

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
- 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, $t_p \leq 10$ ms	I_{CM}	500	
Base current	I_B	100	
Peak base current	I_{BM}	200	
Total power dissipation- $T_S \leq 74$ °C	P_{tot}	360	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

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	μA
Emitter-base cutoff current $V_{EB} = 5\text{ V}$, $I_C = 0$	I_{EBO}	-	-	100	nA
DC current gain ²⁾ $I_C = 1\text{ mA}$, $V_{CE} = 10\text{ V}$ $I_C = 10\text{ mA}$, $V_{CE} = 10\text{ V}$ $I_C = 30\text{ mA}$, $V_{CE} = 10\text{ V}$, BFN24 $I_C = 30\text{ mA}$, $V_{CE} = 10\text{ V}$, BFN26	h_{FE}	25 40 40 30	- - - -	- - - -	-
Collector-emitter saturation voltage ²⁾ $I_C = 20\text{ mA}$, $I_B = 2\text{ mA}$, BFN24 $I_C = 20\text{ mA}$, $I_B = 2\text{ mA}$, BFN26	V_{CEsat}	- -	- -	0.4 0.5	V
Base emitter saturation voltage ²⁾ $I_C = 20\text{ mA}$, $I_B = 2\text{ mA}$	V_{BEsat}	-	-	0.9	

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

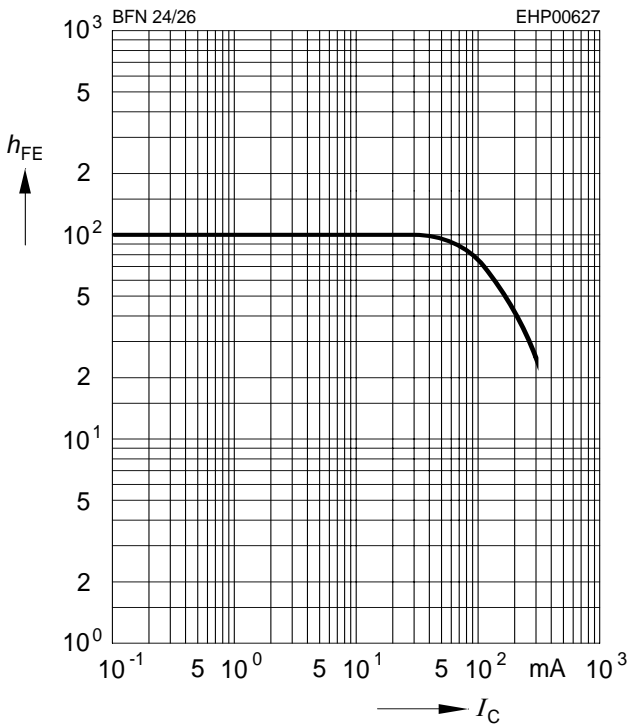
²⁾Pulse test: $t < 300\ \mu\text{s}$; $D < 2\%$

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
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

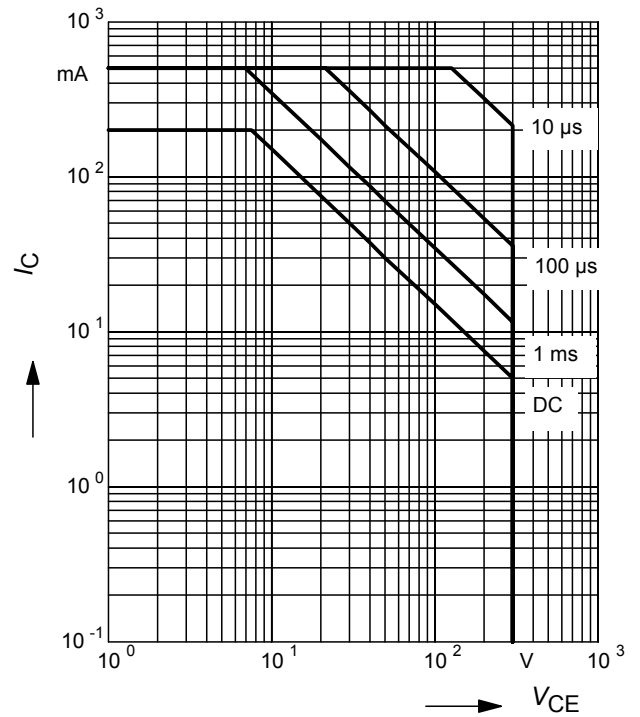
DC current gain $h_{FE} = f(I_C)$

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



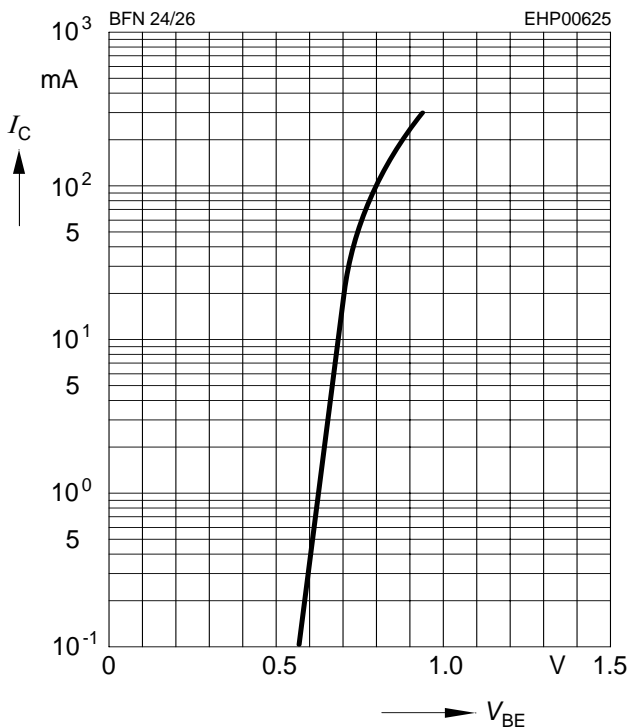
Operating range $I_C = f(V_{CE0})$

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



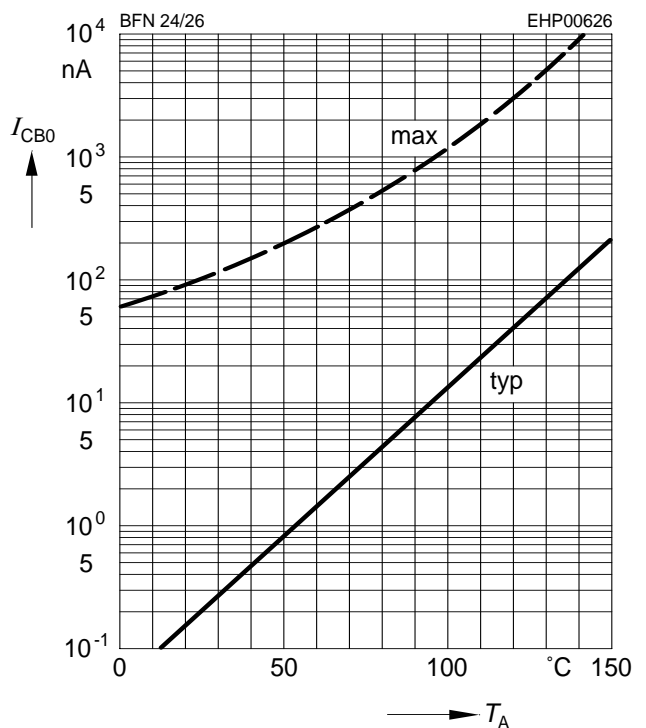
Collector current $I_C = f(V_{BE})$

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



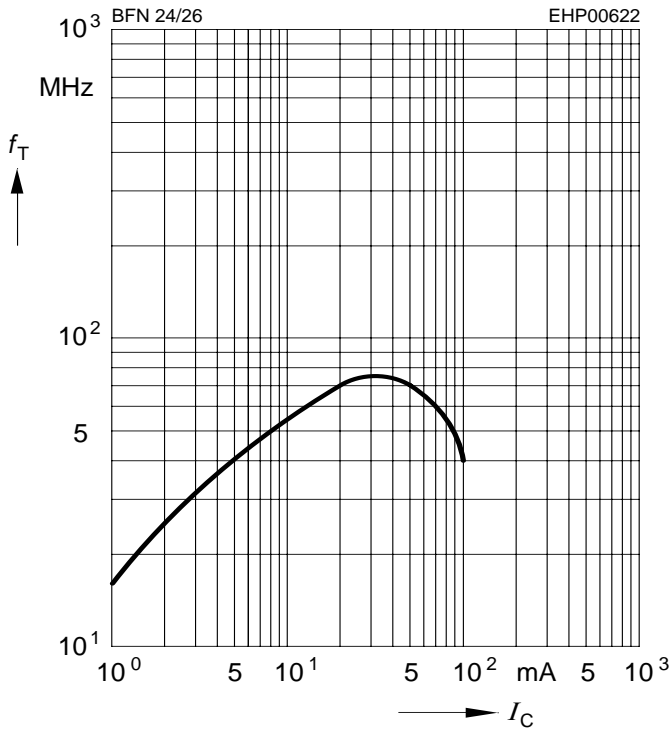
Collector cutoff current $I_{CBO} = f(T_A)$

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



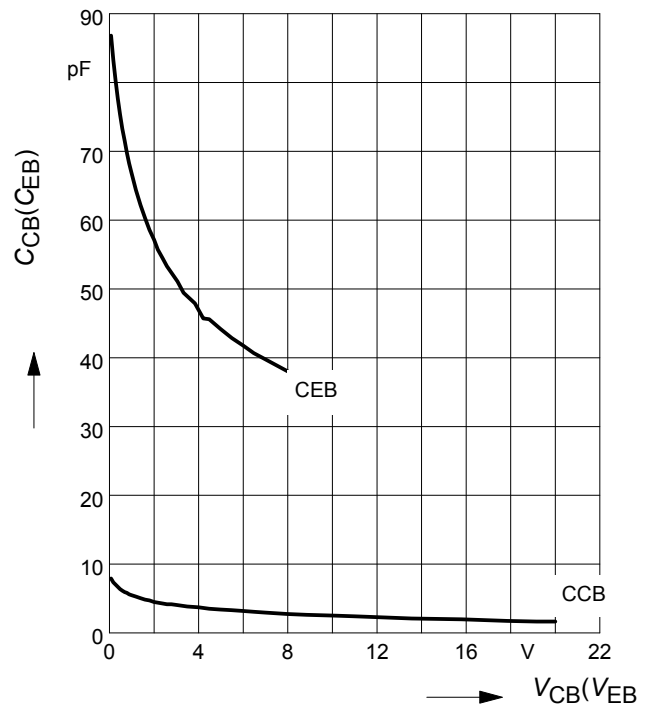
Transition frequency $f_T = f(I_C)$

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

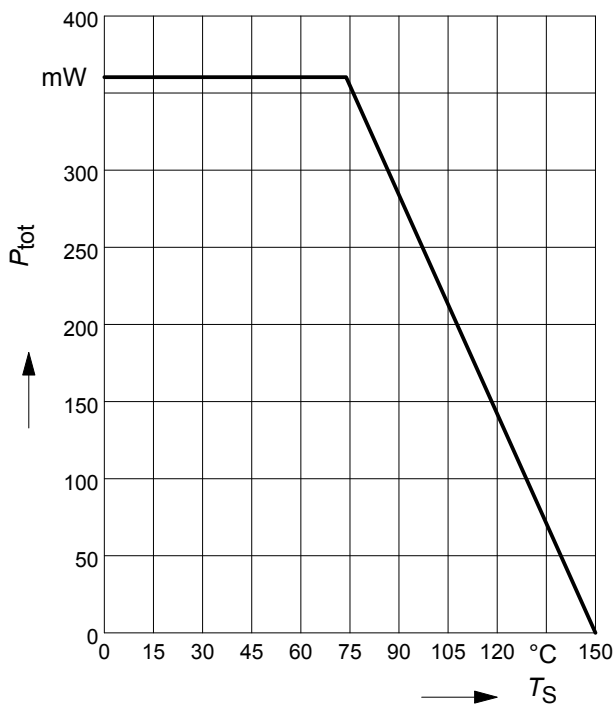


Collector-base capacitance $C_{cb} = f(V_{CB})$

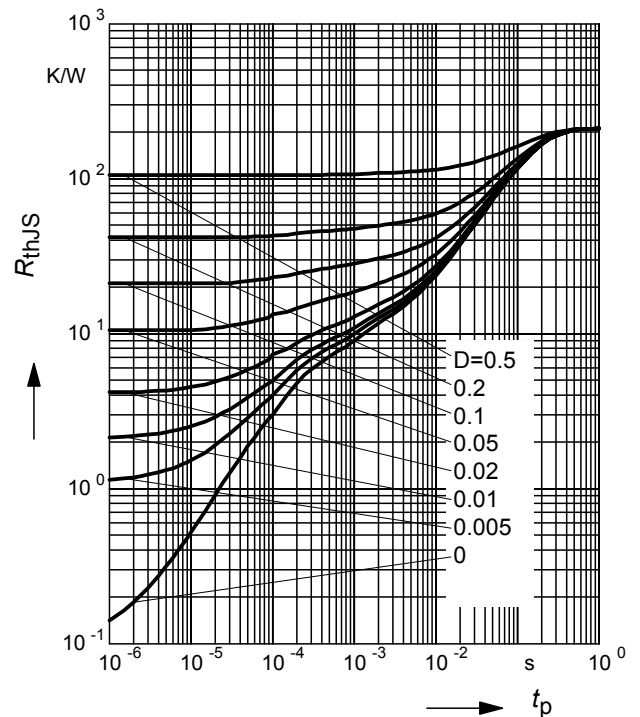
Emitter-base capacitance $C_{eb} = f(V_{EB})$



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

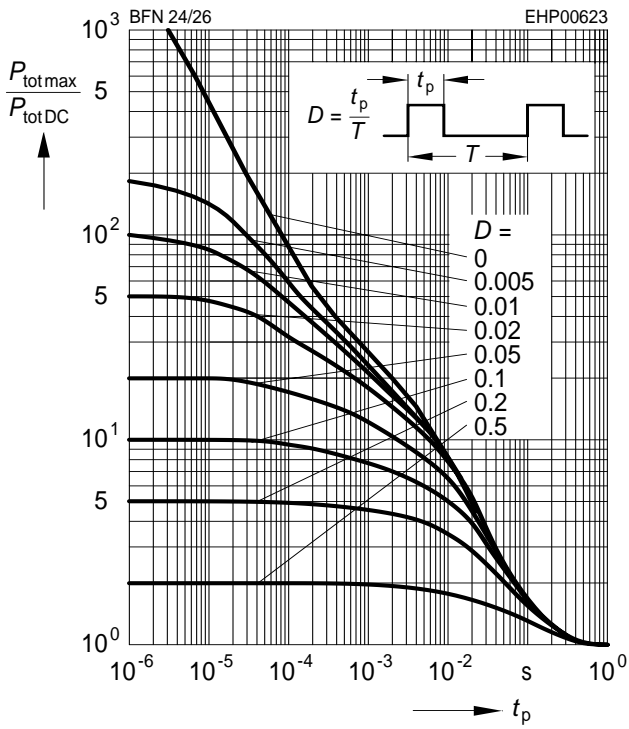


Permissible Pulse Load $R_{thJS} = f(t_p)$

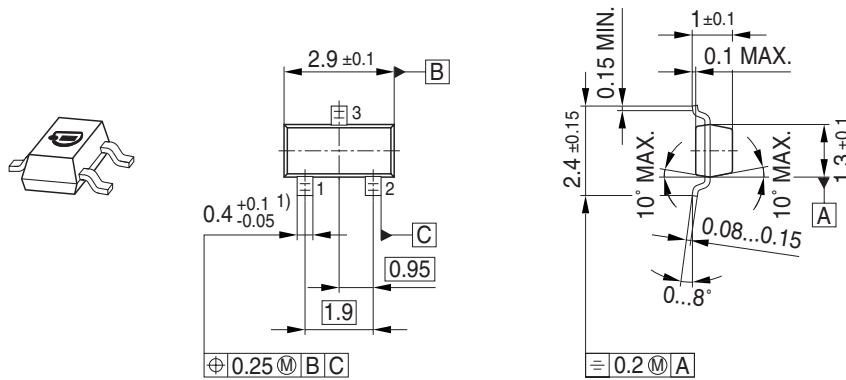


Permissible Pulse Load

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



Package Outline



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

Foot Print

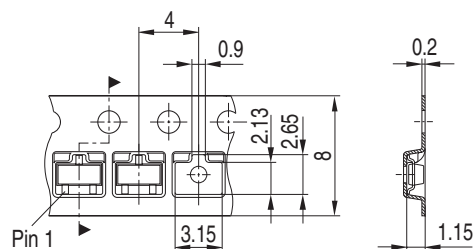


Marking Layout (Example)



Standard Packing

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



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