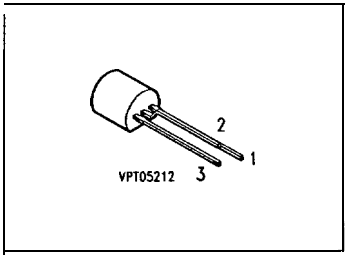
SIEMENS

154873

NPN Silicon Darlington Transistors

BC 875
... BC 879

- High current gain
- Low collector-emitter Saturation voltage
- Complementary types: BC 876, BC 878
  BC 880 (PNP)



Type	Marking	Ordering Code	Pin Configuration 1	2	3	Package[1]
BC 875 BC 877 BC 879		C62702-C853 C62702-C854 C62702-C855	E	C	B	TO-92

Maximum Ratings

Parameter	Symbol	Values BC875 | BC877 | BC879	Unit
Collector-emitter voltaage	VCEO	145 | 160 | 180	V
Collector-base voltage	Vceo	60 | 80 | 100	
Emitter-base voltage	V_{EB0}	5	
Collector current	I_C	1	IA
Peak collector current	I_{CM}	2	
Base current	I_B	100	mA
Peak base current	I_{BM}	200	
Total power dissipation, T_C = 90 °C [2]	P_{tot}	0.8 (1)	W
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-65 ... + 150	

Thermal Resistance

Junction - ambient [2]	$R_{th\,JA}$	≤ 156	K/W
Junction - case[3]	$R_{th\,JC}$	≤ 75	

1) For detailed information see chapter Package Outlines.

2) If transistors with max. 4 mm lead length are fixed on PCBs with a min. 10 mm × 10 mm large copper area for the collector terminal, R_{thJA} = 125 K/W and thus $P_{tot\,max}$ = 1 W at T_A = 25 °C.

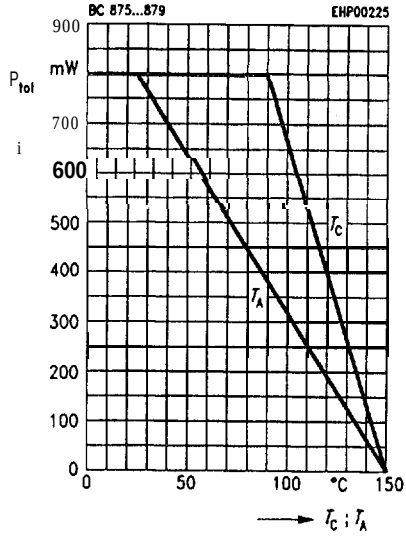
3) Mounted on Al heat sink 15 mm × 25 mm × 0.5 mm.

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

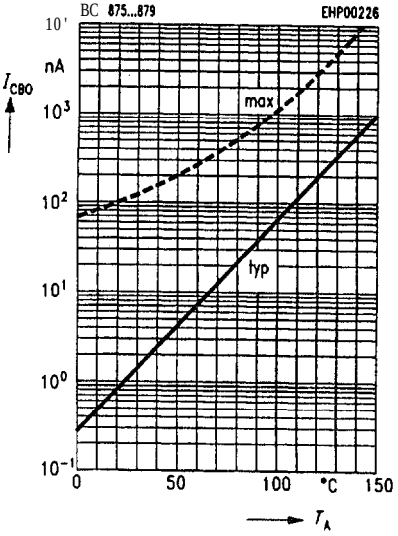
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC characteristics					
Collector-emitter breakdown voltage I_C = 50 mA	$V_{(BR)CE0}$				V
BC 875		45	–	–	
BC 877		60	–	–	
BC 879		80	–	–	
Collector-base breakdown voltage I_C = 100 µA	$V_{(BR)CB0}$				
BC 875		60	–	–	
BC 877		80	–	–	
BC 879		100	–	–	
Emitter-base breakdown voltage, I_E = 100 µA	$V_{(BR)EB0}$	5	–	–	
Collector cutoff current VCE = 0.5 × V_{CEmax}	I_{CE0}	–	–	500	nA
Collector cutoff current Vce = V_{CBmax} Vcs = V_{CBmax}, T_A = 150 °C	I_{CB0}			100 20	nA µA
Emitter cutoff current, V_{EB} = 4 V	I_{EB0}	–	–	100	nA
DC current gain I_C = 150 mA; V_{CE} = 10 V [1] I_C = 500 mA; V_{CE} = 10 V [1]	h_{FE}	 1000 2000	 – –	 – –	
Collector-emitter Saturation voltage [1] I_C = 500 mA, I_B = 0.5 mA I_C = 1 A, I_B = 1 mA	V_{CEsat}			 1.3 1.8	V
Base-emitter Saturation voltage [1] I_C = 1 A; I_B = 1 mA	V_{BEsat}	–	–	2.2	
AC characteristics					
Transition frequency I_C = 200 mA, V_{CE} = 5 V, f = 20 MHz	f_T		150	–	MHz

[1] Pulse test: $t \leq 300$ µs, $D \leq 2$ %.

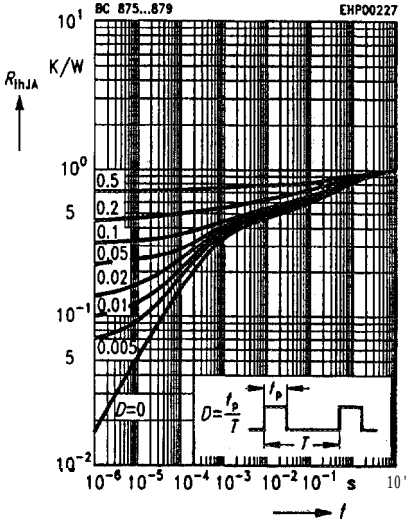
Total power dissipation $P_{tot} = f(T_A; T_C)$



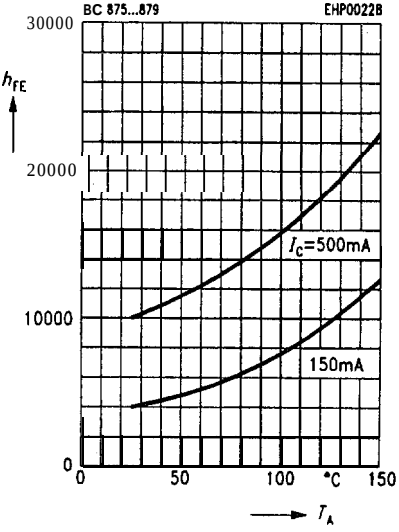
Collector cutoff current $I_{CBO} = f(T_A)$
V_{CB} = 100 V



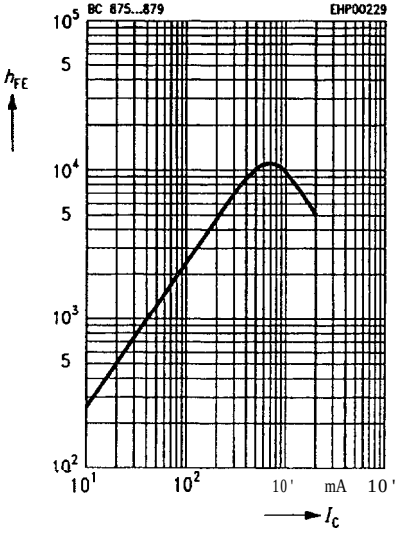
Permissible pulse load $R_{thJA} = f(t_p)$



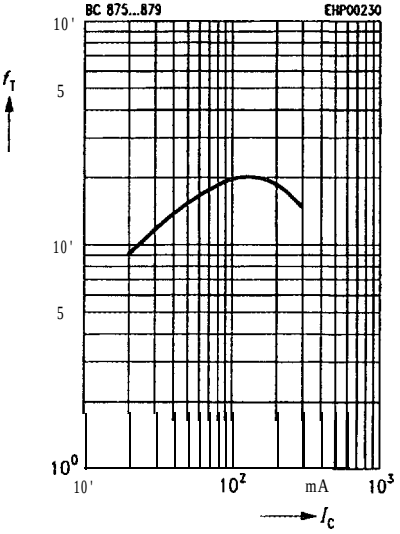
DC current gain $h_{FE} = f(T_A)$
V_{CE} = 10 V



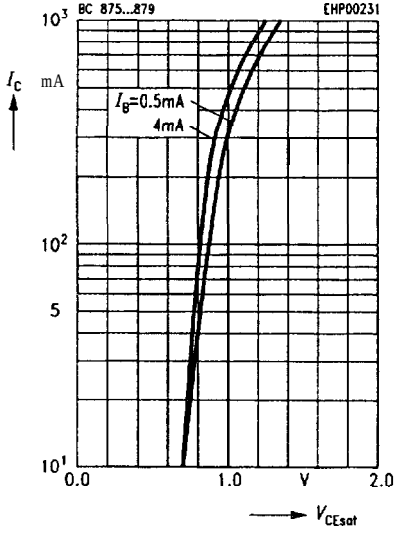
DC current gain $h_{FE} = f(I_C)$
$V_{CE} = 10$ V, $T_A = 25$ °C



Transition frequency $f_T = f(I_C)$
$V_{CE} = 5$ V, $f = 20$ MHz



Collector-emitter saturation voltage
$V_{CEsat} = f(I_C)$
Parameter $= I_E$, $T_A = 25$ °C



Base-emitter saturation voltage
$V_{BEsat} = f(I_C)$
Parameter $= I_B$, $T_A = 25$ °C