

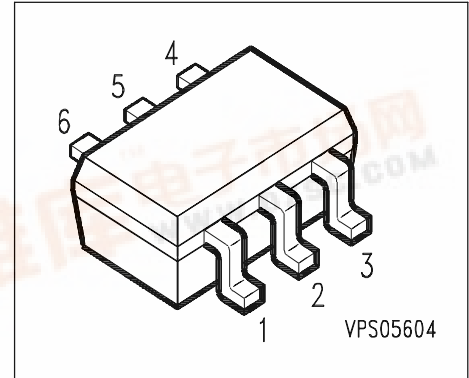
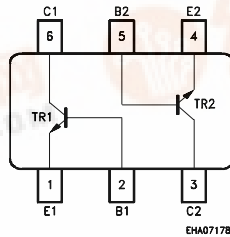
SIEMENS

BC 846S

NPN Silicon AF Transistor Array

Preliminary data

- For AF input stages and driver applications
- High current gain
- Low collector-emitter saturation voltage
- Two (galvanic) internal isolated Transistors in one package



Type	Marking	Ordering Code	Pin Configuration			Package
BC 846S	1Ds	Q62702-	1/4=E1/E2	2/5=B1/B2	3/6=C2/C1	SOT-363

Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	V_{CEO}	65	V
Collector-base voltage	V_{CBO}	80	
Collector-emitter voltage	V_{CES}	80	
Emitter-base voltage	V_{EBO}	6	
DC collector current	I_C	100	mA
Peak collector current	I_{CM}	200	
Total power dissipation, $T_S = 115^\circ\text{C}$	P_{tot}	250	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	- 65 ... + 150	

Thermal Resistance

Junction ambient ¹⁾	R_{thJA}	≤ 275	K/W
Junction - soldering point	R_{thJS}	≤ 140	

1) Package mounted on pcb 40mm x 40mm x 1.5mm / 0.5cm² Cu



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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics per Transistor					
Collector-emitter breakdown voltage $I_C = 10 \text{ mA}, I_B = 0$	$V_{(BR)CEO}$	65	-	-	V
Collector-base breakdown voltage $I_C = 10 \mu\text{A}, I_B = 0$	$V_{(BR)CBO}$	80	-	-	
Collector-emitter breakdown voltage $I_C = 10 \mu\text{A}, V_{BE} = 0$	$V_{(BR)CES}$	80	-	-	
Base-emitter breakdown voltage $I_E = 10 \mu\text{A}, I_C = 0$	$V_{(BR)EBO}$	6	-	-	
Collector cutoff current $V_{CB} = 30 \text{ V}, I_E = 0, T_A = 25^\circ\text{C}$ $V_{CB} = 30 \text{ V}, I_E = 0, T_A = 150^\circ\text{C}$	I_{CBO}	-	-	15 5	nA μA
DC current gain $I_C = 10 \mu\text{A}, V_{CE} = 5 \text{ V}$ $I_C = 2 \text{ mA}, V_{CE} = 5 \text{ V}$	h_{FE}	- 110	140 220	- 450	-
Collector-emitter saturation voltage 1) $I_C = 10 \text{ mA}, I_B = 0.5 \text{ mA}$ $I_C = 100 \text{ mA}, I_B = 5 \text{ mA}$	V_{CEsat}	- -	90 200	250 650	mV
Base-emitter saturation voltage 1) $I_C = 10 \text{ mA}, I_B = 0.5 \text{ mA}$ $I_C = 100 \text{ mA}, I_B = 5 \text{ mA}$	V_{BEsat}	- -	700 900	- -	
Base-emitter voltage $I_C = 10 \text{ mA}, V_{CE} = 5 \text{ V}$	V_{BE}	580 -	660 -	700 770	

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

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

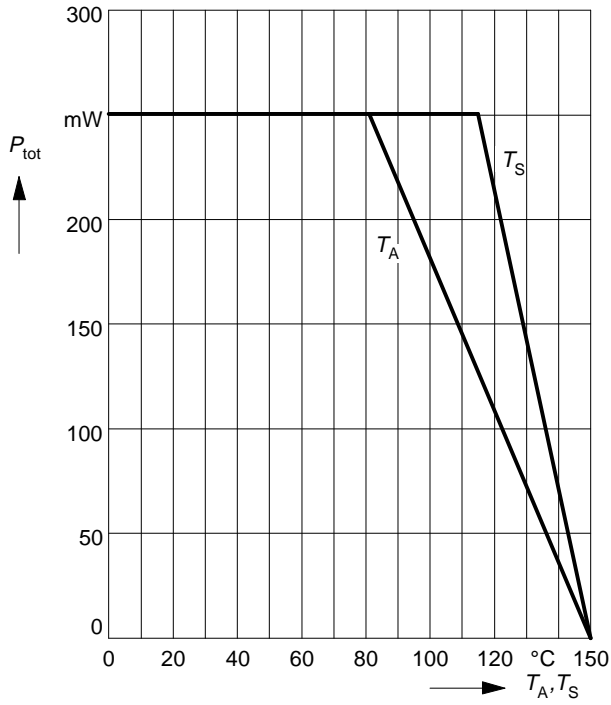
Parameter	Symbol	Values			Unit
		min.	typ.	max.	

AC Characteristics per Transistor

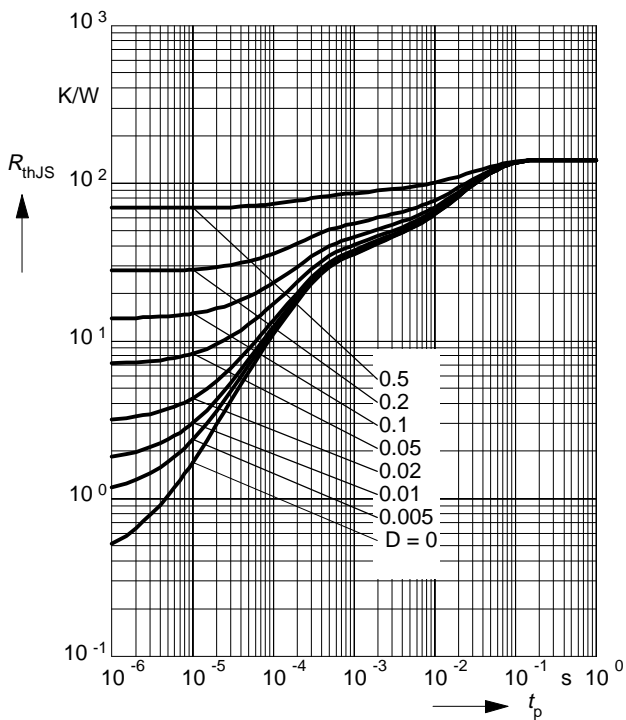
Transition frequency $I_C = 20 \text{ mA}, V_{CE} = 5 \text{ V}, f = 100 \text{ MHz}$	f_T	-	250	-	MHz
Collector-base capacitance $V_{CB} = 10 \text{ V}, f = 1 \text{ MHz}$	C_{cb}	-	2	-	pF
Emitter-base capacitance $V_{EB} = 0.5 \text{ V}, f = 1 \text{ MHz}$	C_{eb}	-	10	-	
Short-circuit input impedance $I_C = 2 \text{ mA}, V_{CE} = 5 \text{ V}, f = 1 \text{ kHz}$	h_{11e}	-	4.5	-	k Ω
Open-circuit reverse voltage transfer ratio $I_C = 2 \text{ mA}, V_{CE} = 5 \text{ V}, f = 1 \text{ kHz}$	h_{12e}	-	2	-	10^{-4}
Short-circuit forward current transfer ratio $I_C = 2 \text{ mA}, V_{CE} = 5 \text{ V}, f = 1 \text{ kHz}$	h_{21e}	-	330	-	-
Open-circuit output admittance $I_C = 2 \text{ mA}, V_{CE} = 5 \text{ V}, f = 1 \text{ kHz}$	h_{22e}	-	30	-	μS

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

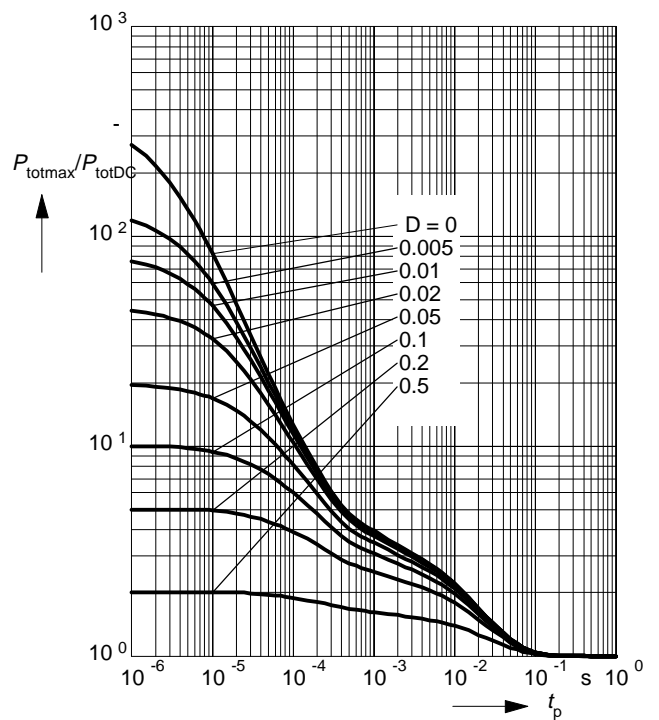
* Package mounted on epoxy



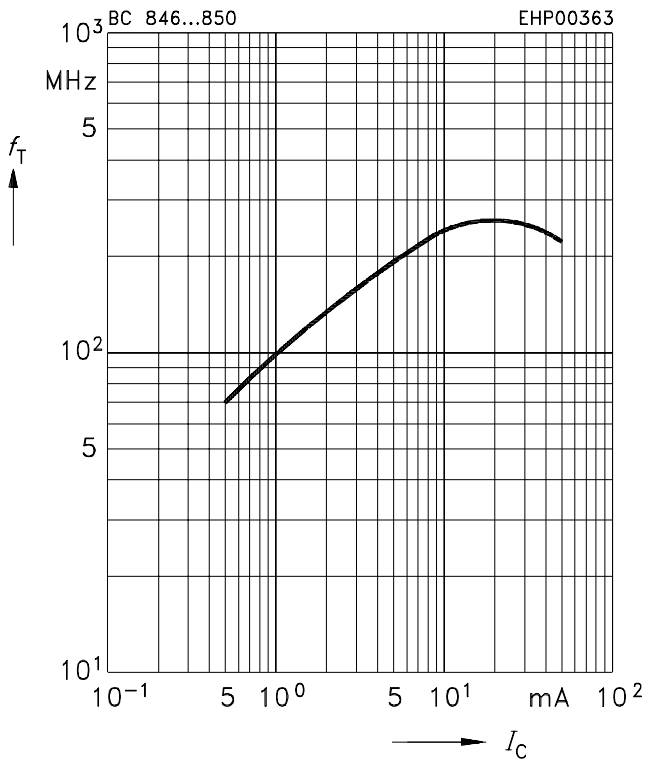
Permissible Pulse Load $R_{thJS} = f(t_p)$



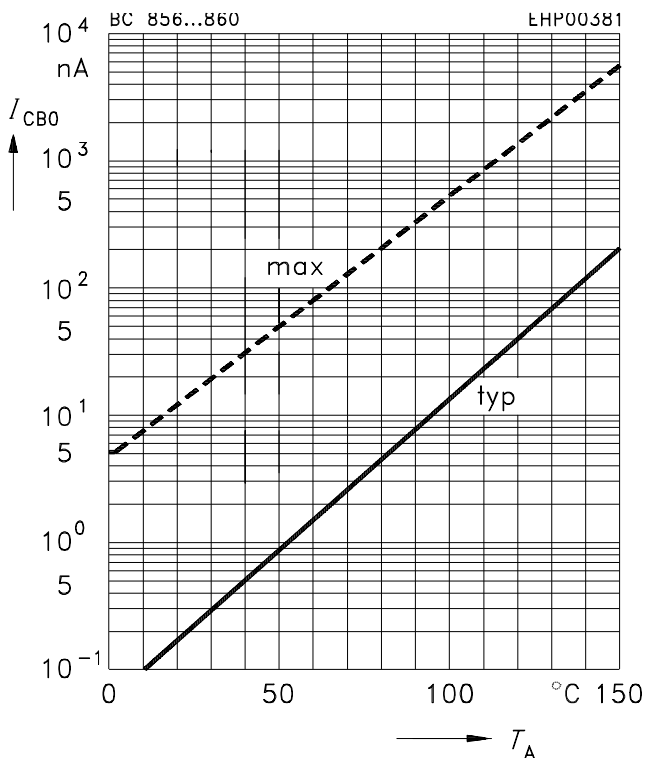
Permissible Pulse Load $P_{totmax} / P_{totDC} = f(t_p)$



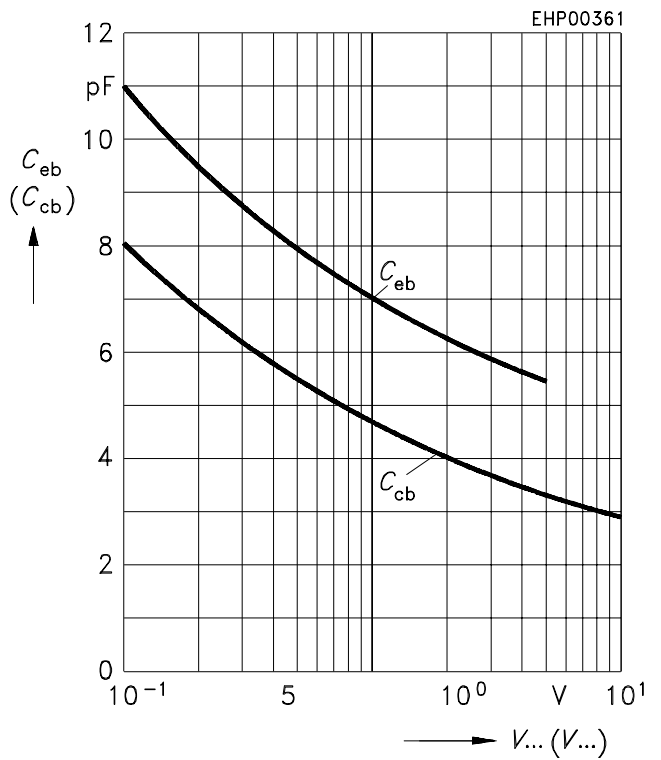
Transition frequency $f_T = f(I_C)$
 $V_{CE} = 5V$



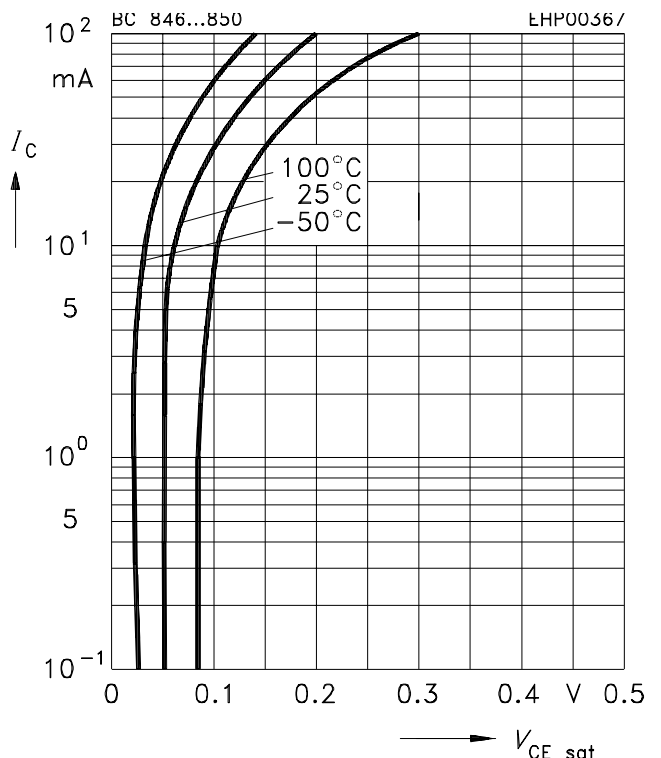
Collector cutoff current $I_{CBO} = f(T_A)$
 $V_{CB} = 30V$



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

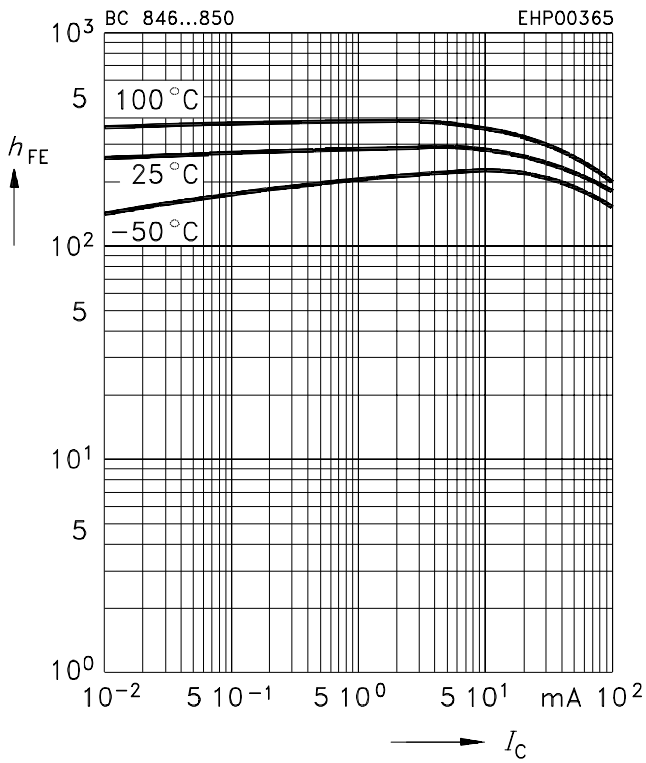


Collector-emitter saturation voltage
 $I_C = f(V_{CEsat}), h_{FE} = 20$



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

$V_{CE} = 5V$



Base-emitter saturation voltage

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

