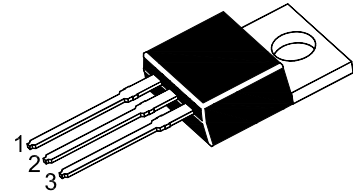


# BD909 / BD911

## NPN Complementary Silicon Power Transistors

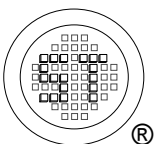


1.Base 2.Collector 3.Emitter

TO-220 Plastic Package

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

| Parameter                                             | Symbol          | Value       |       | Unit               |
|-------------------------------------------------------|-----------------|-------------|-------|--------------------|
|                                                       |                 | BD909       | BD911 |                    |
| Collector Base Voltage                                | $V_{CBO}$       | 80          | 100   | V                  |
| Collector Emitter Voltage                             | $V_{CEO}$       | 80          | 100   | V                  |
| Emitter Base Voltage                                  | $V_{EBO}$       | 5           |       | V                  |
| Collector Current                                     | $I_C$           | 15          |       | A                  |
| Base Current                                          | $I_B$           | 5           |       | A                  |
| Total Power Dissipation @ $T_C \leq 25^\circ\text{C}$ | $P_{tot}$       | 90          |       | W                  |
| Operating Junction Temperature Range                  | $T_J$           | 150         |       | $^\circ\text{C}$   |
| Storage Junction Temperature Range                    | $T_J, T_s$      | -65 to +150 |       | $^\circ\text{C}$   |
| Thermal Resistance, Junction to Case                  | $R_{\theta JC}$ | 1.4         |       | $^\circ\text{C/W}$ |



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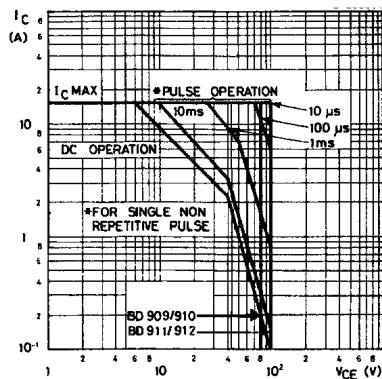
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Certificate No. PRC-18P4-148-1

# BD909 / BD911

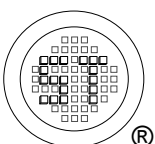
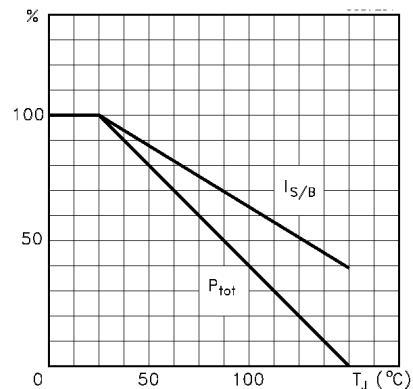
## Characteristics at $T_C = 25\text{ }^{\circ}\text{C}$

| Parameter                                         | Symbol         | Min. | Max. | Unit |
|---------------------------------------------------|----------------|------|------|------|
| DC Current Gain                                   |                |      |      |      |
| at $V_{CE} = 4\text{ V}$ , $I_C = 0.5\text{ A}$   | $h_{FE}$       | 40   | 250  | -    |
| at $V_{CE} = 4\text{ V}$ , $I_C = 5\text{ A}$     | $h_{FE}$       | 15   | 150  | -    |
| at $V_{CE} = 4\text{ V}$ , $I_C = 10\text{ A}$    | $h_{FE}$       | 5    | -    | -    |
| Collector Emitter Sustaining Voltage              |                |      |      |      |
| at $I_C = 100\text{ mA}$                          | $V_{CEO(sus)}$ | 80   | -    | V    |
|                                                   |                | 100  | -    |      |
| Collector Cutoff Current                          |                |      |      |      |
| at $V_{CB} = 80\text{ V}$                         | $I_{CBO}$      | -    | 0.5  | mA   |
| at $V_{CB} = 100\text{ V}$                        | $I_{CBO}$      | -    | 0.5  | mA   |
| Collector Cutoff Current                          |                |      |      |      |
| at $V_{CE} = 40\text{ V}$                         | $I_{CEO}$      | -    | 1    | mA   |
| at $V_{CE} = 50\text{ V}$                         | $I_{CEO}$      | -    | 1    | mA   |
| Emitter Cutoff Current                            |                |      |      |      |
| at $V_{EB} = 5\text{ V}$                          | $I_{EBO}$      | -    | 1    | mA   |
| Collector Emitter Saturation Voltage              |                |      |      |      |
| at $I_C = 5\text{ A}$ , $I_B = 0.5\text{ A}$      | $V_{CE(sat)}$  | -    | 1    | V    |
| at $I_C = 10\text{ A}$ , $I_B = 2.5\text{ A}$     | $V_{CE(sat)}$  | -    | 3    | V    |
| Base Emitter Saturation Voltage                   |                |      |      |      |
| at $I_C = 10\text{ A}$ , $I_B = 2.5\text{ A}$     | $V_{BE(sat)}$  | -    | 2.5  | V    |
| Base Emitter Voltage                              |                |      |      |      |
| at $I_C = 5\text{ A}$ , $V_{CE} = 4\text{ V}$     | $V_{BE}$       | -    | 1.5  | V    |
| Transition Frequency                              |                |      |      |      |
| at $V_{CE} = 4\text{ V}$ , $I_C = 0.5\text{ A}$ , | $f_T$          | 3    | -    | MHz  |

Safe Operating Area



Derating Curves



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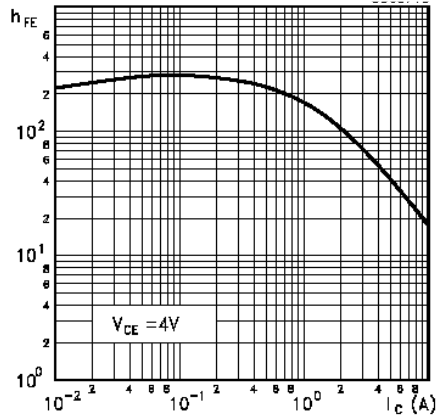


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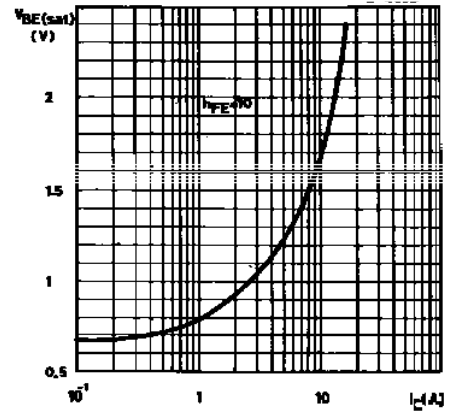


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Certificate No. PRC-18P4-148-1

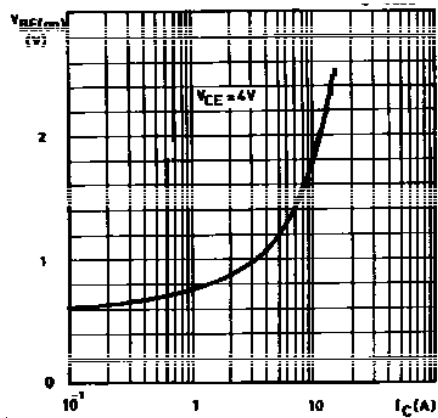
DC Current Gain



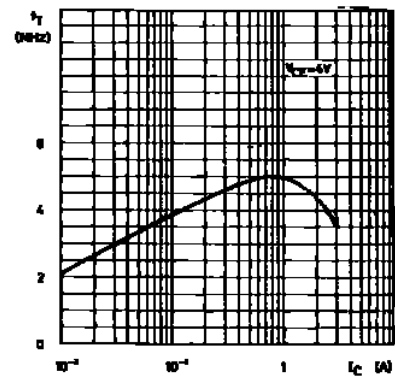
Base-Emitter Saturation Voltage



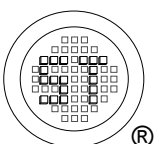
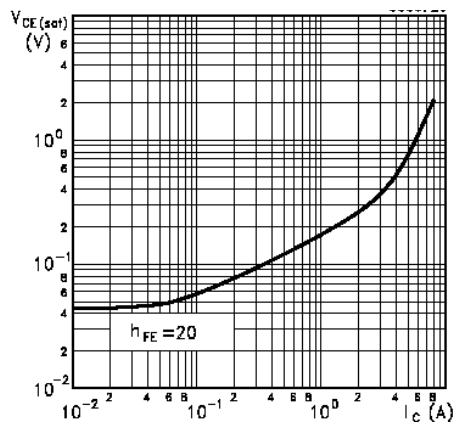
DC Transconductance



Transition Frequency



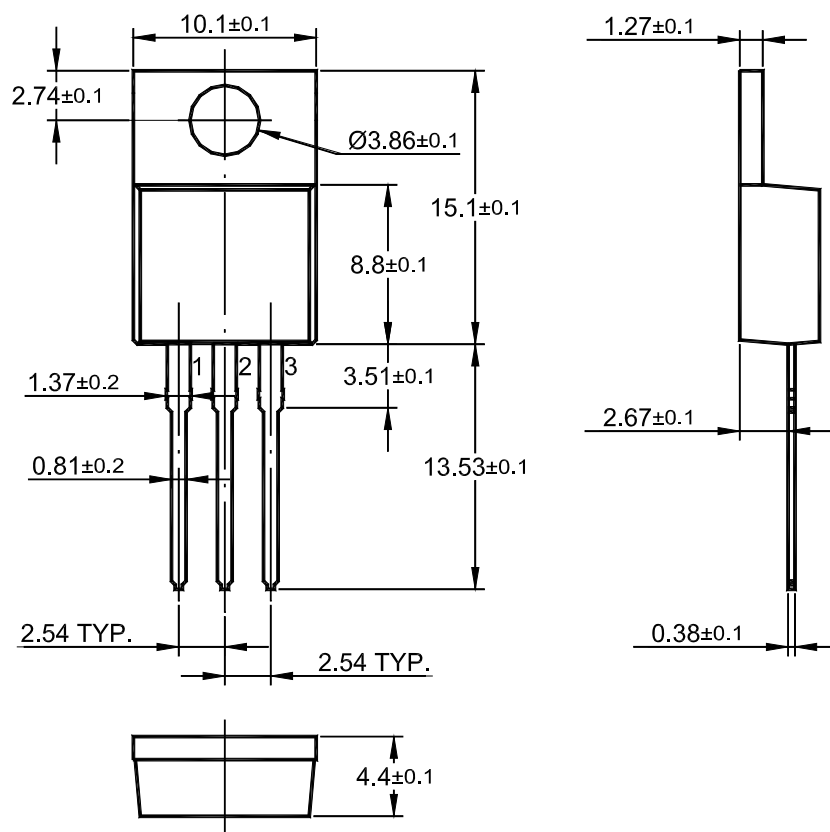
Collector-Emitter Saturation Voltage



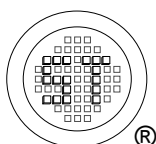
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## TO-220 PACKAGE OUTLINE



Dimensions in mm



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