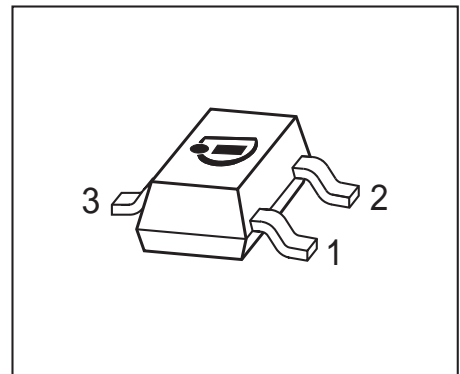


## NPN Silicon High-Voltage Transistors

- Suitable for video output stages in TV sets and switching power supplies
- High breakdown voltage
- Low collector-emitter saturation voltage
- Complementary type: BFN27 (PNP)
- Pb-free (RoHS compliant) package<sup>1)</sup>
- Qualified according AEC Q101



Type	Marking	Pin Configuration			Package
		1=B	2=E	3=C	
BFN24	FHs	1=B	2=E	3=C	SOT23
BFN26	FJs	1=B	2=E	3=C	SOT23

### Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	$V_{CEO}$		V
BFN24		250	
BFN26		300	
Collector-base voltage	$V_{CBO}$		
BFN24		250	
BFN26		300	
Emitter-base voltage	$V_{EBO}$	6	
Collector current	$I_C$	200	mA
Peak collector current	$I_{CM}$	500	
Base current	$I_B$	100	
Peak base current	$I_{BM}$	200	
Total power dissipation- $T_S \leq 74 \text{ }^\circ\text{C}$	$P_{tot}$	360	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-65 ... 150	

<sup>1)</sup>Pb-containing package may be available upon special request

**Thermal Resistance**

Parameter	Symbol	Value	Unit
Junction - soldering point <sup>1)</sup>	$R_{thJS}$	$\leq 210$	K/W

**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 $I_C = 1 \text{ mA}$ , $I_B = 0$ , BFN24 $I_C = 1 \text{ mA}$ , $I_B = 0$ , BFN26	$V_{(BR)CEO}$	250 300	- -	- -	V
Collector-base breakdown voltage $I_C = 100 \mu\text{A}$ , $I_E = 0$ , BFN24 $I_C = 100 \mu\text{A}$ , $I_E = 0$ , BFN26	$V_{(BR)CBO}$	250 300	- -	- -	
Emitter-base breakdown voltage $I_E = 100 \mu\text{A}$ , $I_C = 0$	$V_{(BR)EBO}$	6	-	-	
Collector-base cutoff current $V_{CB} = 200 \text{ V}$ , $I_E = 0$ , BFN24 $V_{CB} = 250 \text{ V}$ , $I_E = 0$ , BFN26 $V_{CB} = 200 \text{ V}$ , $I_E = 0$ , $T_A = 150^\circ\text{C}$ , BFN24 $V_{CB} = 250 \text{ V}$ , $I_E = 0$ , $T_A = 150^\circ\text{C}$ , BFN26	$I_{CBO}$	- - - -	- - - -	0.1 0.1 20 20	$\mu\text{A}$
Emitter-base cutoff current $V_{EB} = 5 \text{ V}$ , $I_C = 0$	$I_{EBO}$	-	-	100	nA
DC current gain <sup>2)</sup> $I_C = 1 \text{ mA}$ , $V_{CE} = 10 \text{ V}$ $I_C = 10 \text{ mA}$ , $V_{CE} = 10 \text{ V}$ $I_C = 30 \text{ mA}$ , $V_{CE} = 10 \text{ V}$ , BFN24 $I_C = 30 \text{ mA}$ , $V_{CE} = 10 \text{ V}$ , BFN26	$h_{FE}$	25 40 40 30	- - - -	- - - -	-
Collector-emitter saturation voltage <sup>2)</sup> $I_C = 20 \text{ mA}$ , $I_B = 2 \text{ mA}$ , BFN24 $I_C = 20 \text{ mA}$ , $I_B = 2 \text{ mA}$ , BFN26	$V_{CEsat}$	- -	- -	0.4 0.5	V
Base emitter saturation voltage <sup>2)</sup> $I_C = 20 \text{ mA}$ , $I_B = 2 \text{ mA}$	$V_{BEsat}$	-	-	0.9	

<sup>1)</sup>For calculation of  $R_{thJA}$  please refer to Application Note Thermal Resistance

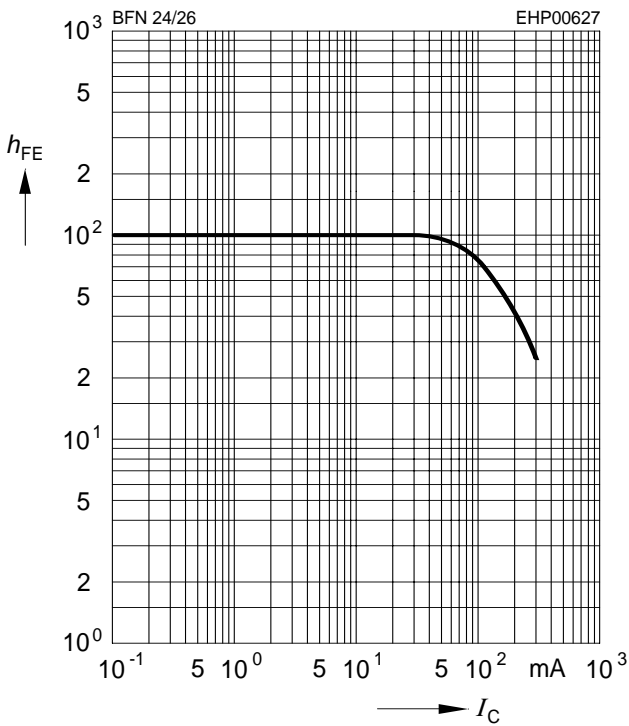
<sup>2)</sup>Pulse test:  $t < 300\mu\text{s}$ ;  $D < 2\%$

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>AC Characteristics</b>					
Transition frequency $I_C = 20\text{ mA}$ , $V_{CE} = 10\text{ V}$ , $f = 20\text{ MHz}$	$f_T$	-	70	-	MHz
Collector-base capacitance $V_{CB} = 30\text{ V}$ , $f = 1\text{ MHz}$	$C_{cb}$	-	1.5	-	pF

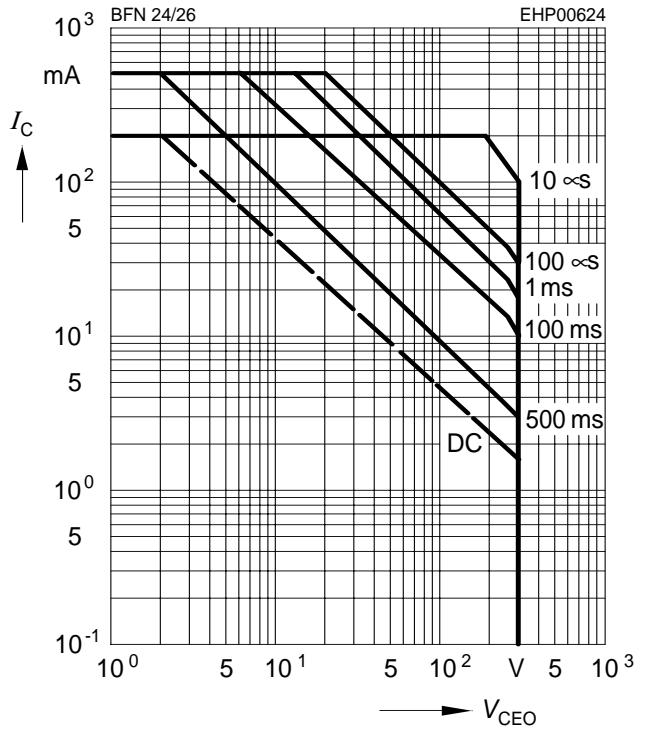
**DC current gain  $h_{FE} = f(I_C)$**

$V_{CE} = 10\text{ V}$



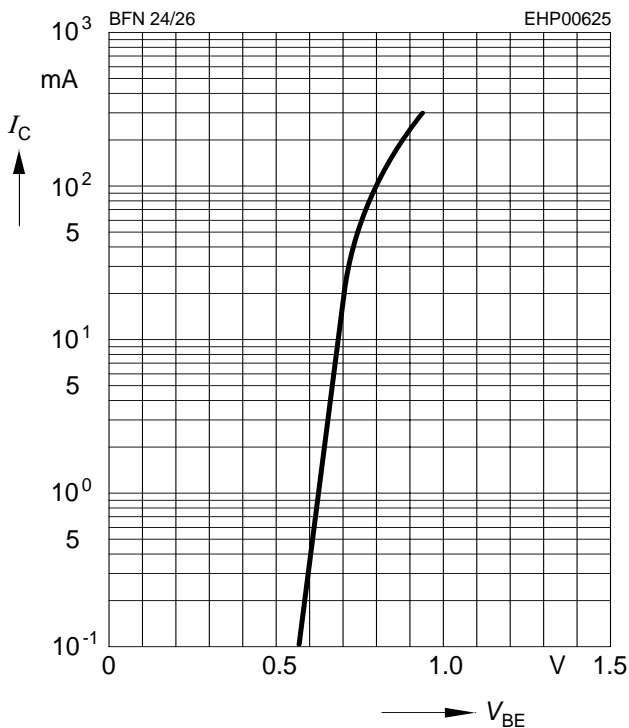
**Operating range  $I_C = f(V_{CE0})$**

$T_A = 25^\circ\text{C}, D = 0$



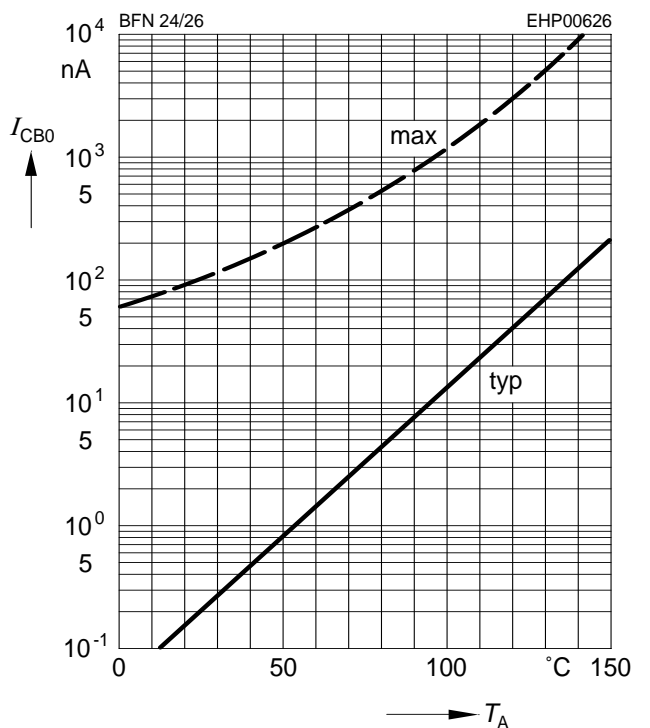
**Collector current  $I_C = f(V_{BE})$**

$V_{CE} = 10\text{ V}$



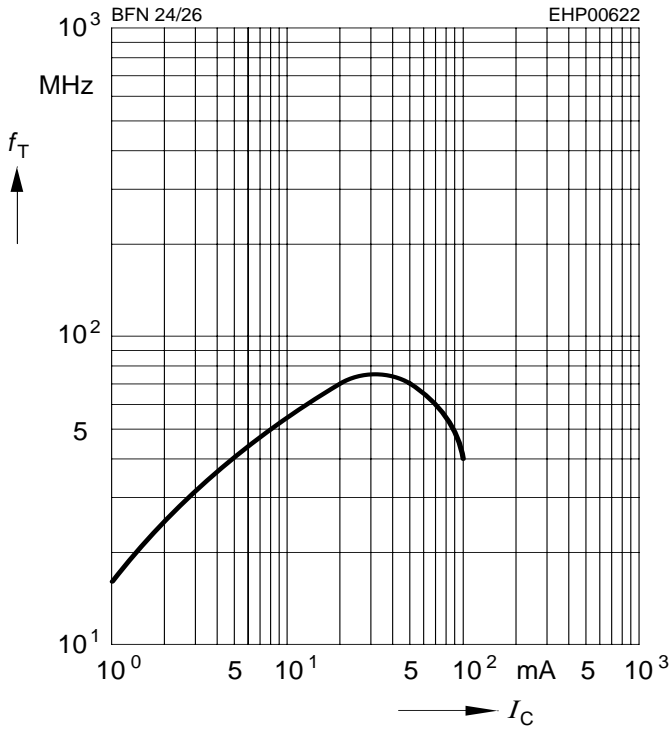
**Collector cutoff current  $I_{CBO} = f(T_A)$**

$V_{CB} = 200\text{ V}$



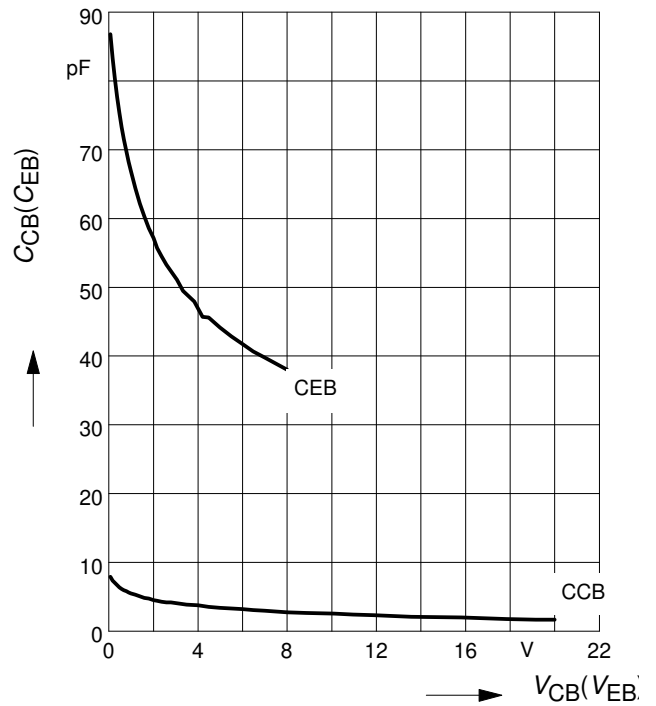
**Transition frequency  $f_T = f(I_C)$**

$V_{CE}$  = parameter in V,  $f = 2$  GHz

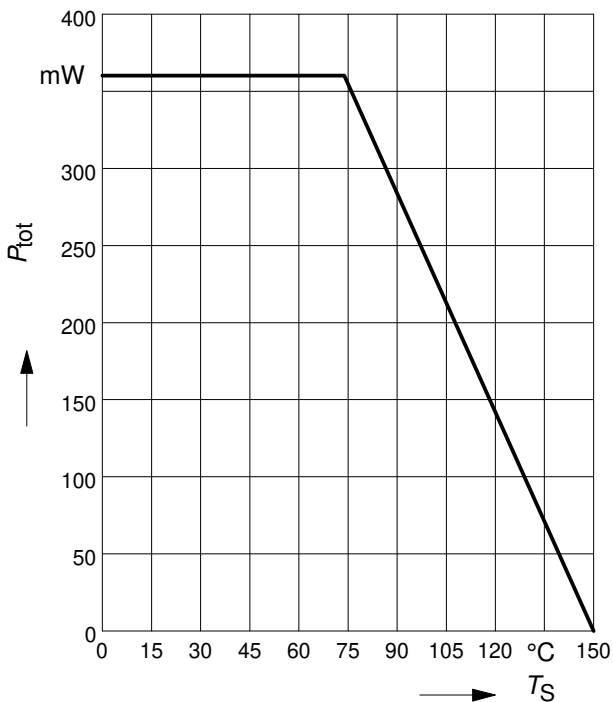


**Collector-base capacitance  $C_{cb} = f(V_{CB})$**

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

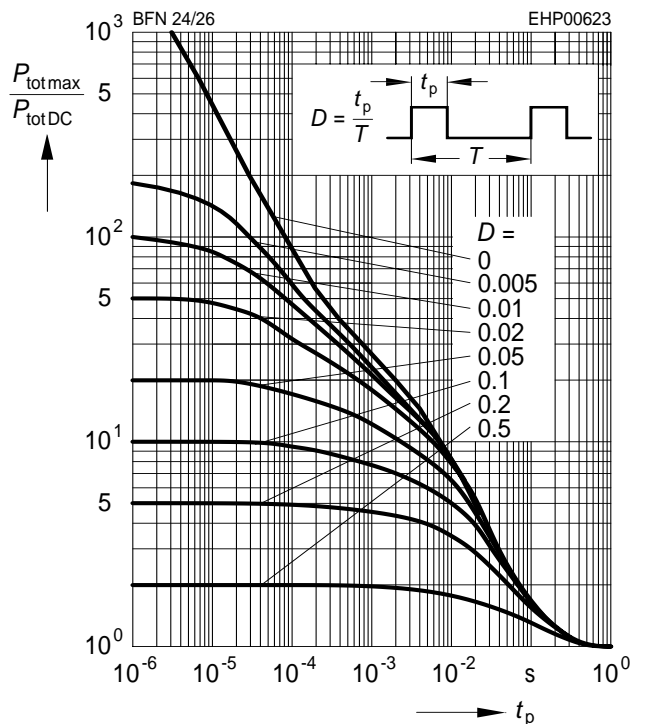


**Total power dissipation  $P_{tot} = f(T_S)$**

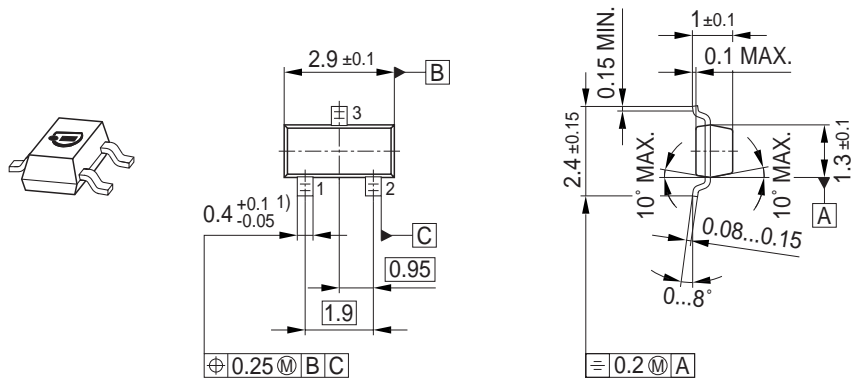


**Permissible Pulse Load**

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

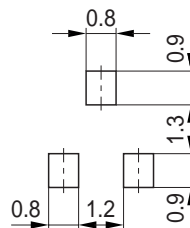


Package Outline

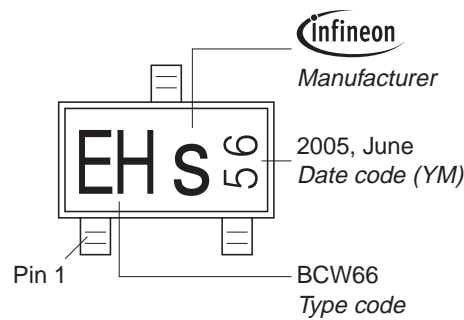


1) Lead width can be 0.6 max. in dambar area

Foot Print

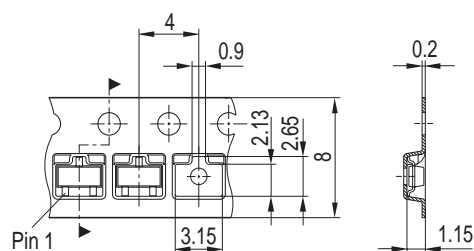


Marking Layout (Example)



Standard Packing

Reel  $\varnothing$ 180 mm = 3.000 Pieces/Reel  
 Reel  $\varnothing$ 330 mm = 10.000 Pieces/Reel



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