Chipsmall

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With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

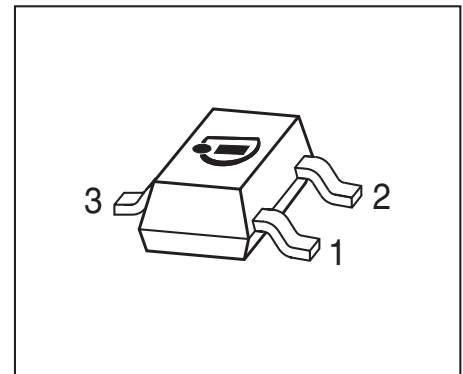Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

NPN Silicon Darlington Transistor

- High collector current
- Low collector-emitter saturation voltage
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101

Type	Marking	Pin Configuration			Package
SMBTA14/MMBTA14	s1N	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	
Collector current	I_C	300	mA
Peak collector current, $t_p \leq 10$ ms	I_{CM}	500	
Base current	I_B	100	
Peak base current	I_{BM}	200	
Total power dissipation- $T_S \leq 81$ °C	P_{tot}	330	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point[1]	R_{thJS}	≤ 210	K/W

[1]For calculation of R_{thJA} please refer to Application Note AN077 (Thermal Resistance Calculation)

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

| Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-base breakdown voltage I_C = 10 µA, I_E = 0	$V_{(BR)CBO}$	30	-	-	V
Collector-emitter breakdown voltage I_C = 10 µA, V_{BE} = 0	$V_{(BR)CES}$	30	-	-	
Emitter-base breakdown voltage I_E = 10 µA, I_C = 0	$V_{(BR)EBO}$	10	-	-	
Collector-base cutoff current V_{CB} = 30 V, I_E = 0 V_{CB} = 30 V, I_E = 0 , T_A = 150 °C	I_{CBO}	- -	- -	0.1 10	µA
Emitter-base cutoff current V_{EB} = 10 V, I_C = 0	I_{EBO}	-	-	100	nA
DC current gain[1] I_C = 10 mA, V_{CE} = 5 V I_C = 100 mA, V_{CE} = 5 V	h_{FE}	10000 20000	- -	- -	-
Collector-emitter saturation voltage[1] I_C = 100 mA, I_B = 0.1 mA	V_{CEsat}	-	-	1.5	V
Base emitter saturation voltage[1] I_C = 100 mA, I_B = 0.1 mA	V_{BEsat}	-	-	2	
AC Characteristics					
Transition frequency I_C = 50 mA, V_{CE} = 5 V, f = 20 MHz	f_T	125	-	-	MHz
Collector-base capacitance V_{CB} = 10 V, f = 100 MHz	C_{cb}	-	3	-	pF

[1]Pulse test: t < 300µs; D < 2%

2011-12-19

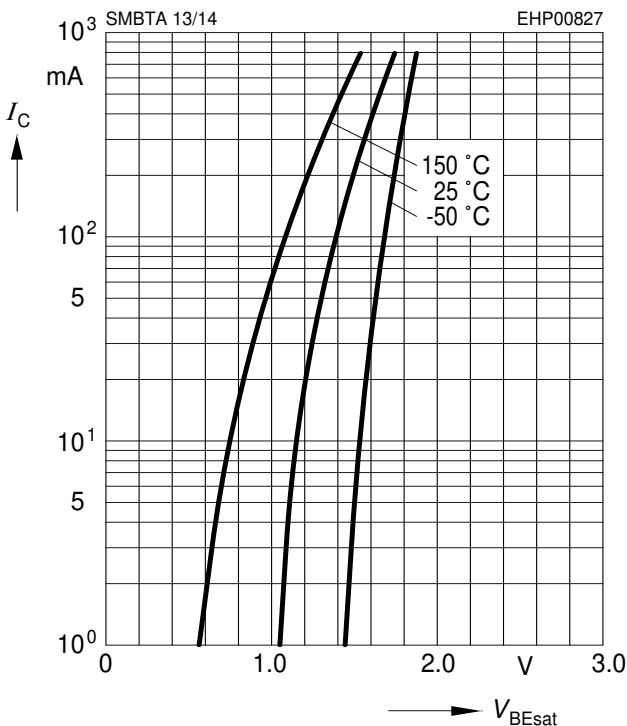**DC current gain** $h_{FE} = f(I_C)$

$V_{CE} = 5$ V
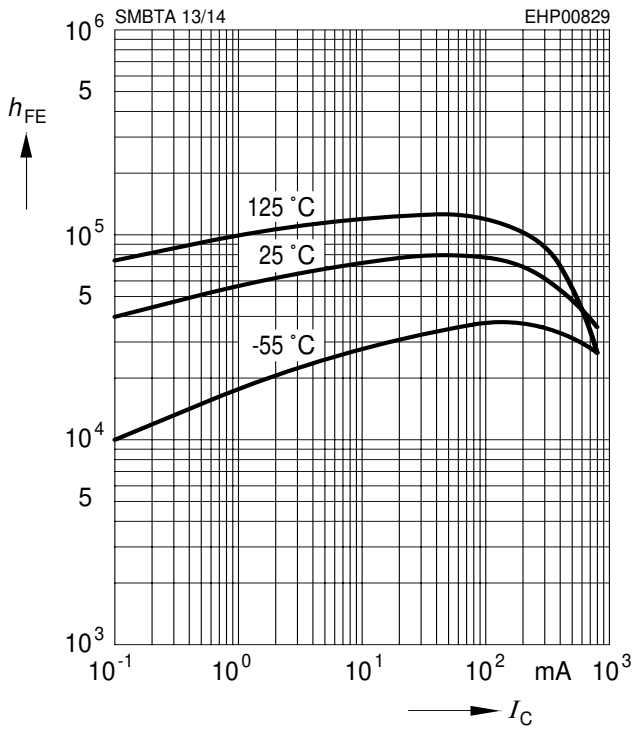
Collector-emitter saturation voltage
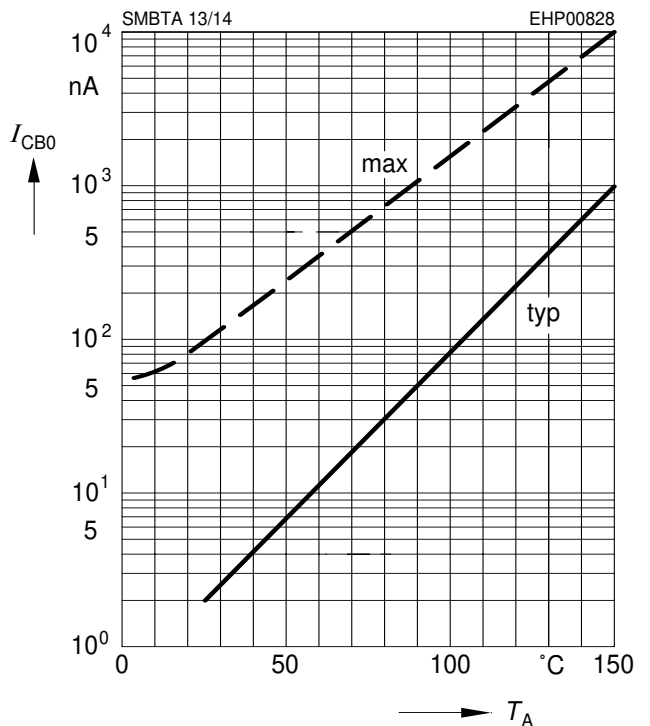
$I_C = f(V_{CEsat})$, $h_{FE} = 1000$
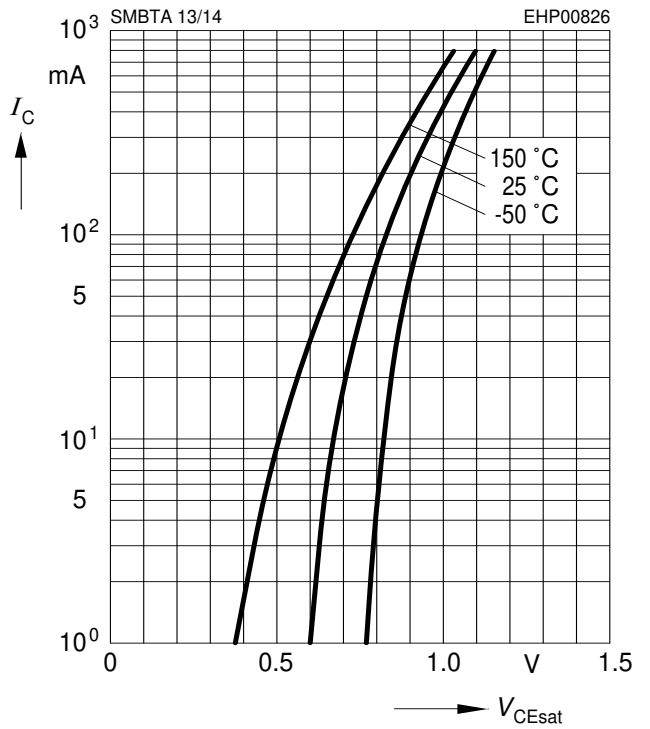
Base-emitter saturation voltage
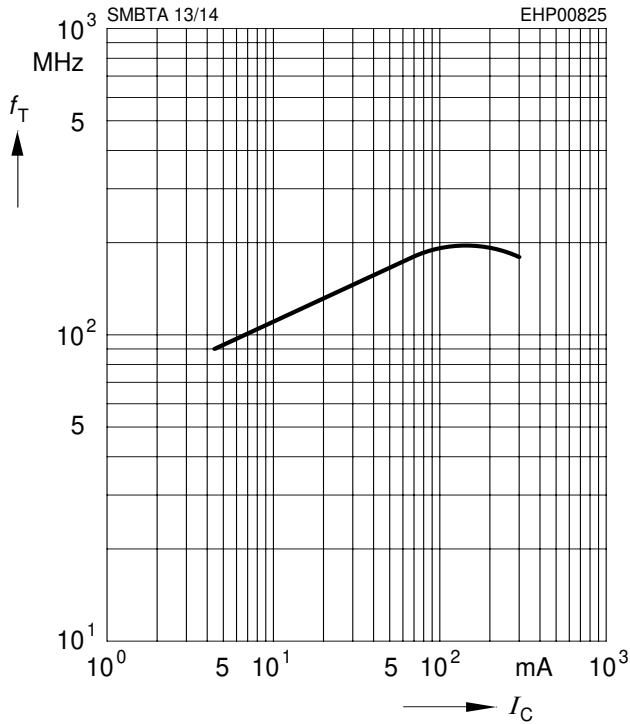
$I_C = f(V_{BEsat})$, $h_{FE} = 1000$

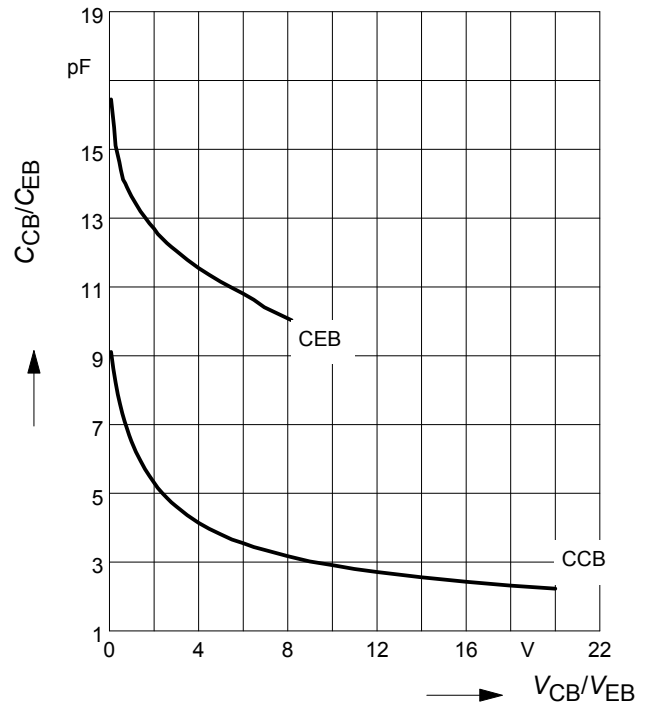**Collector cutoff current** $I_{CBO} = f(T_A)$

$V_{CBO} = 30$ V

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Transition frequency $f_T = f(I_C)$

V_{CE} = 5 V, f = 200 MHz

Collector-base capacitance $C_{cb} = f(V_{CB})$

Emitter-base capacitance $C_{eb} = f(V_{EB})$

SMBTA 13/14   EHP00825

Total power dissipation $P_{tot} = f(T_S)$
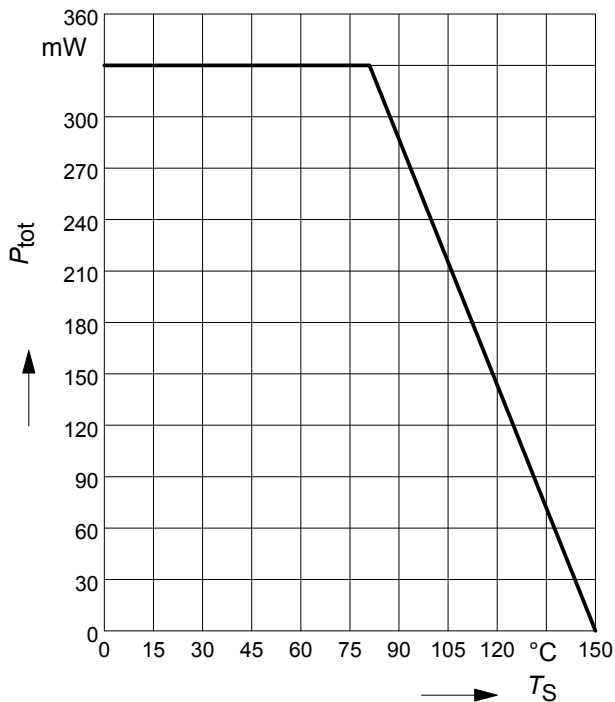
Permissible Pulse Load $R_{thJS} = f(t_p)$

D=0.5
0.2
0.1
0.05
0.02
0.01
0.005
0

4

2011-12-19
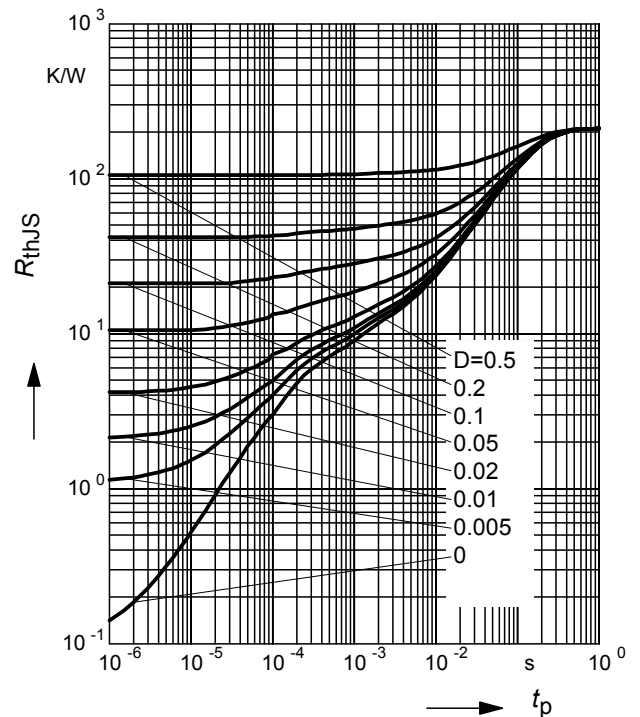
Permissible Pulse Load

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

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Package Outline

2.9 ±0.1   B

1 ±0.1

0.1 MAX.

0.15 MIN.

2.4 ±0.15

10° MAX.   10° MAX.

1.3 ±0.1   A

0.08...0.15

0...8°

0.4 +0.1 -0.05 1)

0.95   C

1.9

⊕ 0.25 Ⓜ B C

= 0.2 Ⓜ A
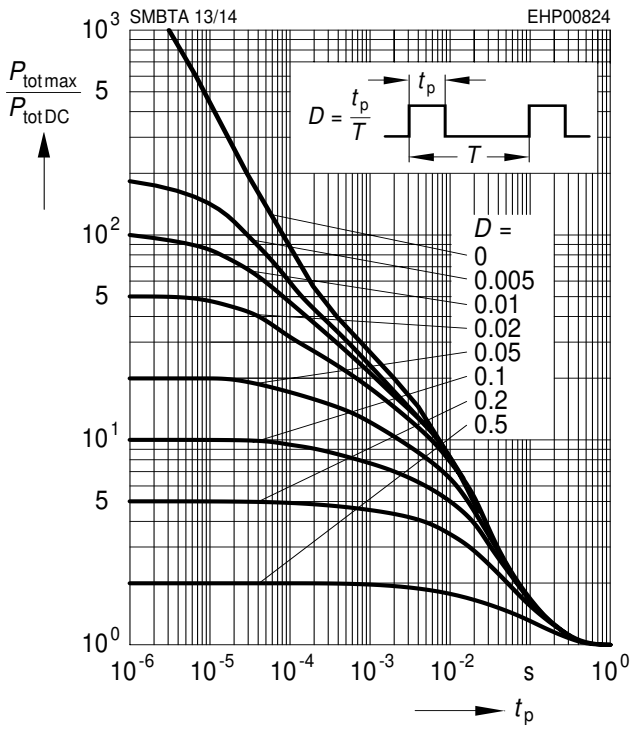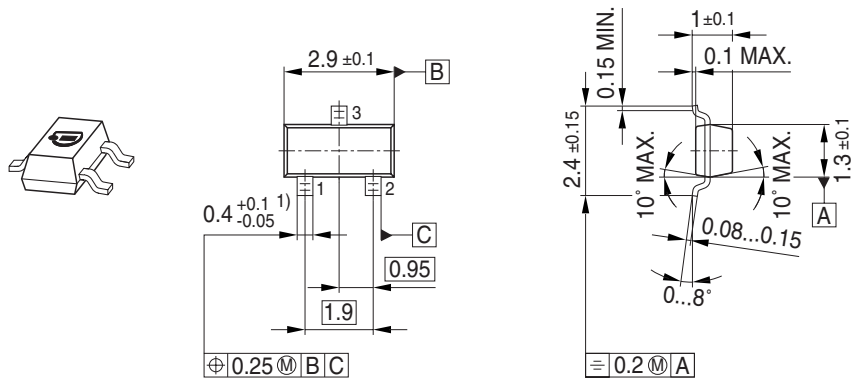
1) Lead width can be 0.6 max. in dambar area

Foot Print

0.8

0.9

1.3

0.9

0.8   1.2

Marking Layout (Example)

ⓘnfineon
Manufacturer

EH S   5 6

2005, June
Date code (YM)

Pin 1
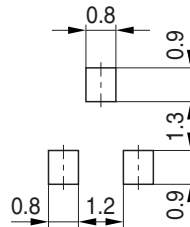
BCW66
Type code
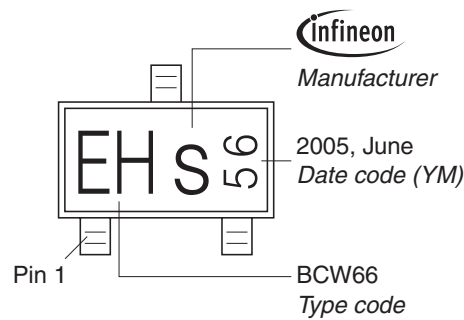
Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel

4

0.9

0.2

2.13

2.65

8

Pin 1

3.15

1.15
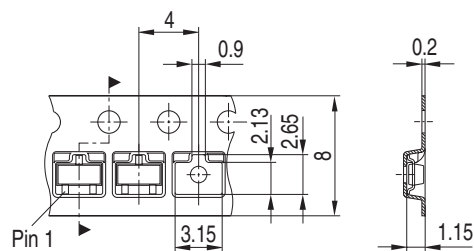
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