

## NPN Silicon Darlington Transistors

BD 861

BD 863

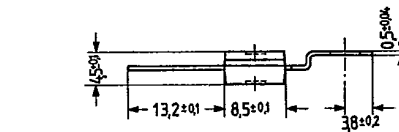
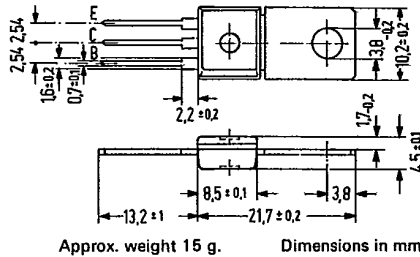
BD 865

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## 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   |



Available upon request also with bent fixing plate.

## 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<br>( $V_{CB} = V_{CBmax}$ )                                      | $I_{CBO}$     | <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<br>( $V_{CE} = 0.5 V_{CEmax}$ )                                  | $I_{CEO}$     | <0.5   | <0.5           | <0.5           | mA |
| Emitter cutoff current<br>( $V_{EBO} = 5 \text{ V}$ )                                     | $I_{EBO}$     | <5     | <5             | <5             | mA |
| Collector-emitter breakdown<br>voltage ( $I_C = 100 \text{ mA}$ )                         | $V_{(BR)CEO}$ | >45    | >60            | >60            | V  |
| Collector-base breakdown<br>voltage ( $I_C = 1 \text{ mA}$ )                              | $V_{(BR)CBO}$ | >45    | >60            | >80            | V  |
| Emitter-base breakdown<br>voltage ( $I_E = 5 \text{ mA}$ )                                | $V_{(BR)EBO}$ | >5     | >5             | >5             | V  |
| DC current gain<br>( $I_C = 50 \text{ mA}$ ; $V_{CE} = 3 \text{ V}$ )                     | $h_{FE}$      | 750    | 750            | 750            | -  |
| ( $I_C = 1.5 \text{ A}$ ; $V_{CE} = 3 \text{ V}$ )                                        | $h_{FE}$      | >750   | >750<br>(3000) | >750<br>(3000) | -  |
| ( $I_C = 4 \text{ A}$ ; $V_{CE} = 3 \text{ V}$ )                                          | $h_{FE}$      | 1000   | 1000           | 1000           | -  |
| Base-emitter forward voltage<br>( $I_C = 1.5 \text{ A}$ ; $V_{CE} = 3 \text{ V}$ )        | $V_{BE}$      | <2.5   | <2.5           | <2.5           | V  |
| Collector-emitter saturation voltage<br>( $I_C = 1.5 \text{ A}$ ; $I_B = 30 \text{ mA}$ ) | $V_{CEsat}$   | <2.5   | <2.5           | <2.5           | V  |
| Forward voltage of the protective<br>diode at $I_F = 3 \text{ A}$                         | $V_F$         | 1.8    | 1.8            | 1.8            | V  |

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

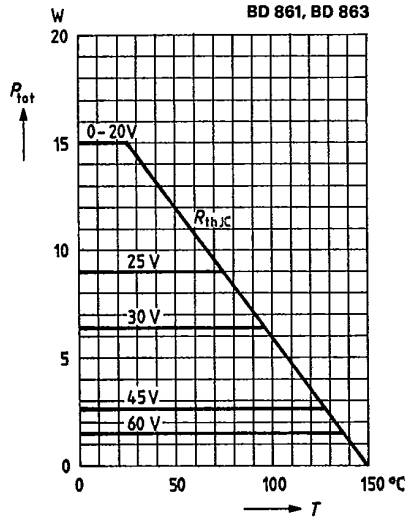
|                                                                                                                   |           |        |        |        |     |
|-------------------------------------------------------------------------------------------------------------------|-----------|--------|--------|--------|-----|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

BD 861  
BD 863  
BD 865

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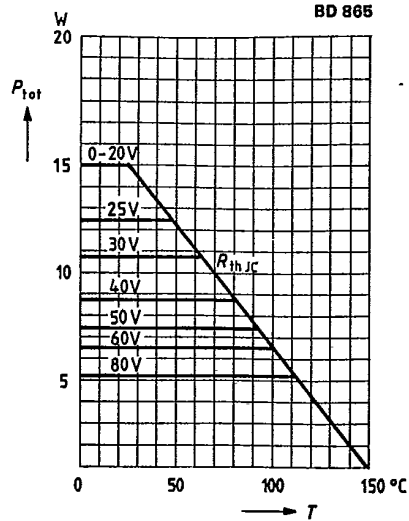
Total perm. power dissipation  
versus temperature  
 $P_{tot} = f(T); V_{CE} = \text{parameter}$

BD 861, BD 863



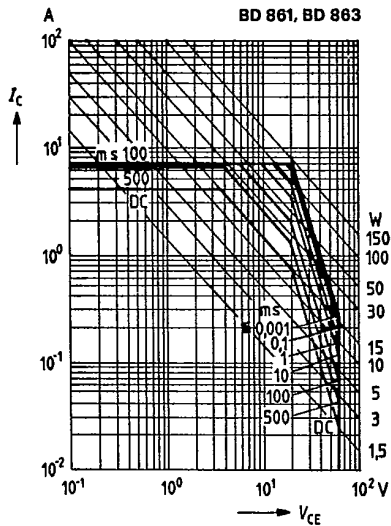
Total perm. power dissipation  
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 $P_{tot} = f(T); V_{CE} = \text{parameter}$

BD 865



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

BD 861, BD 863



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BD 865

