

NPN Silicon Darlington Transistors

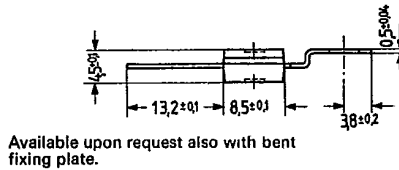
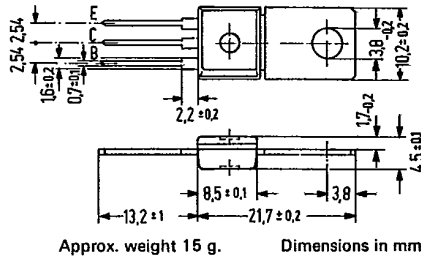
**BD 861
BD 863
BD 865**

SIEMENS AKTIENGESELLSCHAFT 5C 04413 D

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



Maximum ratings

	BD 861	BD 863	BD 865	
Collector-emitter voltage	45	60	80	V
Collector-base voltage	45	60	80	V
Base-emitter voltage	5	5	5	V
Collector current	4	4	4	A
Collector peak current ($t \leq 1$ ms)	7	7	7	A
Base current	0.1	0.1	0.1	A
Storage temperature range	-55 to +150			°C
Junction temperature	150	150	150	°C
Total power dissipation ($T_{case} \leq 25^\circ\text{C}$)	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 ($T_{amb} = 25^{\circ}\text{C}$)		BD 861	BD 863	BD 865	
Collector cutoff current ($V_{CB} = V_{CBmax}$)	I_{CBO}	<0.2	<0.2	<0.2	mA
($V_{BC} = V_{CBmax}; T_{amb} = 100^{\circ}\text{C}$)	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 ($V_{EBO} = 5\text{ V}$)	I_{EBO}	<5	<5	<5	mA
Collector-emitter breakdown voltage ($I_C = 100\text{ mA}$)	$V_{(BR)CEO}$	>45	>60	>60	V
Collector-base breakdown voltage ($I_C = 1\text{ mA}$)	$V_{(BR)CBO}$	>45	>60	>80	V
Emitter-base breakdown voltage ($I_E = 5\text{ mA}$)	$V_{(BR)EBO}$	>5	>5	>5	V
DC current gain ($I_C = 50\text{ mA}; V_{CE} = 3\text{ V}$)	h_{FE}	750	750	750	-
($I_C = 1.5\text{ A}; V_{CE} = 3\text{ V}$)	h_{FE}	>750	>750 (3000)	>750 (3000)	-
($I_C = 4\text{ A}; V_{CE} = 3\text{ V}$)	h_{FE}	1000	1000	1000	-
Base-emitter forward voltage ($I_C = 1.5\text{ A}; V_{CE} = 3\text{ V}$)	V_{BE}	<2.5	<2.5	<2.5	V
Collector-emitter saturation voltage ($I_C = 1.5\text{ A}; I_B = 30\text{ mA}$)	V_{CEsat}	<2.5	<2.5	<2.5	V
Forward voltage of the protective diode at $I_F = 3\text{ A}$	V_F	1.8	1.8	1.8	V

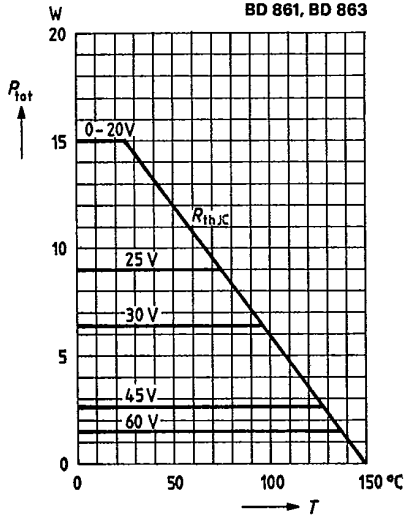
Dynamic characteristics ($T_{amb} = 25^{\circ}\text{C}$)					
Transition frequency ($I_C = 1.5\text{ A}; V_{CE} = 3\text{ V}; f = 1\text{ MHz}$)	f_T	7 (>1)	7 (>1)	7 (>1)	MHz
Cutoff frequency in common emitter emitter configuration ($I_C = 1.5\text{ A}; V_{CE} = 3\text{ V}$)	f_{hfe}	60	60	60	kHz

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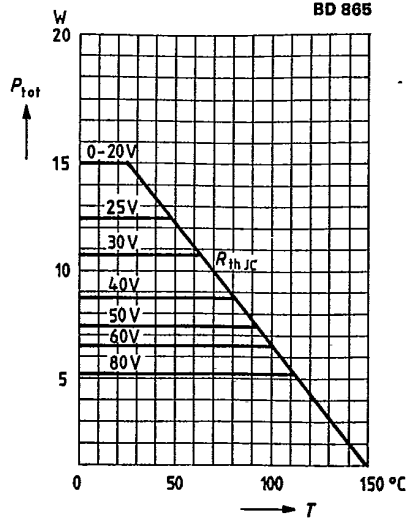
Total perm. power dissipation
 versus temperature
 $P_{tot} = f(T); V_{CE} = \text{parameter}$

BD 861, BD 863



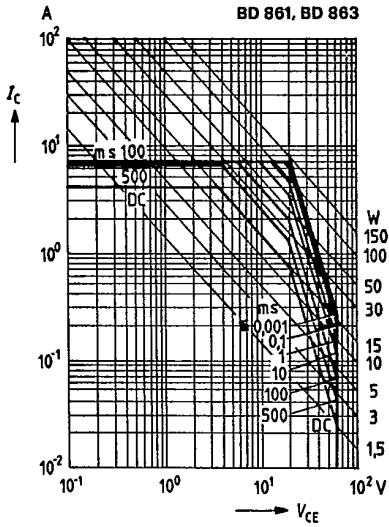
Total perm. power dissipation
 versus temperature
 $P_{tot} = f(T); V_{CE} = \text{parameter}$

BD 865



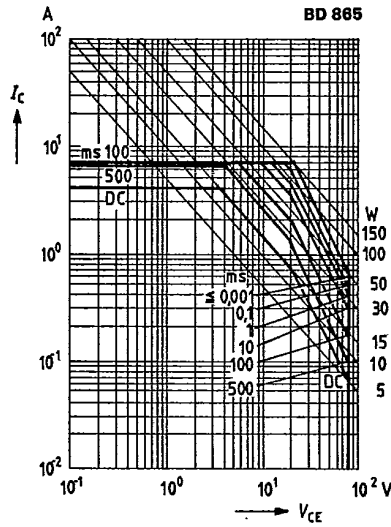
Permissible operating range
 $I_C = f(V_{CE}); T_{case} \leq 25^\circ\text{C}; D = 0.01$

BD 861, BD 863



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

BD 865



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