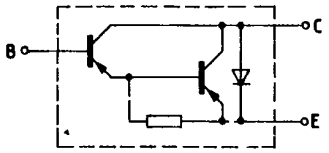
PNP Silicon Darlington Transistors

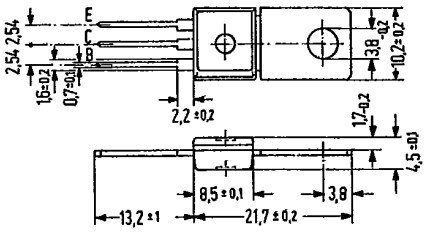
BD 976
BD 978
BD 980

BD 976, BD 978, and BD 980 are epitaxial PNP 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.

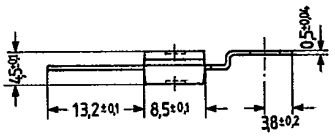
BD 975, BD 977, and BD 979 are provided as complementary transistors.

Type	Ordering code
BD 976	Q62702-D963
BD 978	Q62702-D965
BD 980	Q62702-D967





Approx. weight 15 g. Dimensions in mm



Available upon request also with bent fixing plate.

Maximum ratings (T_{amb} = 25 °C)		BD 976	BD 978	BD 980	
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} = 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 976	BD 978	BD 980	
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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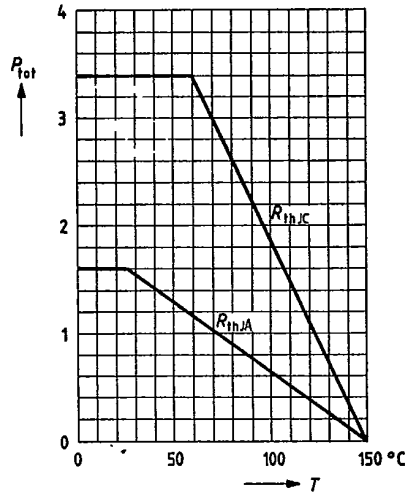
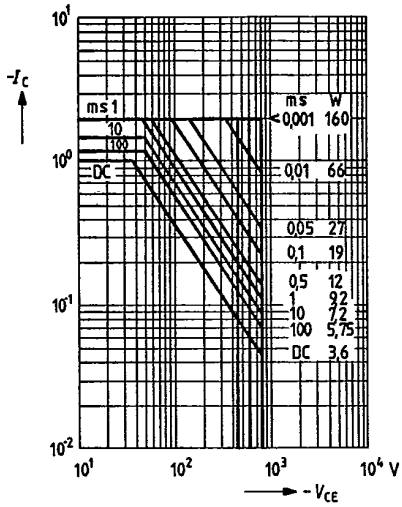
BD 976
BD 978
BD 980

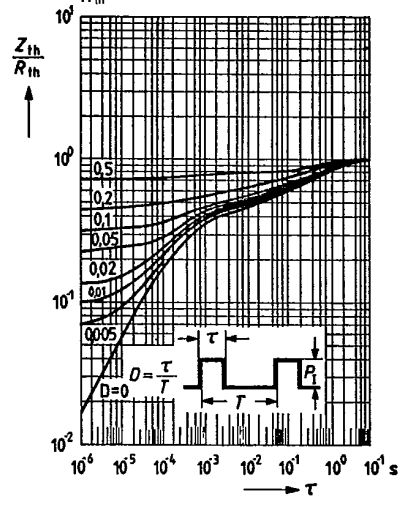
Total perm. power dissipation versus temperature
$P_{tot} = f(T)$



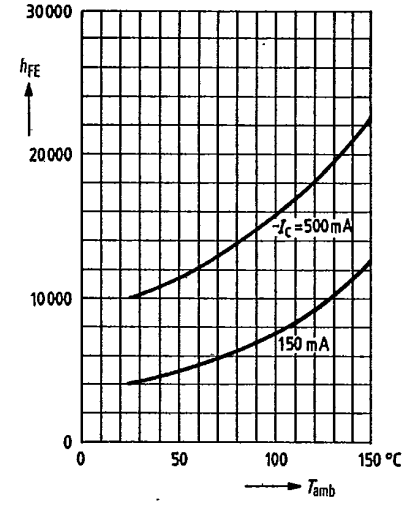
Permissible operating range
$I_C = f(V_{CE})$; $T_{case} \leq 100$ °C; D = 0



Total perm. power dissipation
$\frac{Z_{th}}{R_{th}} = f(\tau)$

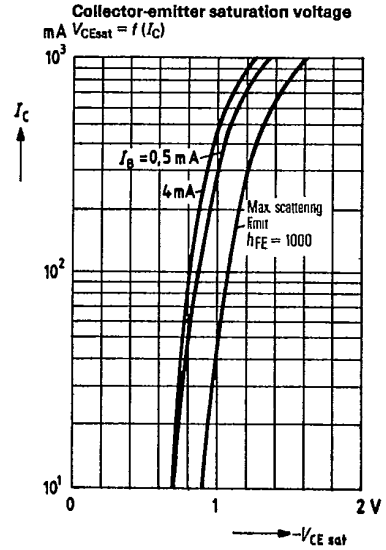


DC current gain $h_{FE} = f(T_{amb})$
$V_{CE} = 10$ V; I_C = parameter

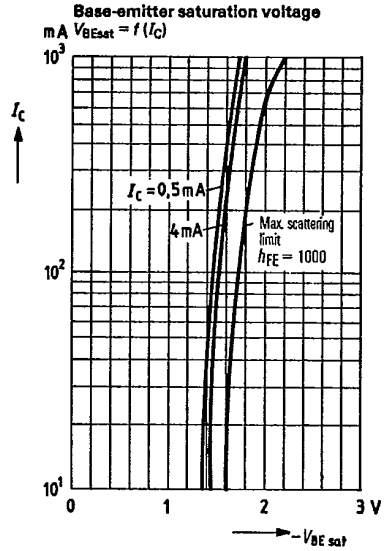


BD976
BD978
– BD980

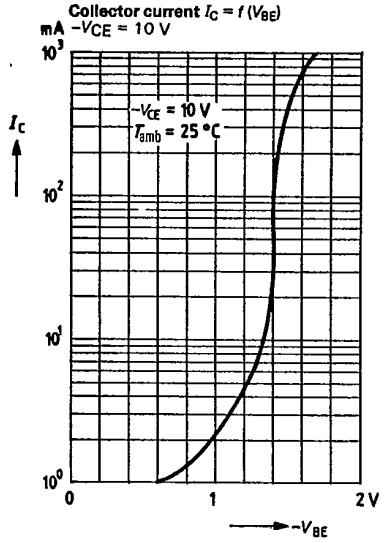
Collector-emitter saturation voltage



Base-emitter saturation voltage



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



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