

SPTECH Silicon NPN Power Transistor

BD909

DESCRIPTION

- DC Current Gain -  
:  $h_{FE} = 40(\text{Min.}) @ I_C = 0.5A$
- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 80V(\text{Min})$
- Complement to Type BD910

APPLICATIONS

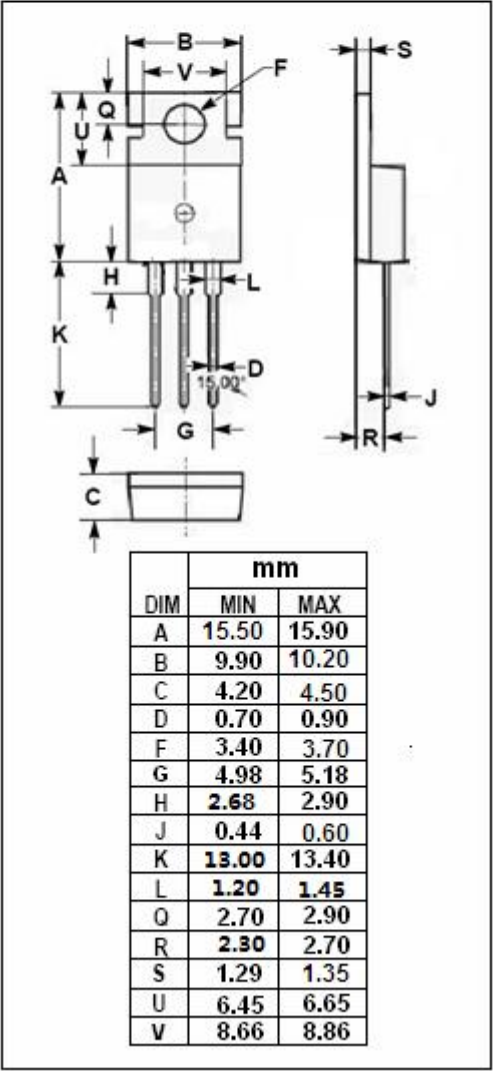
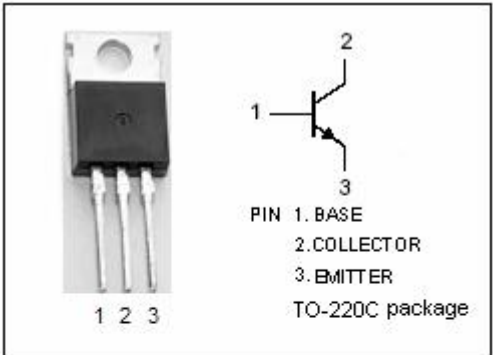
- Designed for use in general purpose power amplifier and switching applications.

ABSOLUTE MAXIMUM RATINGS( $T_a=25^{\circ}C$ )

| SYMBOL    | PARAMETER                                          | VALUE   | UNIT        |
|-----------|----------------------------------------------------|---------|-------------|
| $V_{CBO}$ | Collector-Base Voltage                             | 80      | V           |
| $V_{CEO}$ | Collector-Emitter Voltage                          | 80      | V           |
| $V_{EBO}$ | Emitter-Base Voltage                               | 5       | V           |
| $I_C$     | Collector Current-Continuous                       | 15      | A           |
| $I_{CM}$  | Collector Current-Peak                             | 20      | A           |
| $I_B$     | Base Current                                       | 5       | A           |
| $P_C$     | Collector Power Dissipation<br>@ $T_C=25^{\circ}C$ | 90      | W           |
| $T_J$     | Junction Temperature                               | 150     | $^{\circ}C$ |
| $T_{stg}$ | Storage Temperature Range                          | -65~150 | $^{\circ}C$ |

THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                            | MAX  | UNIT          |
|---------------|--------------------------------------|------|---------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 1.38 | $^{\circ}C/W$ |



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## ELECTRICAL CHARACTERISTICS

 $T_C=25^{\circ}\text{C}$  unless otherwise specified

| SYMBOL          | PARAMETER                            | CONDITIONS                                                  | MIN | MAX | UNIT |
|-----------------|--------------------------------------|-------------------------------------------------------------|-----|-----|------|
| $V_{CEQ(SUS)}$  | Collector-Emitter Sustaining Voltage | $I_C=30\text{mA}; I_B=0$                                    | 80  |     | V    |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage | $I_C=5\text{A}; I_B=0.5\text{A}$                            |     | 1.0 | V    |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage | $I_C=10\text{A}; I_B=2.5\text{A}$                           |     | 3.0 | V    |
| $V_{BE(sat)}$   | Base-Emitter Saturation Voltage      | $I_C=10\text{A}; I_B=2.5\text{A}$                           |     | 2.5 | V    |
| $V_{BE(on)}$    | Base-Emitter On Voltage              | $I_C=5\text{A}; V_{CE}=4\text{V}$                           |     | 1.5 | V    |
| $I_{CBO}$       | Collector Cutoff Current             | $V_{CB}=80\text{V}; I_E=0$                                  |     | 0.5 | mA   |
| $I_{CEO}$       | Collector Cutoff Current             | $V_{CE}=40\text{V}; I_B=0$                                  |     | 1.0 | mA   |
| $I_{EBO}$       | Emitter Cutoff Current               | $V_{EB}=5\text{V}; I_C=0$                                   |     | 1.0 | mA   |
| $h_{FE-1}$      | DC Current Gain                      | $I_C=0.5\text{A}; V_{CE}=4\text{V}$                         | 40  | 250 |      |
| $h_{FE-2}$      | DC Current Gain                      | $I_C=5\text{A}; V_{CE}=4\text{V}$                           | 15  | 150 |      |
| $h_{FE-3}$      | DC Current Gain                      | $I_C=10\text{A}; V_{CE}=4\text{V}$                          | 5   |     |      |
| $f_T$           | Current-Gain—Bandwidth Product       | $I_C=0.5\text{A}; V_{CE}=4\text{V}; f_{test}=1.0\text{MHz}$ | 3.0 |     | MHz  |