

**NPN Silicon Darlington Transistors**

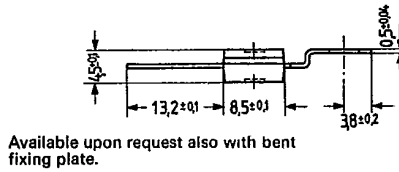
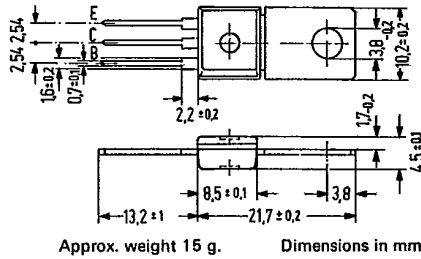
**BD 861  
BD 863  
BD 865**

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

SIEMENS AKTIENGESELLSCHAFT

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 ( $T_{amb} = 25^{\circ}\text{C}$ )

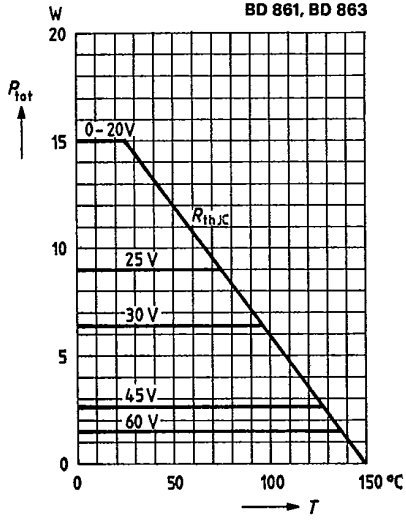
Transition frequency ( $I_C = 1.5 \text{ A}; V_{CE} = 3 \text{ V}; f = 1 \text{ MHz}$ )	$f_T$	7 (>1)	7 (>1)	7 (>1)	MHz
Cutoff frequency in common emitter emitter configuration ( $I_C = 1.5 \text{ A}; V_{CE} = 3 \text{ V}$ )	$f_{hfe}$	60	60	60	kHz

BD 861  
 BD 863  
 BD 865

SIEMENS AKTIENGESELLSCHAFT

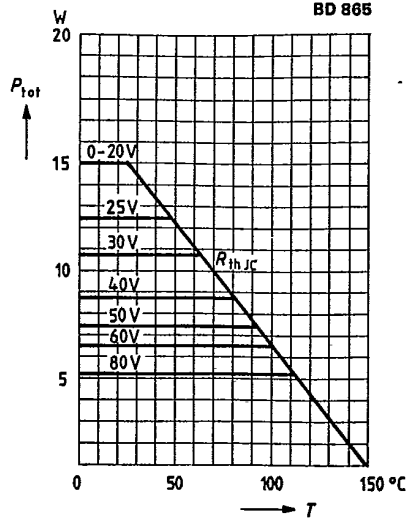
Total perm. power dissipation  
 versus temperature  
 $P_{tot} = f(T); V_{CE} = \text{parameter}$

BD 861, BD 863



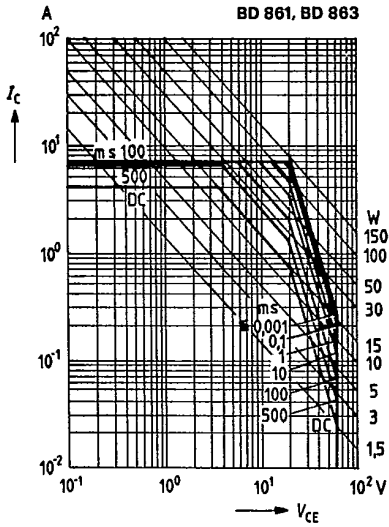
Total perm. power dissipation  
 versus temperature  
 $P_{tot} = f(T); V_{CE} = \text{parameter}$

BD 865



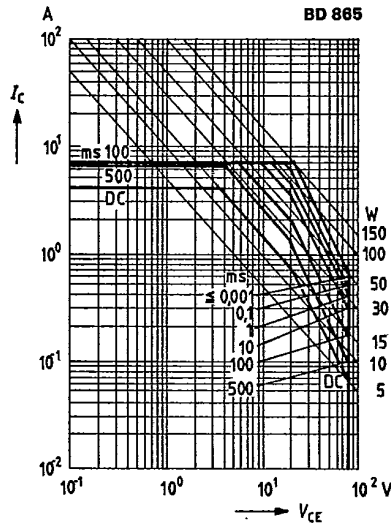
Permissible operating range  
 $I_C = f(V_{CE}); T_{case} \leq 25^\circ\text{C}; D = 0.01$

BD 861, BD 863



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

BD 865



SIEMENS AKTIENGESELLSCHAFT

