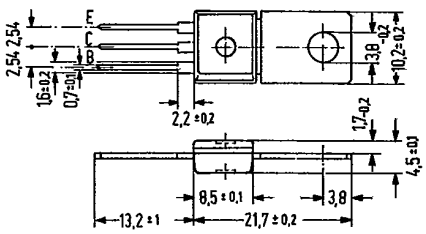
NPN Silicon Darlington Transistors

BD 861
BD 863
BD 865

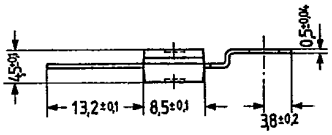
Epibase power darlington transistors (15 W)

BD 861, BD 863, and BD 865 are monolithic silicon NPN epibase power darlington transistors with diode and resistors in a plastic package similar to TO 202. The collectors of the two transistors are electrically connected to the metallic mounting area. These darlington transistors for AF applications are outstanding for a particularly high current gain. Together with BD 862, BD 864, and BD 866, they are especially useful as complementary AF push-pull output stages for color TV correction stages.

Type	Ordering code
BD 861	Q62702-D956
BD 863	Q62702-D958
BD 865	Q62702-D960



Approx. weight 15 g. Dimensions in mm



Available upon request also with bent fixing plate.

Maximum ratings		BD 861	BD 863	BD 865	
Collector-emitter voltage	V_{CEO}	45	60	80	V
Collector-base voltage	V_{CBO}	45	60	80	V
Base-emitter voltage	V_{EBO}	5	5	5	V
Collector current	I_C	4	4	4	A
Collector peak current ($t \leq 1$ ms)	I_{CM}	7	7	7	A
Base current	I_B	0.1	0.1	0.1	A
Storage temperature range	T_{stg}		−55 to +150		°C
Junction temperature	T_j	150	150	150	°C
Total power dissipation ($T_{case} \leq 25$ °C)	P_{tot}	15	15	15	W
Thermal resistance					
Junction to ambient air	R_{thJA}	62.5	62.5	62.5	K/W
Junction to case	R_{thJC}	8.3	8.3	8.3	K/W

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Static characteristics (T_{amb} = 25 °C)		**BD 861**	**BD 863**	**BD 865**	
Collector cutoff current					
(V_{CB} = V_{CBmax})	I_{CBO}	<0.2	<0.2	<0.2	mA
(V_{BC} = V_{CBmax}; T_{amb} = 100 °C)	I_{CBO}	<2	<2	<2	mA
Collector cutoff current					
(V_{CE} = 0.5 V_{CEmax})	I_{CEO}	<0.5	<0.5	<0.5	mA
Emitter cutoff current					
(V_{EBO} = 5 V)	I_{EBO}	<5	<5	<5	mA
Collector-emitter breakdown					
voltage (I_C = 100 mA)	$V_{(BR)CEO}$	>45	>60	>60	V
Collector-base breakdown					
voltage (I_C = 1 mA)	$V_{(BR)CBO}$	>45	>60	>80	V
Emitter-base breakdown					
voltage (I_E = 5 mA)	$V_{(BR)EBO}$	>5	>5	>5	V
DC current gain					
(I_C = 50 mA; V_{CE} = 3 V)	h_{FE}	750	750	750	–
(I_C = 1.5 A; V_{CE} = 3 V)	h_{FE}	>750	>750 (3000)	>750 (3000)	–
(I_C = 4 A; V_{CE} = 3 V)	h_{FE}	1000	1000	1000	–
Base-emitter forward voltage					
(I_C = 1.5 A; V_{CE} = 3 V)	V_{BE}	<2.5	<2.5	<2.5	V
Collector-emitter saturation voltage					
(I_C = 1.5 A; I_B = 30 mA)	V_{CEsat}	<2.5	<2.5	<2.5	V
Forward voltage of the protective					
diode at I_F = 3 A	V_F	1.8	1.8	1.8	V

Dynamic characteristics (T_{amb} = 25 °C)					
Transition frequency					
(I_C = 1.5 A; V_{CE} = 3 V; f = 1 MHz)	f_T	7 (>1)	7 (>1)	7 (>1)	MHz
Cutoff frequency in common emitter					
configuration					
(I_C = 1.5 A; V_{CE} = 3 V)	f_{hfe}	60	60	60	kHz

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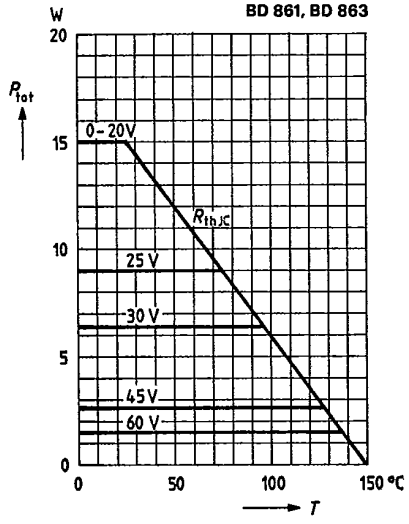
Total perm. power dissipation versus temperature
$P_{tot} = f(T)$; V_{CE} = parameter



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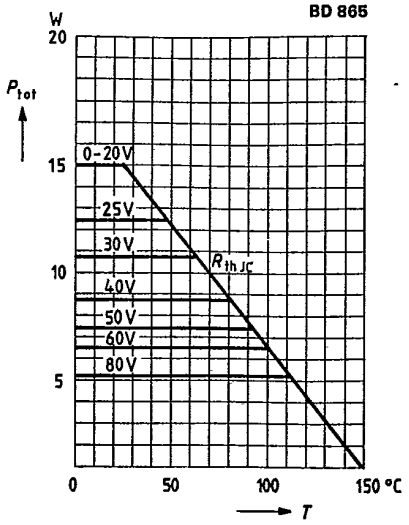
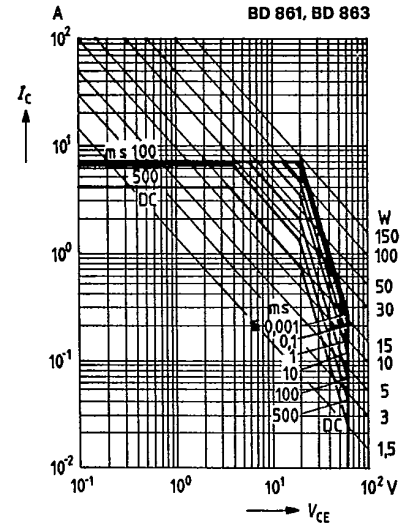


Permissible operating range
$I_C = f(V_{CE})$; $T_{case} \leq 25$ °C; D = 0.01



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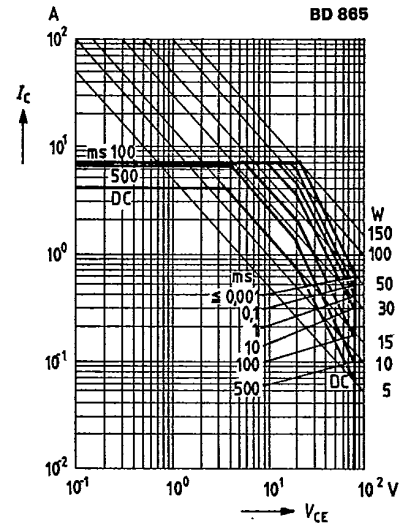

Permissible pulse load

$\frac{Z_{thJC}}{R_{thJC}} = f(\tau)$