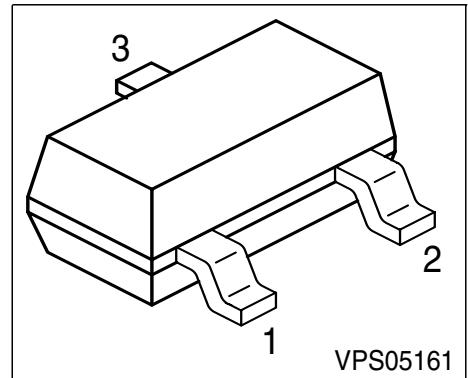


PNP Silicon Darlington Transistors

- High collector current
- High DC current gain



Type	Marking	Pin Configuration			Package
SMBTA64	s2V	1 = B	2 = E	3 = C	SOT23

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CES}	30	V
Collector-base voltage	V_{CBO}	30	
Emitter-base voltage	V_{EBO}	10	
DC collector current	I_C	500	mA
Peak collector current	I_{CM}	800	A
Base current	I_B	100	mA
Peak base current	I_{BM}	200	
Total power dissipation, $T_S = 81^\circ\text{C}$	P_{tot}	330	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Junction - soldering point ¹⁾	R_{thJS}	≤ 210	K/W
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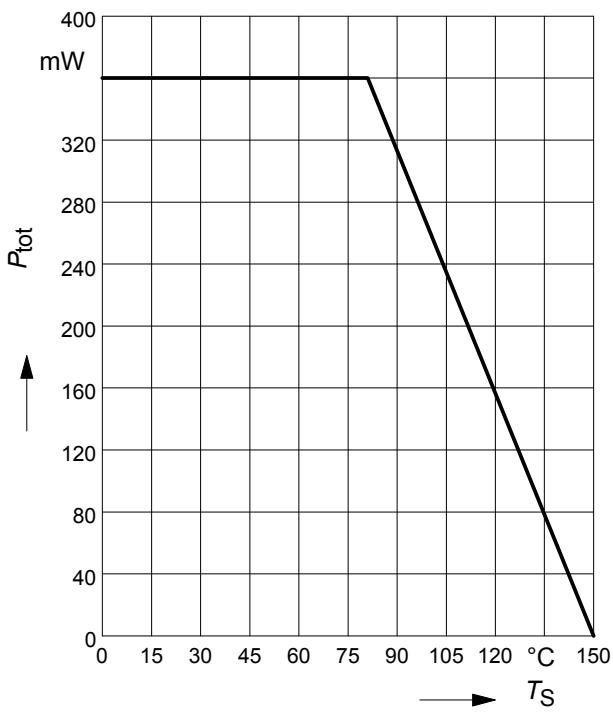
¹For calculation of R_{thJA} please refer to Application Note Thermal Resistance

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

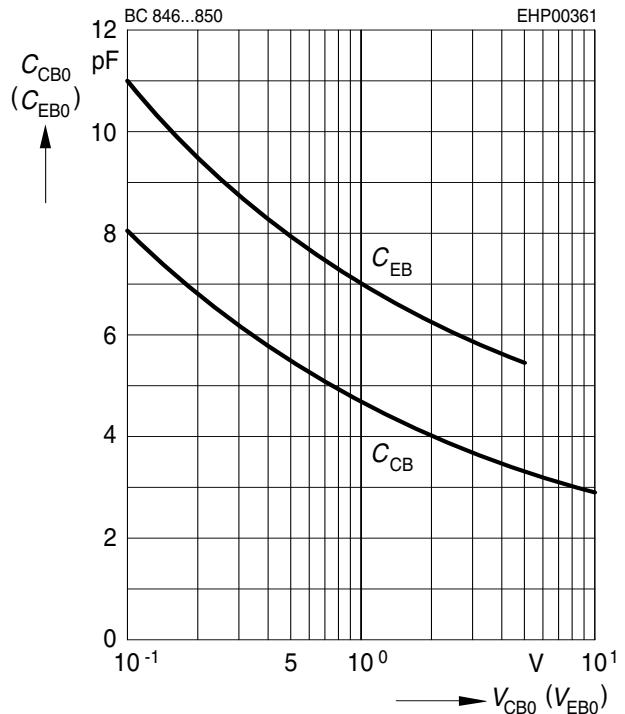
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage $I_C = 10 \mu\text{A}, V_{BE} = 0$	$V_{(\text{BR})\text{CES}}$	30	-	-	V
Collector-base breakdown voltage $I_C = 10 \mu\text{A}, I_E = 0$	$V_{(\text{BR})\text{CBO}}$	30	-	-	
Emitter-base breakdown voltage $I_E = 10 \mu\text{A}, I_C = 0$	$V_{(\text{BR})\text{EBO}}$	10	-	-	
Collector cutoff current $V_{CB} = 30 \text{ V}, I_E = 0$	I_{CBO}	-	-	100	nA
Collector cutoff current $V_{CB} = 30 \text{ V}, I_E = 0, T_A = 150^\circ\text{C}$	I_{CBO}	-	-	10	µA
Emitter cutoff current $V_{EB} = 10 \text{ V}, I_C = 0$	I_{EBO}	-	-	100	nA
DC current gain 1) $I_C = 10 \text{ mA}, V_{CE} = 5 \text{ V}$ $I_C = 100 \text{ mA}, V_{CE} = 5 \text{ V}$	h_{FE}	10000 20000	-	-	-
Collector-emitter saturation voltage1) $I_C = 100 \text{ mA}, I_B = 0.1 \text{ mA}$	V_{CEsat}	-	-	1.5	V
Base-emitter saturation voltage 1) $I_C = 100 \text{ mA}, I_B = 0.1 \text{ mA}$	V_{BESat}	-	-	2	
AC Characteristics					
Transition frequency $I_C = 50 \text{ mA}, V_{CE} = 5 \text{ V}, f = 20 \text{ MHz}$	f_T	125	-	-	MHz

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

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

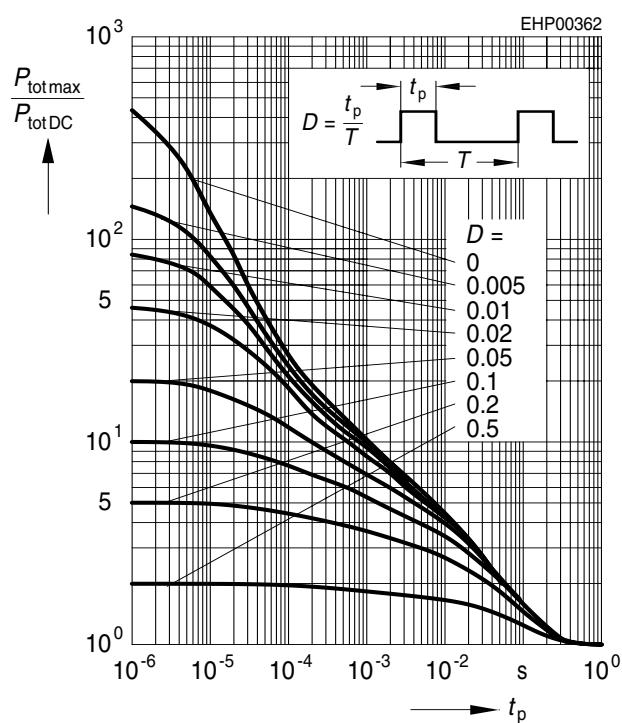


Collector-base capacitance $C_{\text{CB}} = f(V_{\text{CBO}})$
Emitter-base capacitance $C_{\text{EB}} = f(V_{\text{EBO}})$



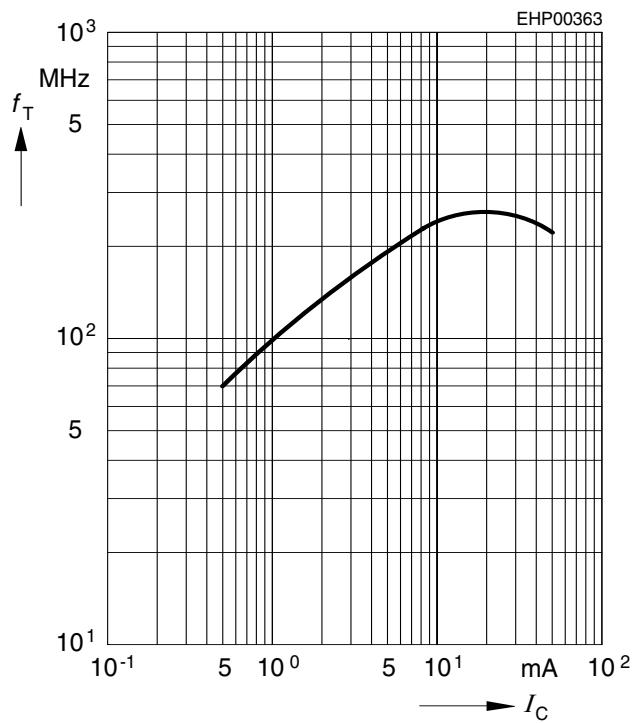
Permissible pulse load

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



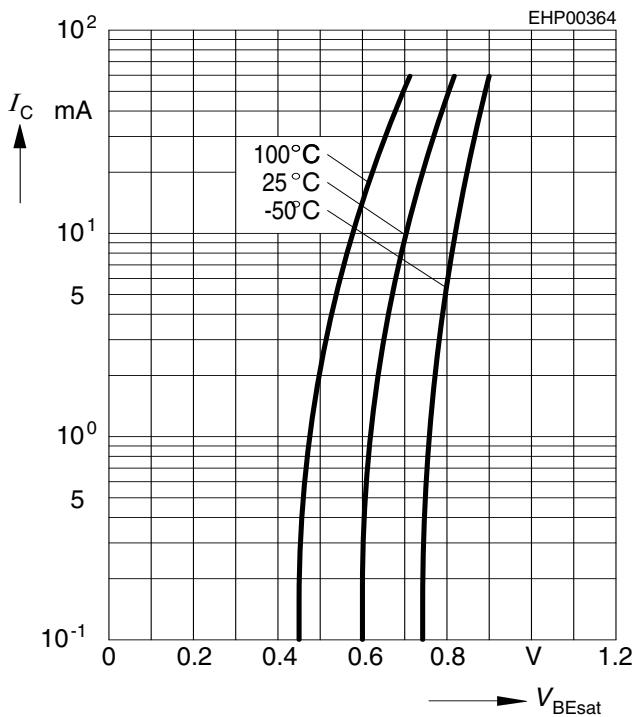
Transition frequency $f_T = f(I_C)$

$V_{\text{CE}} = 5\text{V}$

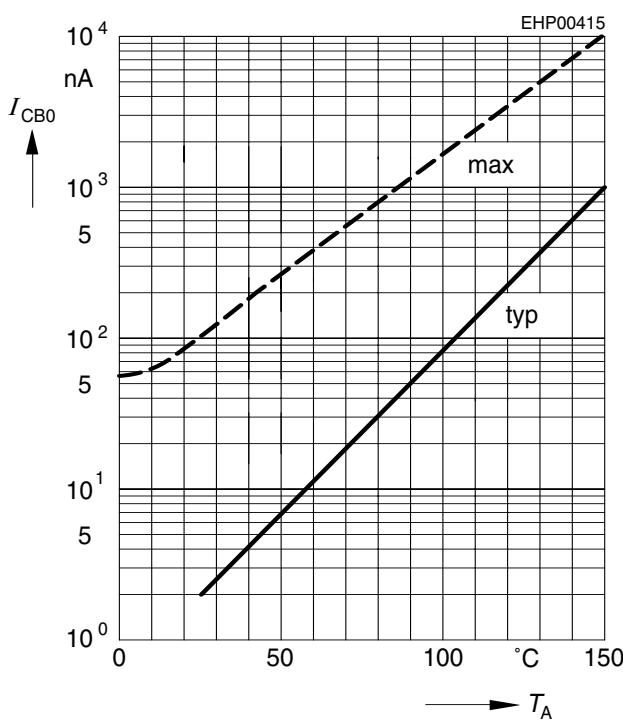


Base-emitter saturation voltage

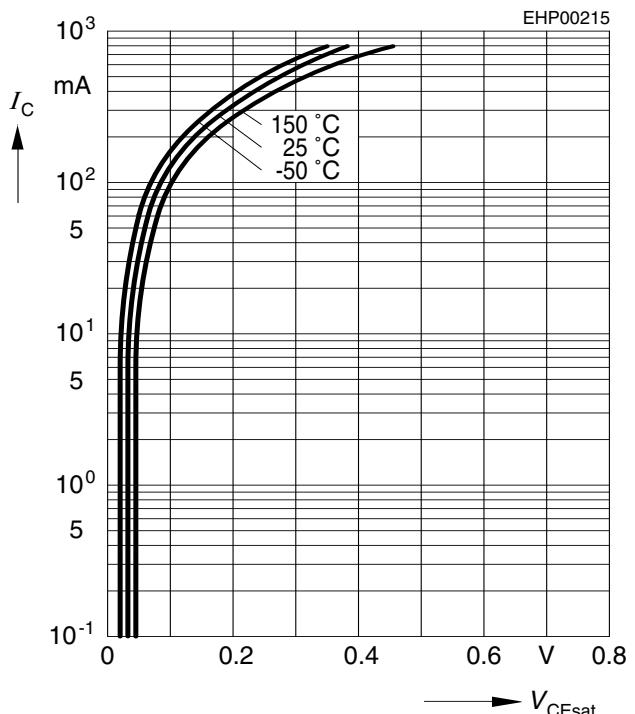
$$I_C = f(V_{BEsat}), h_{FE} = 20$$


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

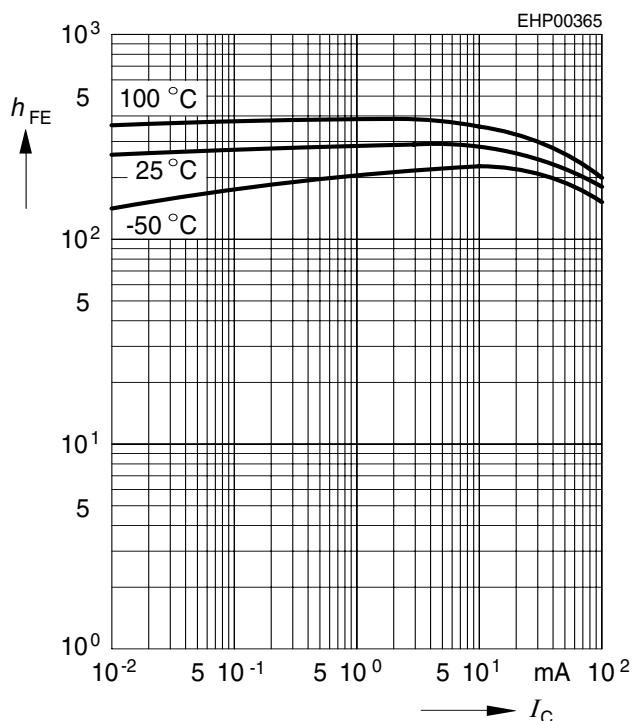
$$V_{CB} = 30\text{V}$$


Collector-emitter saturation voltage

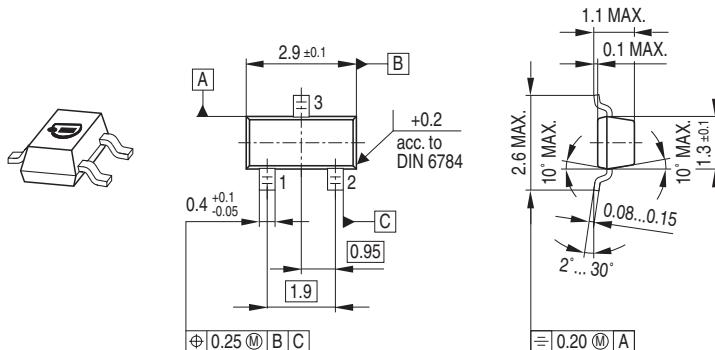
$$I_C = f(V_{CEsat}), h_{FE} = 20$$


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

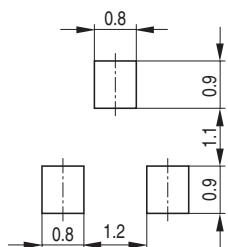
$$V_{CE} = 5\text{V}$$



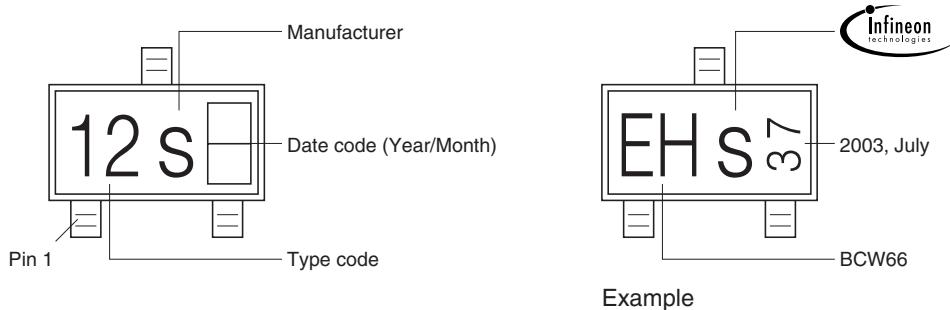
Package Outline



Foot Print



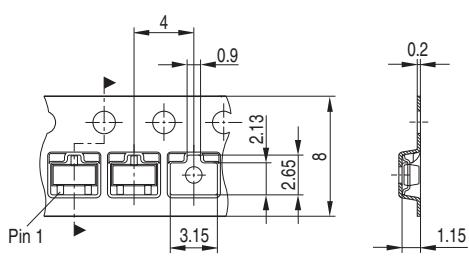
Marking Layout



Packing

Code E6327: Reel ø180 mm = 3.000 Pieces/Reel

Code E6433: Reel ø330 mm = 10.000 Pieces/Reel



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St.-Martin-Strasse 53,
81669 München
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