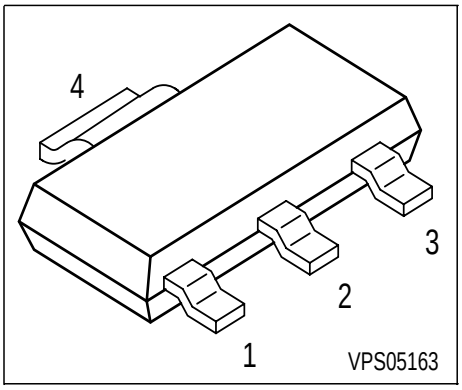
PNP Silicon AF Transistors

- For AF driver and output stages
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: BCP54...BCP56 (NPN)



Type	Marking	Pin Configuration				Package
BCP51	BCP 51	1 = B	2 = C	3 = E	4 = C	SOT223
BCP51-10	BCP 51-10	1 = B	2 = C	3 = E	4 = C	SOT223
BCP51-16	BCP 51-16	1 = B	2 = C	3 = E	4 = C	SOT223
BCP52	BCP 52	1 = B	2 = C	3 = E	4 = C	SOT223
BCP52-10	BCP 52-10	1 = B	2 = C	3 = E	4 = C	SOT223
BCP52-16	BCP 52-16	1 = B	2 = C	3 = E	4 = C	SOT223
BCP53	BCP 53	1 = B	2 = C	3 = E	4 = C	SOT223
BCP53-10	BCP 53-10	1 = B	2 = C	3 = E	4 = C	SOT223
BCP53-16	BCP 53-16	1 = B	2 = C	3 = E	4 = C	SOT223

Maximum Ratings

Parameter	Symbol	BCP51	BCP52	BCP53	Unit
Collector-emitter voltage	V_{CEO}	45	60	80	V
Collector-emitter voltage $R_{BE} \leq 1k\Omega$	V_{CER}	45	60	100	
Collector-base voltage	V_{CBO}	45	60	100	
Emitter-base voltage	V_{EBO}	5	5	5	
DC collector current	I_C	1			A
Peak collector current	I_{CM}	1.5			
Base current	I_B	100			mA
Peak base current	I_{BM}	200			
Total power dissipation, T_S = 124 °C	P_{tot}	1.5			W
Junction temperature	T_j	150			°C
Storage temperature	T_{stg}	-65 ... 150			

Thermal Resistance

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

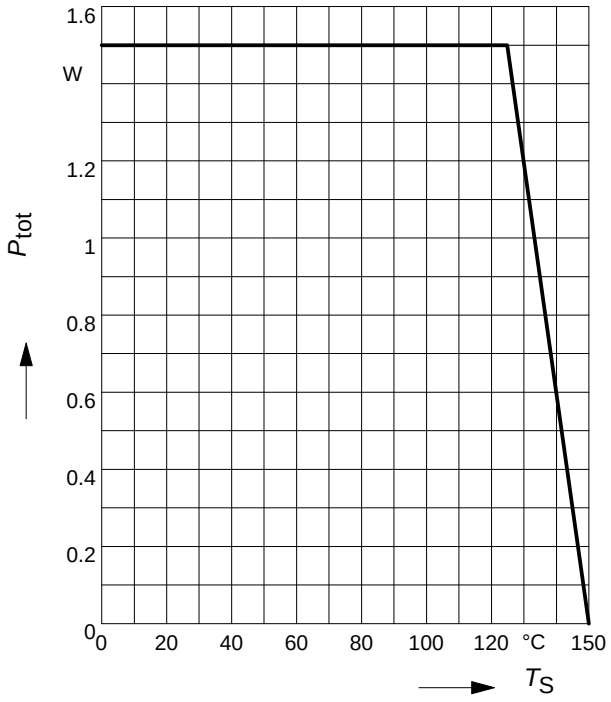
[1]For calculation of R_{thJA} please refer to Application Note Thermal Resistance

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	BCP51		45	-	-	
	BCP52		60	-	-	
	BCP53		80	-	-	
Collector-base breakdown voltage		$V_{(BR)CBO}$				
I_C = 100 µA, I_E = 0	BCP51		45	-	-	
	BCP52		60	-	-	
	BCP53		100	-	-	
Emitter-base breakdown voltage		$V_{(BR)EBO}$	5	-	-	
I_E = 10 µA, I_C = 0						
Collector cutoff current		I_{CBO}	-	-	100	nA
V_{CB} = 30 V, I_E = 0						
Collector cutoff current		I_{CBO}	-	-	20	µA
V_{CB} = 30 V, I_E = 0 , T_A = 150 °C						
DC current gain 1)		h_{FE}	25	-	-	-
I_C = 5 mA, V_{CE} = 2 V						
DC current gain 1)		h_{FE}				
I_C = 150 mA, V_{CE} = 2 V	BCP51...53		40	-	250	
	hFE-grp.10		63	100	160	
	hFE-grp.16		100	160	250	
DC current gain 1)		h_{FE}	25	-	-	
I_C = 500 mA, V_{CE} = 2 V						
Collector-emitter saturation voltage1)		V_{CEsat}	-	-	0.5	V
I_C = 500 mA, I_B = 50 mA						
Base-emitter voltage 1)		$V_{BE(ON)}$	-	-	1	
I_C = 500 mA, V_{CE} = 2 V						
AC Characteristics						
Transition frequency		f_T	-	125	-	MHz
I_C = 50 mA, V_{CE} = 10 V, f = 100 MHz						

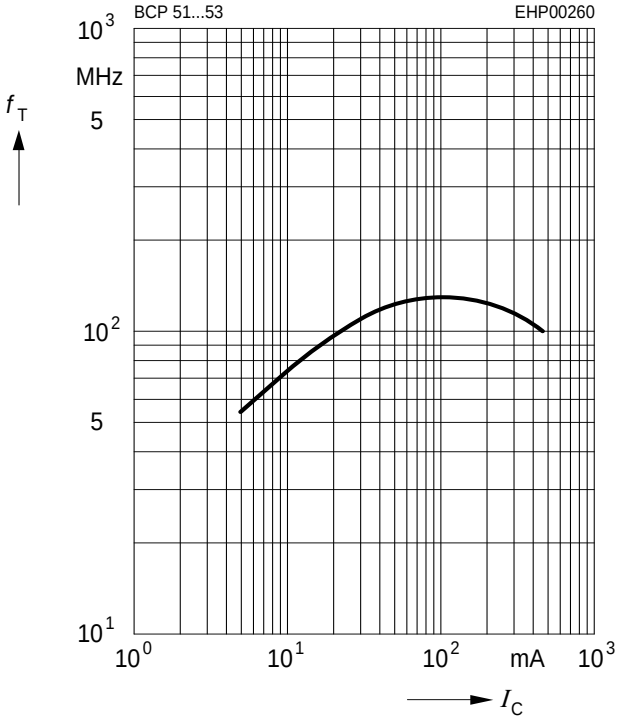
1) Pulse test: t ≤ 300µs, D = 2%

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



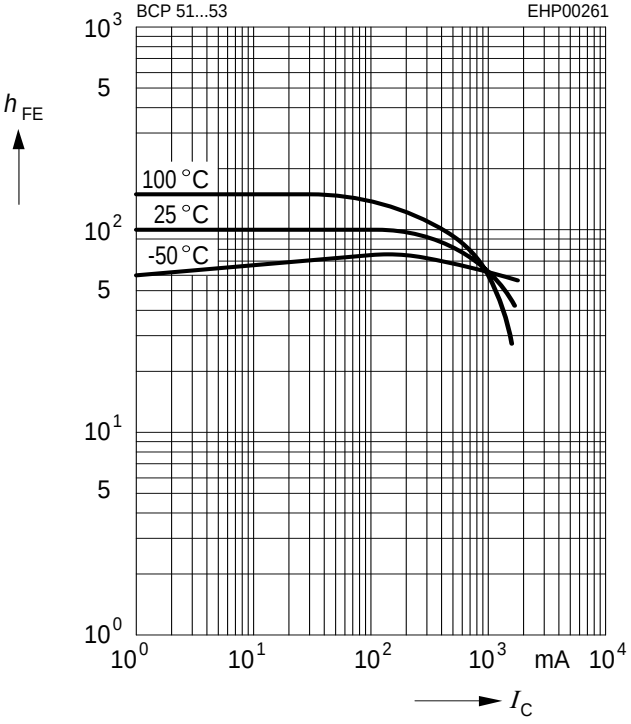
Transition frequency $f_T = f(I_C)$

V_{CE} = 10V



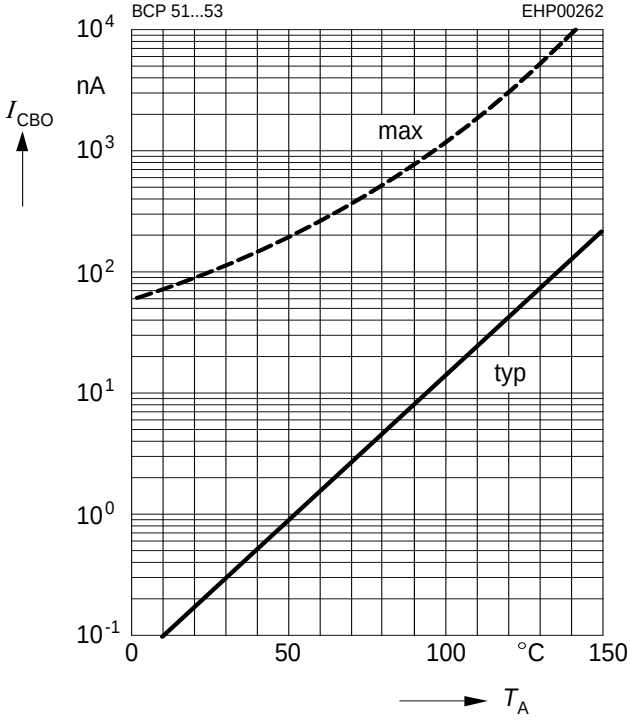
DC current gain hFE = $f(I_C)$

VCE = 2V



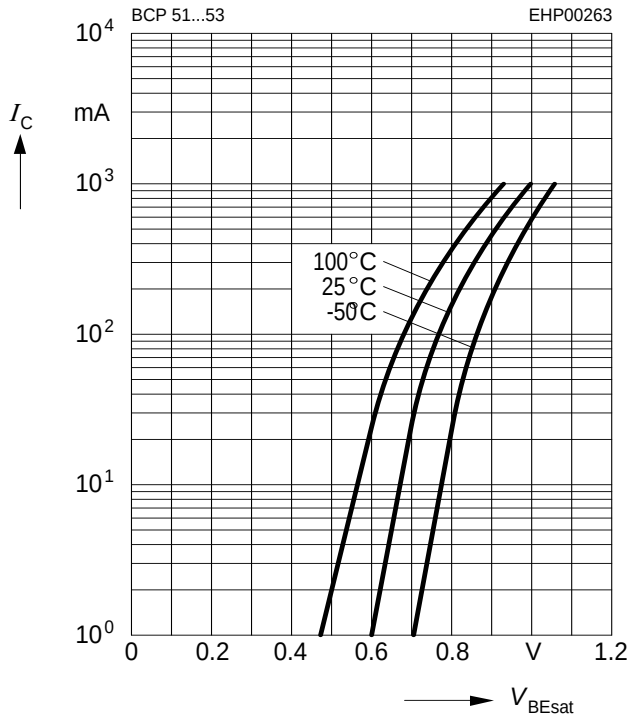
Collector cutoff current $I_{CBO} = f(T_A)$

V_{CB} = 30V



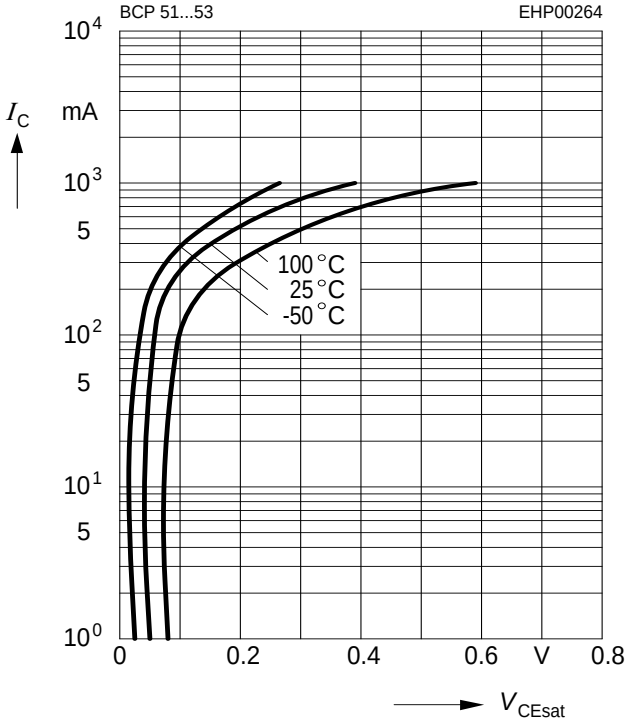
Base-emitter saturation voltage

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



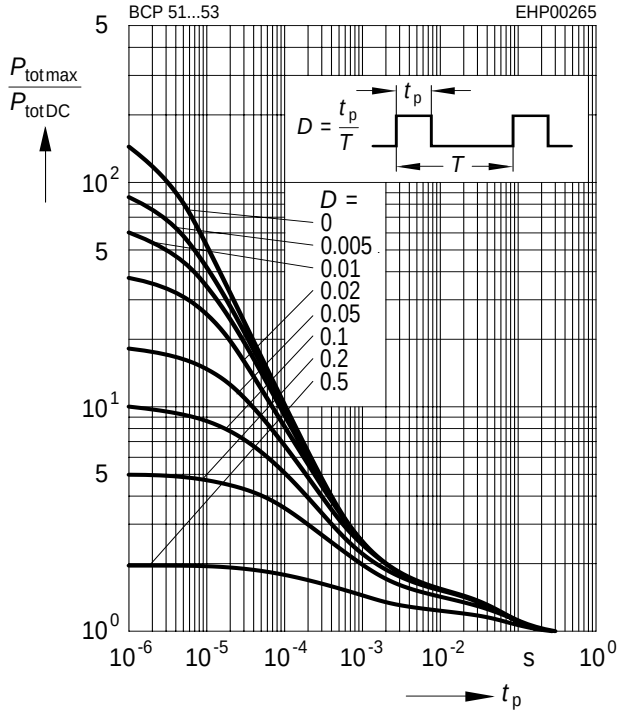
Collector-emitter saturation voltage

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

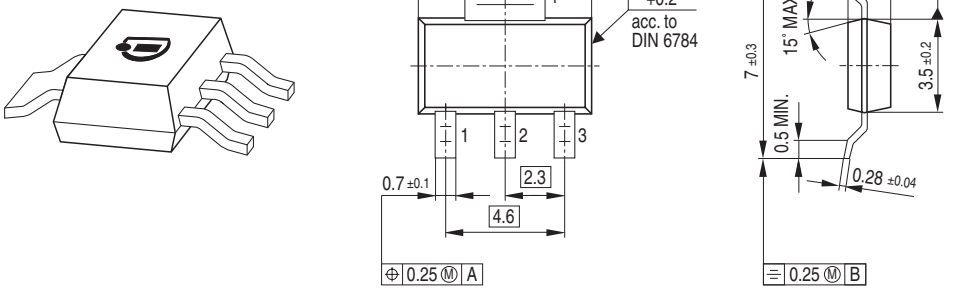


Permissible pulse load

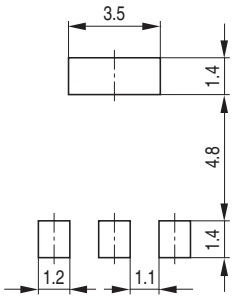
$P_{totmax} / P_{totDC} = f(t_p)$



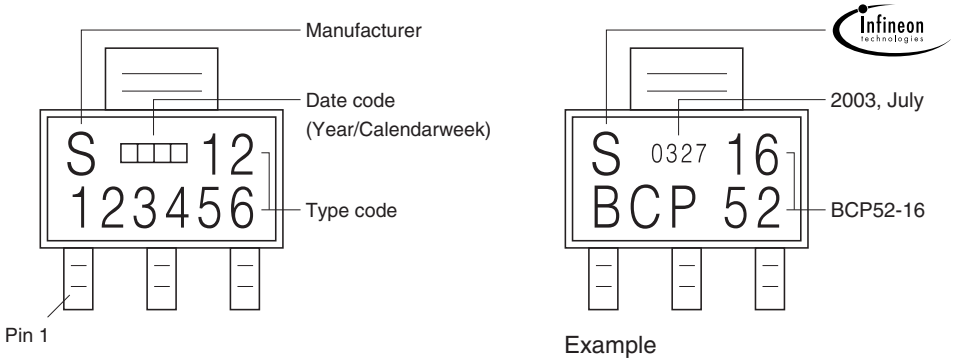
Package Outline



Foot Print

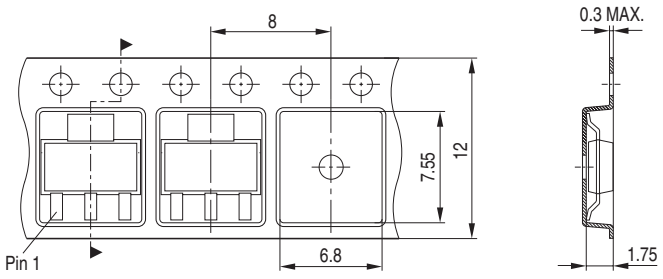


Marking Layout



Packing

Code E6327: Reel ø180 mm = 1.000 Pieces/Reel
Code E6433: Reel ø330 mm = 4.000 Pieces/Reel



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