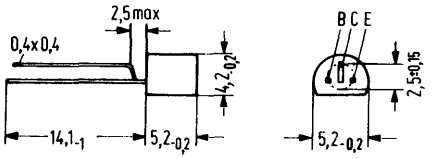
NPN Silicon Planar Darlington Transistors

BC 875
BC 877
BC 879

BC 875, BC 877, and BC 879 are epitaxial NPN silicon planar darlington transistors with integrated diode and resistor in TO 92 plastic package (10 A 3 DIN 41868). These transistors are particularly suitable for use as relay driver and for general AF applications.

Complementary transistors to these types are BC 876, BC 878, and BC 880.

Type	Ordering code
BC 875	Q62702-C853
BC 877	Q62702-C854
BC 879	Q62702-C855



Mounting instruction: Fixing hole dia 0.6
Approx. weight 0.25 g

Dimensions in mm

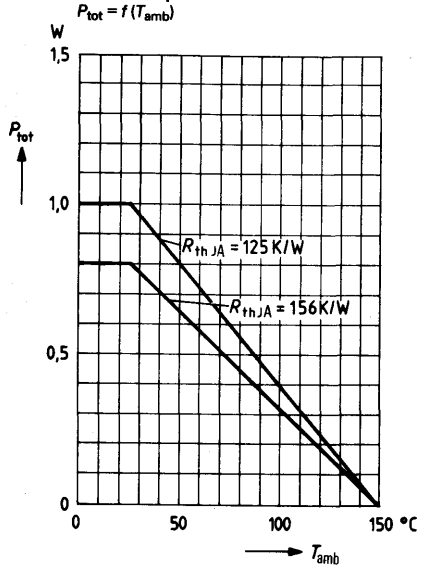
Maximum ratings (T_{amb} = 25 °C)		**BC 875**	**BC 877**	**BC 879**	
Collector-emitter voltage	V_{CEO}	45	60	80	V
Collector-base voltage	V_{CBO}	60	80	100	V
Emitter-base voltage	V_{EBO}	5	5	5	V
Collector current	I_C	1	1	1	A
Collector peak current	I_{CM}	2	2	2	A
Base current	I_B	0.1	0.1	0.1	A
Junction temperature	T_j	150	150	150	°C
Storage temperature range	T_{stg}		−65 to +150		°C
Total power dissipation[1] ($T_{amb} \leq 25$ °C)	P_{tot}	0.8 (1)	0.8 (1)	0.8 (1)	W
Thermal resistance					
Junction to ambient air[1]	R_{thJA}	<156	<156	<156	K/W
Junction to case	R_{thJC}	<55	<55	<55	K/W

1) If the transistors with max 3 mm lead length are fixed on PCBs with a min. 10 mm x 10 mm large copper area for the collector terminal, R_{thJA} = 125 K/W and thus $P_{tot\ max}$ (T_{amb} = 25 °C) = 1 W.

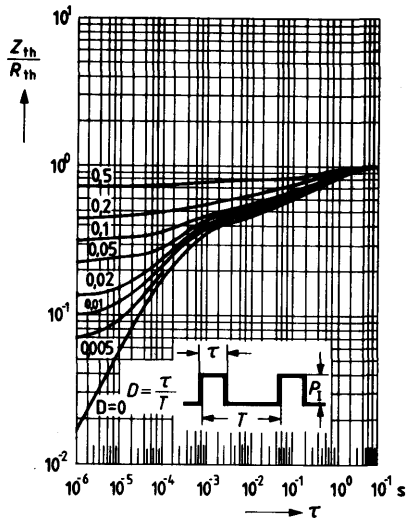
Static characteristics (T_{amb} = 25 °C)		BC 875	BC 877	BC 879	
Collector cutoff current ($V_{CB} = V_{CBmax}$)	I_{CBO}	<100	<100	<100	nA
Collector cutoff current (V_{CE} = 0.5 V_{CEmax})	I_{CEO}	<500	<500	<500	nA
Emitter cutoff current (V_{EB} = 4 V)	I_{EBO}	<100	<100	<100	nA
Collector-emitter breakdown voltage (I_C = 50 mA)	$V_{(BR)CEO}$	>45	>60	>80	V
Collector-base breakdown voltage (I_C = 100 μA)	$V_{(BR)CBO}$	>60	>80	>100	V
Emitter-base breakdown voltage (I_E = 100 μA)	$V_{(BR)EBO}$	>5	>5	>5	V
DC current gain (I_C = 150 mA; V_{CE} = 10 V)	h_{FE}	>1000	>1000	>1000	–
(I_C = 0.5 A; V_{CE} = 10 V)	h_{FE}	>2000	>2000	>2000	–
Collector-emitter saturation voltage (I_C = 0.5 A; I_B = 0.5 mA)	V_{CEsat}	<1.3	<1.3	<1.3	V
(I_C = 1 A; I_B = 1 mA)	V_{CEsat}	<1.8	<1.8	<1.8	V
Base-emitter saturation voltage (I_C = 1 A; I_B = 1 mA)	V_{BEsat}	<2.2	<2.2	<2.2	V

Dynamic characteristics (T_{amb} = 25 °C)					
Transition frequency (I_C = 0.5 A; V_{CE} = 5 V; f = 35 MHz)	f_T	200	200	200	MHz

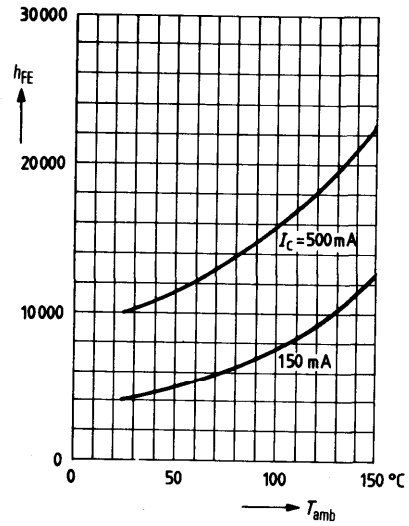
Total perm. power dissipation versus temperature
$P_{tot} = f(T_{amb})$



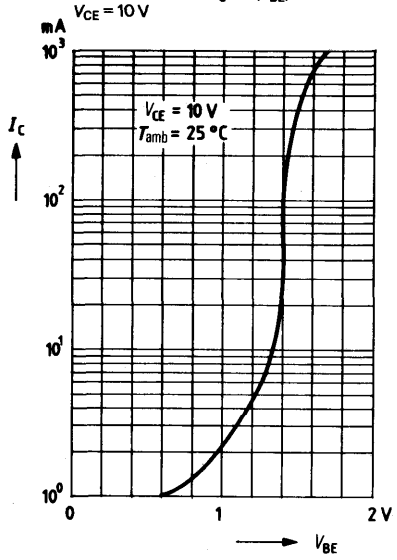
Permissible pulse load $r_{thJA} = f(t)$
$\frac{Z_{th}}{R_{th}} = f(\tau)$



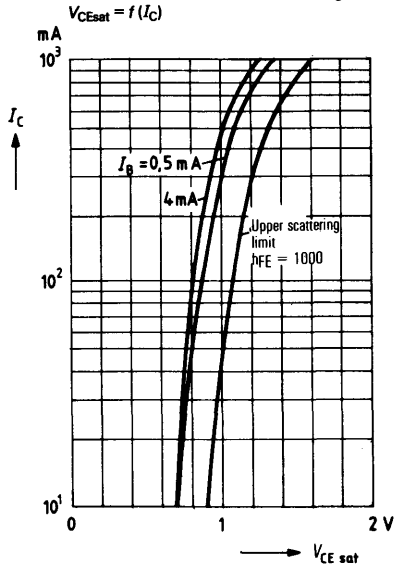
DC current gain $h_{FE} = f(T_{amb})$
V_{CE} = 10 V; I_C = parameter



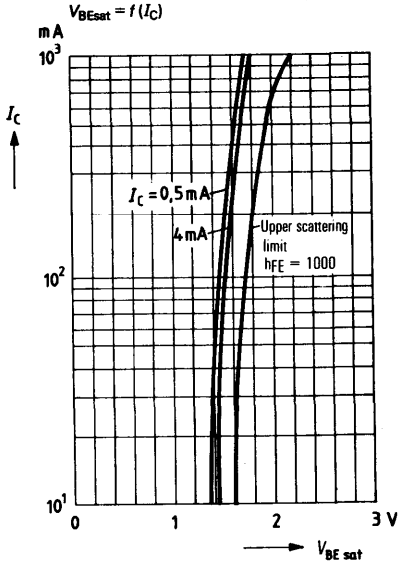
Collector current $I_C = f(V_{BE})$
V_{CE} = 10 V



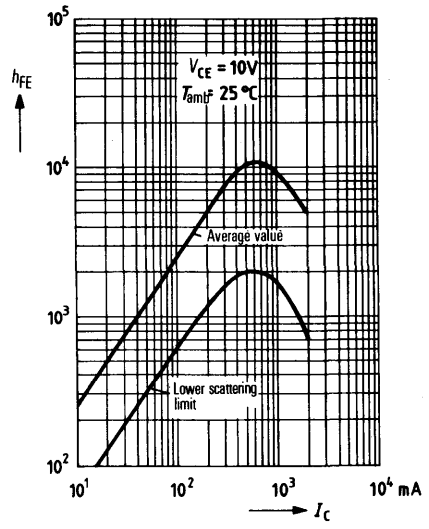
Collector emitter saturation voltage
$V_{CEsat} = f(I_C)$



Base-emitter saturation voltage
$V_{BEsat} = f(I_C)$



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



Small signal current gain $h_{fe} = f(I_C)$
$V_{CE} = 5$ V; $f = 35$ MHz