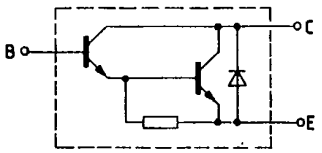
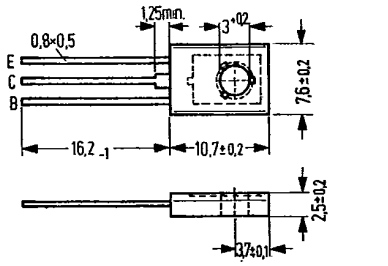
NPN Silicon Planar Darlington Transistors

BD 875
BD 877
BD 879

BD 875, BD 877, and BD 879 are epitaxial NPN silicon planar darlington transistors in TO 126 plastic package (12 A 3 DIN 41869, sheet 4). These darlington transistors are designed for relay drivers as well as for general AF applications. BD 876, BD 878, and BD 880 are provided as complementary transistors.

Type	Ordering code
BD 875	Q62702-D902
BD 877	Q62702-D903
BD 879	Q62702-D904
Spring washer A 3 DIN 137	Q62902-B63
Mica washer	Q62902-B62





Approx. weight 0.5 g Dimensions in mm

Transistor fixing with M 3 screw; starting torque max. 0.8 Nm; washer or spring washer should be used.

Maximum ratings (T_{amb} = 25 °C)

		BD 875	BD 877	BD 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					
($T_{amb} \leq 25$ °C)	P_{tot}	1.25	1.25	1.25	W
($T_{case} \leq 60$ °C)	P_{tot}	9	9	9	W

Thermal resistance

Junction to ambient air	R_{thJA}	<100	<100	<100	K/W
Junction to case	R_{thJC}	<10	<10	<10	K/W

BD 875
BD 877
BD 879

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Static characteristics (T_{amb} = 25 °C)		**BD 875**	**BD 877**	**BD 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

PNP Silicon Planar Darlington Transistors

BD 876
BD 878
BD 880

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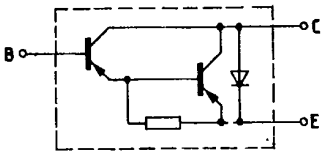
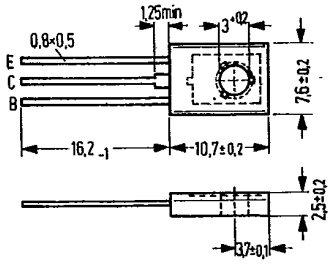
BD 876, BD 878, and BD 880 are epitaxial PNP silicon planar darlington transistors in TO 126 plastic package (12 A 3 DIN 41 869, sheet 4). These darlington transistors are designed for relay drivers as well as for general AF applications. BD 875, BD 877, and BD 879 are provided as complementary transistors.

Type	Ordering code
BD 876	Q62702-D908
BD 878	Q62702-D907
BD 880	Q62702-D906
Spring washer A 3 DIN 137	Q62902-B63
Mica washer	Q62902-B62





Approx. weight 0.5 g. Dimensions in mm

Transistor fixing with M 3 screw; starting torque max. 0.8 Nm; washer or spring washer should be used.

Maximum ratings (T_{amb} = 25 °C)

		BD 876	BD 878	BD 880	
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 ($T_{amb} \leq 25$ °C)	P_{tot}	1.25	1.25	1.25	W
($T_{case} \leq 60$ °C)	P_{tot}	9	9	9	W

Thermal resistance

Junction to ambient air	R_{thJA}	<100	<100	<100	K/W
Junction to case	R_{thJC}	<10	<10	<10	K/W

Static characteristics (T_{amb} = 25 °C)		BD 876	BD 878	BD 880	
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	–
Collecor-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

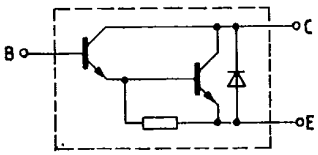
NPN Silicon Darlington Transistors

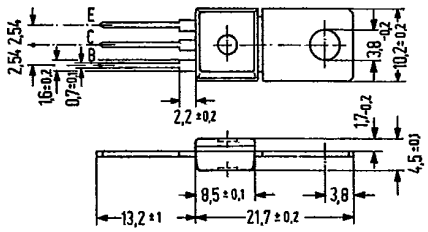
BD 975
BD 977
BD 979

BD 975, BD 977, and BD 979 are epitaxial NPN silicon planar darlington transistors in plastic package similar to TO 202. These darlington transistors are designed for relay drivers as well as for general AF applications.

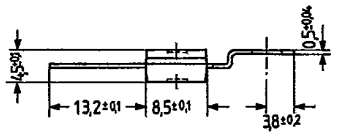
BD 976, BD 978, and BD 980 are provided as complementary transistors.

Type	Ordering code
BD 975	Q62702-D962
BD 977	Q62702-D964
BD 979	Q62702-D966





Approx. weight 15 g. Dimensions in mm



Available upon request also with bent fixing plate.

Maximum ratings		BD 975	BD 977	BD 979	
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
Storage temperature range	T_{stg}		−65 to +150		°C
Junction temperature	T_j	150	150	150	°C
Total power dissipation					
(T_{amb} = 25 °C)	P_{tot}	1.6	1.6	1.6	W
(T_{case} = 60 °C)	P_{tot}	3.6	3.6	3.6	W
Thermal resistance					
Junction to ambient air	R_{thJA}	78	78	78	K/W
Junction to case	R_{thJC}	25	25	25	K/W

Static characteristics (T_{amb} = 25 °C)		BD 975	BD 977	BD 979	
Collector cutoff current ($V_{CBO} = V_{CBmax}$)	I_{CBO}	<100	<100	<100	nA
Collector cutoff current (V_{CEO} = 0.5 V_{CEmax})	I_{CEO}	<500	<500	<500	nA
Emitter cutoff current (V_{EBO} = 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

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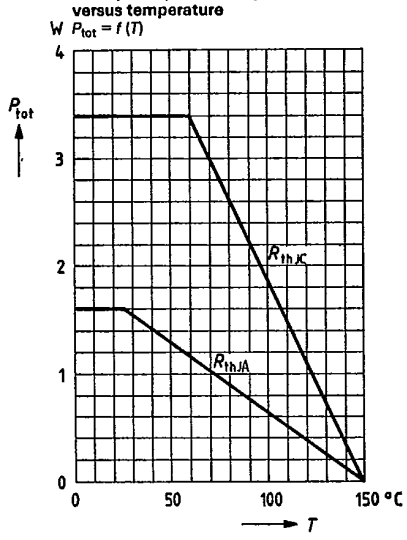
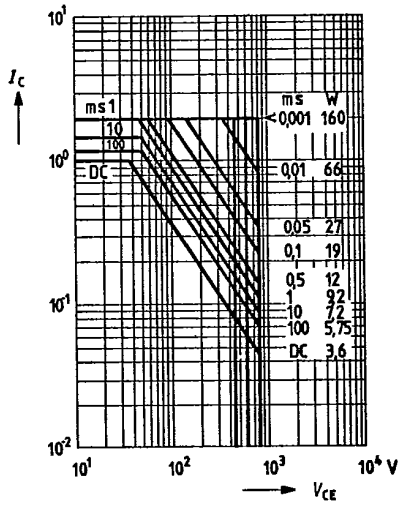
BD 975
BD 977
BD 979

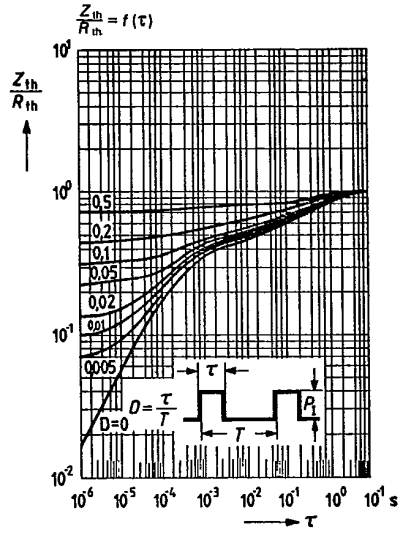
Total perm. power dissipation versus temperature
$P_{tot} = f(T)$



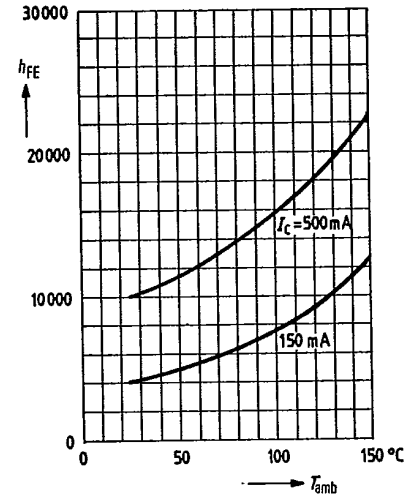
Permissible operating range
$I_C = f(V_{CE})$; $T_{case} \leq 100$ °C; D = 0



Permissible power dissipation
$\frac{Z_{th}}{R_{th}} = f(\tau)$

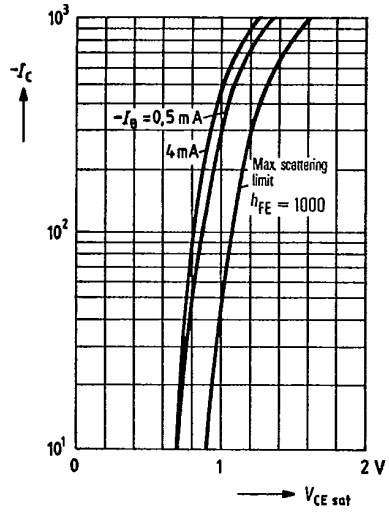


DC current gain $h_{FE} = f(T_{amb})$
$V_{CE} = 10$ V; I_C = parameter

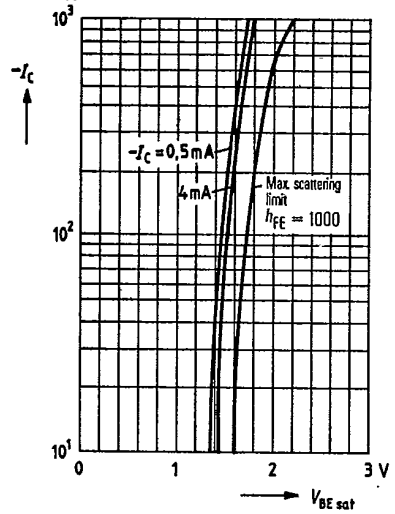


1850 F-11

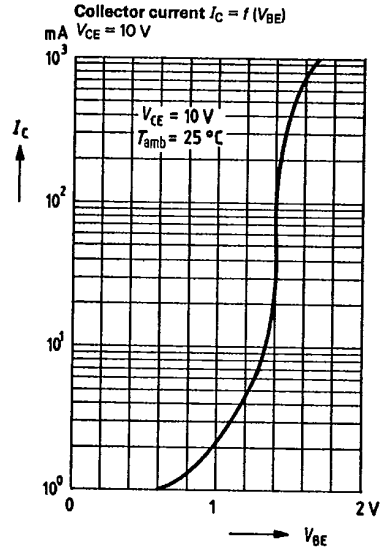
Collector-emitter saturation voltage
$V_{CEsat} = f(I_C)$



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



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



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