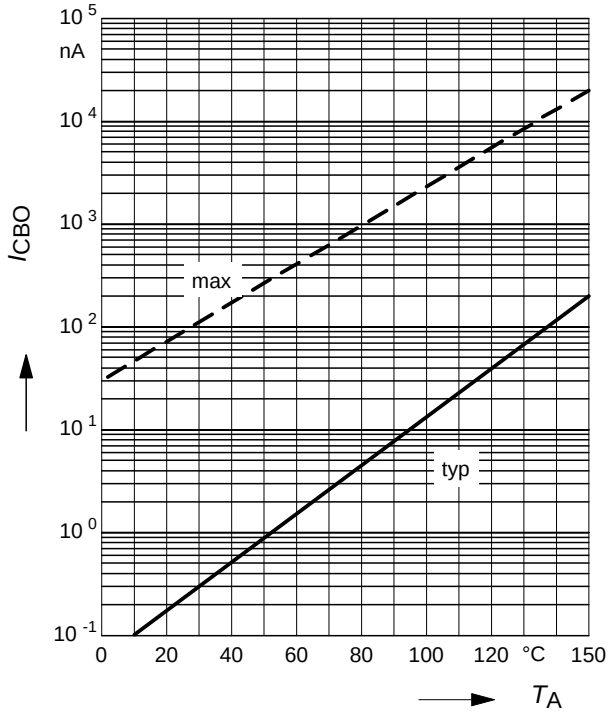
DC current gain $h_{FE} = f(I_C)$

$V_{CE} = 2V$



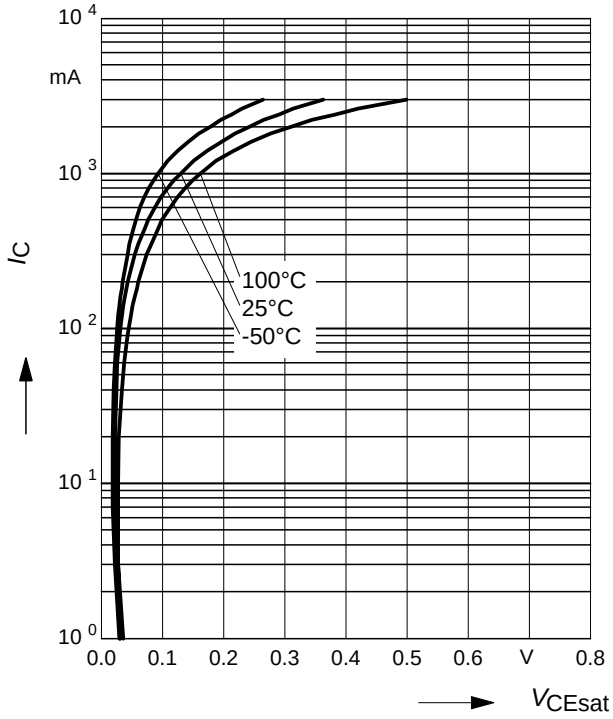
Collector cutoff current $I_{CBO} = f(T_A)$

V_{CB} = 45V



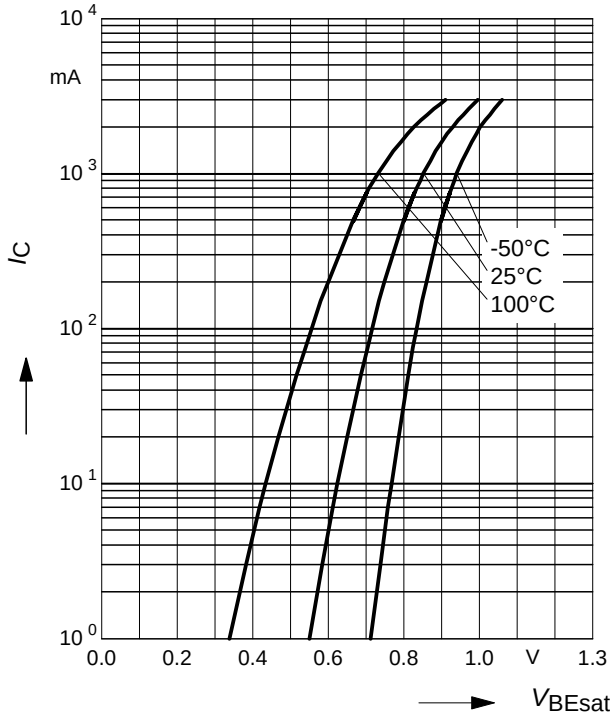
Collector-emitter saturation voltage

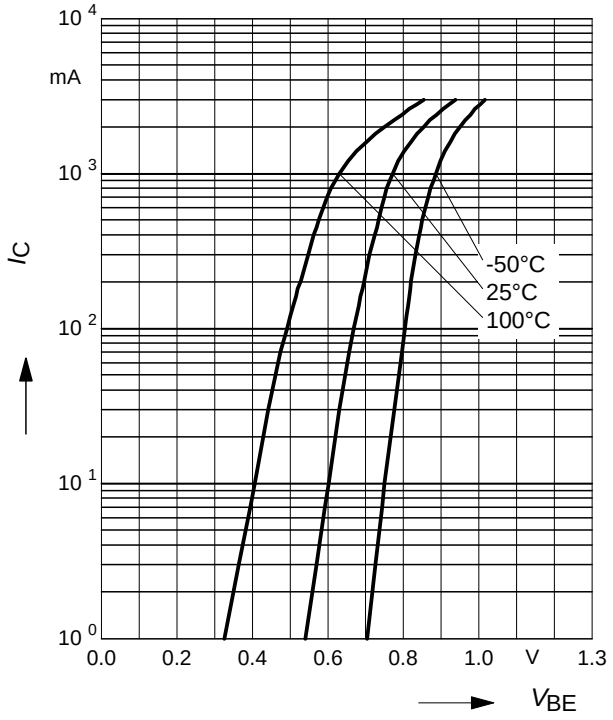
$I_C = f(V_{CEsat})$, h_{FE} = 10



Base-emitter saturation voltage

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



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

V_{CE} = 2V