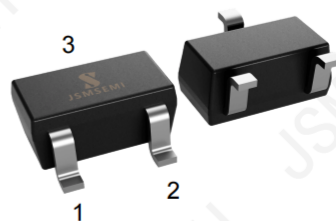


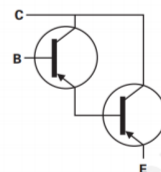
Features

- For general AF applications
- High collector current
- High current gain
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101



SOT-23

PIN
 1.Base
 2.Emitter
 3.Collector



Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	$-V_{CEO}$	60	V
Collector-base voltage	$-V_{CBO}$	80	
Emitter-base voltage	$-V_{EBO}$	10	
Collector current	$-I_C$	500	mA
Peak collector current, $t_p \leq 10$ ms	$-I_{CM}$	800	
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

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

Ordering Information

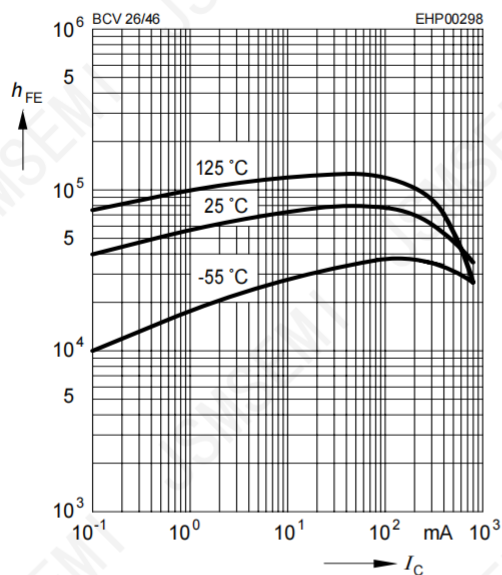
Order number	Package	Operation Temperature Range	MSL Grade	Ship, Quantity	Green
BCV46	SOT-23	-65 to 150°C	3	T&R,3000	RoHS

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 mA, -I _B = 0 ,	-V _{(BR)CEO}	60	-	-	V
Collector-base breakdown voltage -I _C = 100 μA, -I _E = 0 ,	-V _{(BR)CBO}	80	-	-	
Emitter-base breakdown voltage -I _E = 10 μA, -I _C = 0	-V _{(BR)EBO}	10	-	-	
Collector-base cutoff current -V _{CB} = 60 , -I _E = 0 , -V _{CB} = 60 , -I _E = 0 , T _A = 150 °C,	-I _{CBO}	- -	- -	0.1 10	μA
Emitter-base cutoff current -V _{EB} = 4 V, -I _C = 0V	-I _{EBO}	-	-	100	nA
DC current gain ¹⁾ -I _C = 100 μA, -V _{CE} = 1 V,-I _C = 10 mA, -V _{CE} = 5 V, -I _C = 100 mA, -V _{CE} = 5 V,-I _C = 0.5 A,- V _{CE} = 5 V,	h _{FE}	2000 4000 10000 2000	- - - -	- - - -	-
Collector-emitter saturation voltage ¹⁾ -I _C = 100 mA,-I _B = 0.1 mA	-V _{(CEsat}	-	-	1	V
Base emitter saturation voltage ¹⁾ -I _C = 100 mA, -I _B = 0.1 mA	-V _{(BEsat}	-	-	1.5	
¹ Pulse test: t < 300μs; D < 2%					
AC Characteristics					
Transition frequency -I _C = 50 mA, -V _{CE} = 5 V, f = 100 MHz	f _T	-	200	-	MHz
Collector-base capacitance -V _{CB} = 10 V, f = 1 MHz	C _{cb}	-	4.5	-	pF

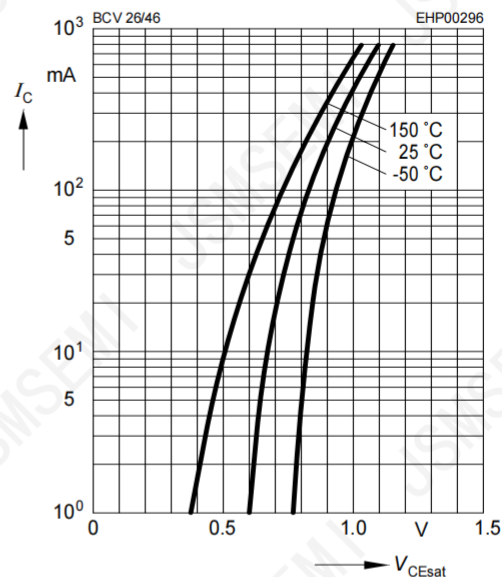
DC current gain $h_{FE} = f(I_C)$

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



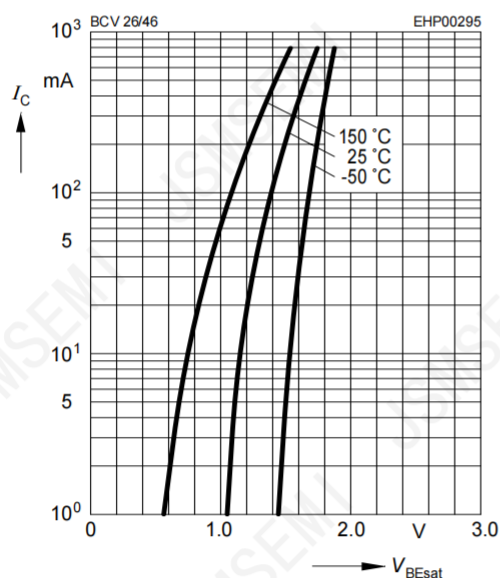
Collector-emitter saturation voltage

$I_C = f(V_{CEsat}), h_{FE} = 1000$



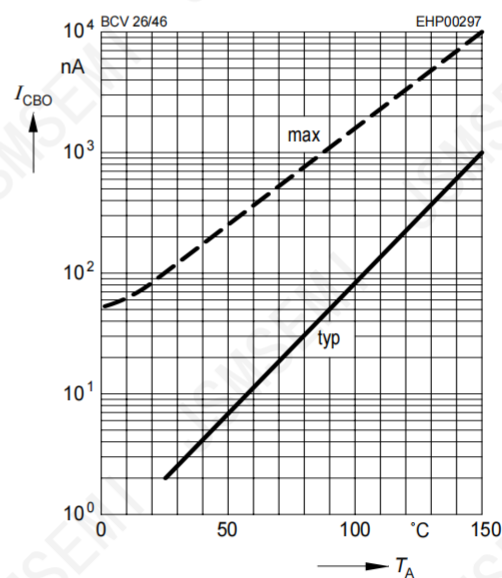
Base-emitter saturation voltage

$I_C = f(V_{BEsat}), h_{FE} = 1000$



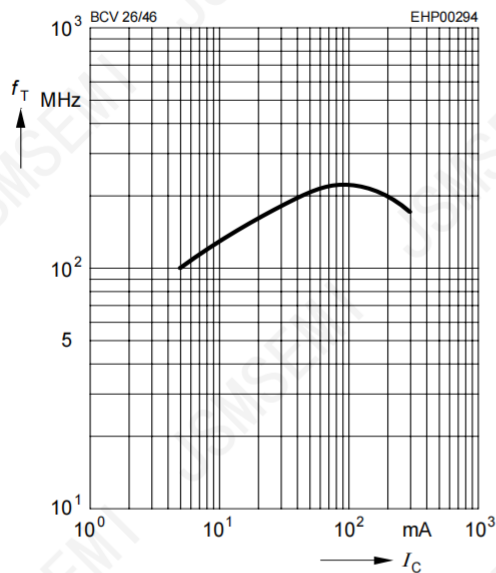
Collector cutoff current $I_{CBO} = f(T_A)$

$V_{CB} = V_{CEmax}$



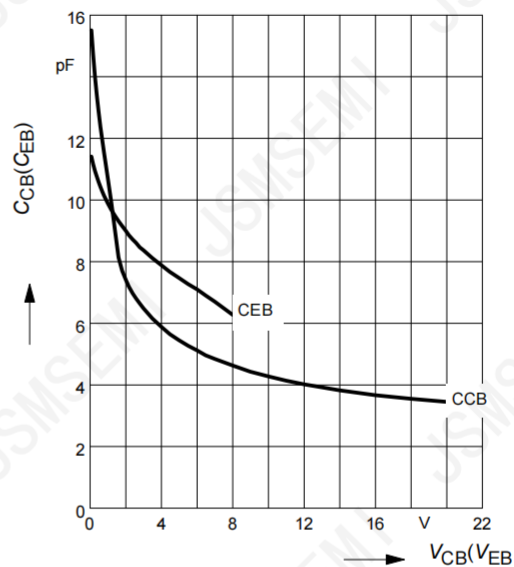
Transition frequency $f_T = f(I_C)$

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

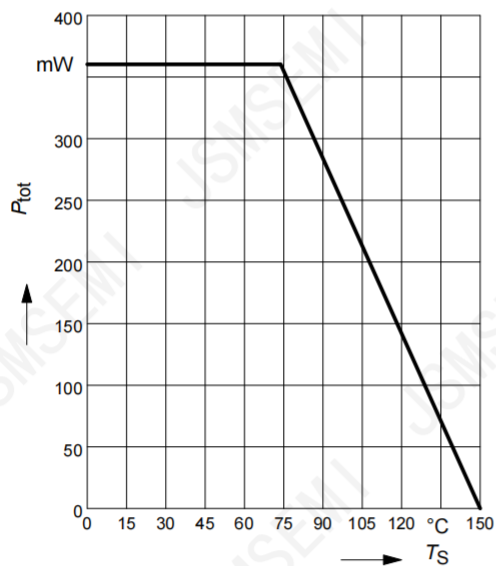


Collector-base capacitance $C_{cb} = f(V_{CB})$

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

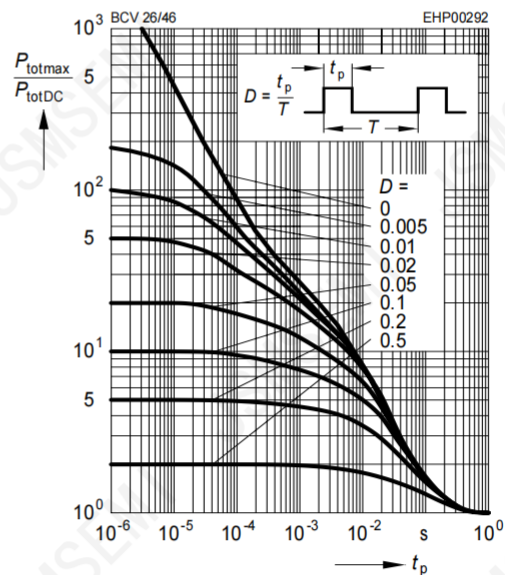


Total power dissipation $P_{tot} = f(T_S)$



Permissible Pulse Load

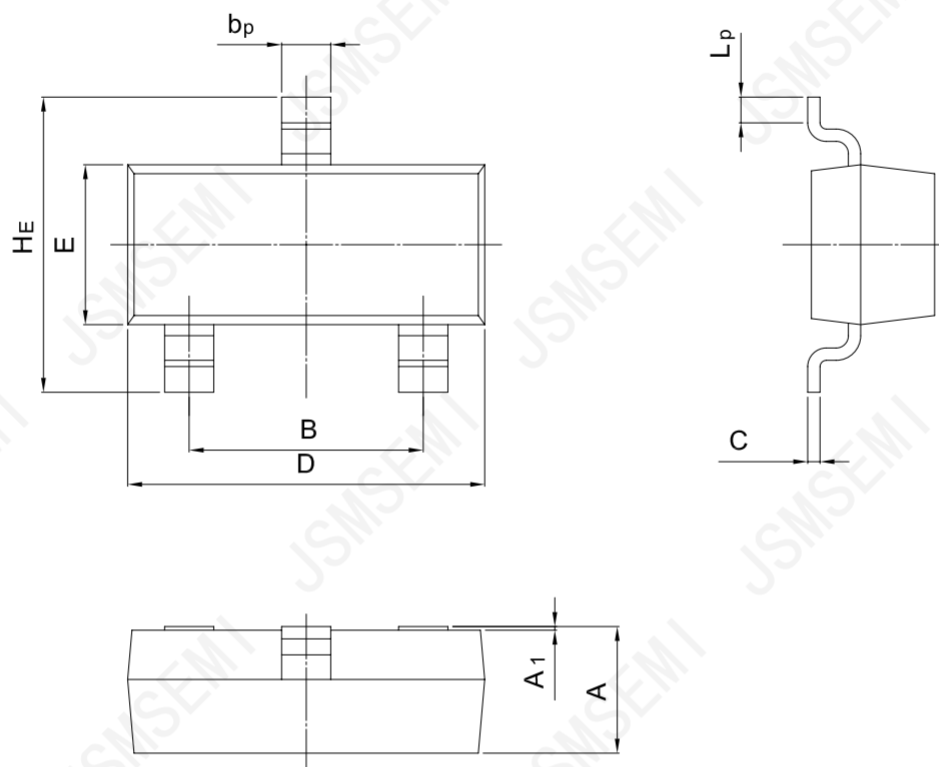
$P_{totmax}/P_{totDC} = f(t_p)$



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20

