

**isc Silicon NPN Power Transistor**
**BD711**
**DESCRIPTION**

- DC Current Gain -  
:  $h_{FE} = 40(\text{Min.}) @ I_C = 0.5A$
- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(\text{SUS})} = 100V(\text{Min.}) =$
- Complement to Type BD712
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

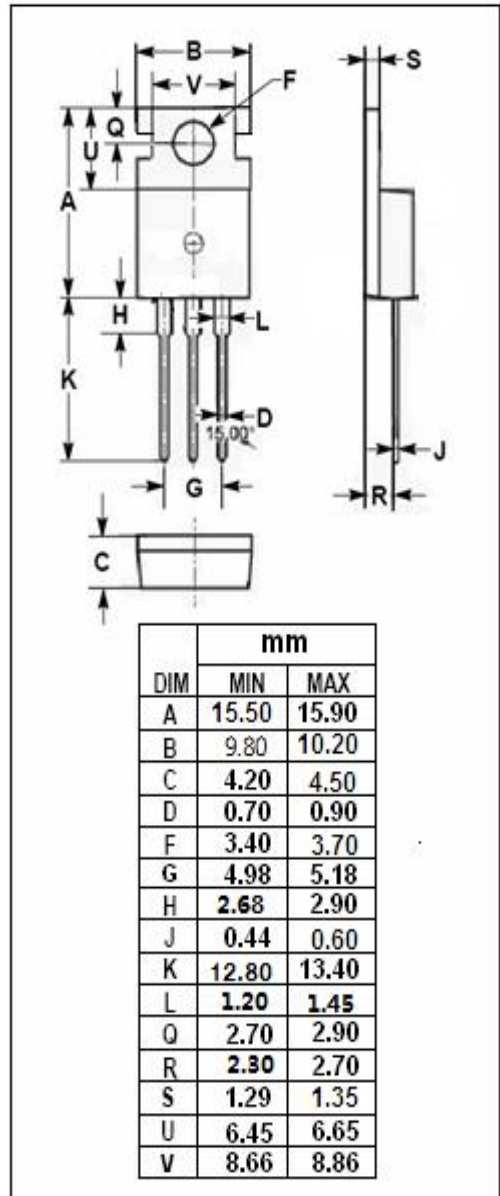
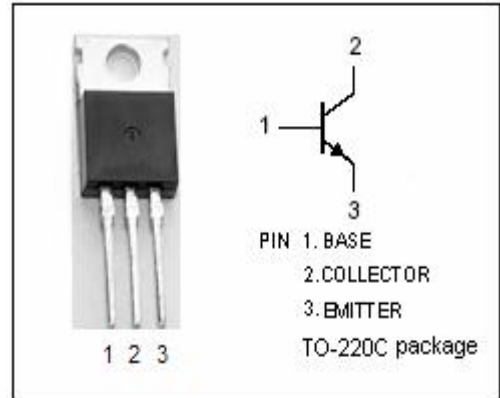
- Designed for use in power linear and switching applications.

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

| SYMBOL    | PARAMETER   | VALUE   | UNIT             |
|-----------|---|---------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                                    | 100     | V                |
| $V_{CES}$ | Collector-Emitter Voltage $V_{BE} = 0$                    | 100     | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                                 | 100     | V                |
| $V_{EBO}$ | Emitter-Base Voltage                                      | 5       | V                |
| $I_C$     | Collector Current-Continuous                              | 12      | A                |
| $I_B$     | Base Current-Continuous                                   | 5       | A                |
| $P_C$     | Collector Power Dissipation<br>@ $T_C = 25^\circ\text{C}$ | 75      | W                |
| $T_J$     | Junction Temperature                                      | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                                 | -65~150 | $^\circ\text{C}$ |

**THERMAL CHARACTERISTICS**

| SYMBOL        | PARAMETER                               | MAX  | UNIT               |
|---------------|---|------|--------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case    | 1.67 | $^\circ\text{C/W}$ |
| $R_{th\ j-a}$ | Thermal Resistance, Junction to Ambient | 70   | $^\circ\text{C/W}$ |



## isc Silicon NPN Power Transistor

BD711

## ELECTRICAL CHARACTERISTICS

T<sub>C</sub>=25°C unless otherwise specified

| SYMBOL                | PARAMETER                            | CONDITIONS   | MIN | MAX        | UNIT |
|-----------------------|--------------------------------------|--|-----|------------|------|
| V <sub>CEO(SUS)</sub> | Collector-Emitter Sustaining Voltage | I <sub>C</sub> = 30mA; I <sub>B</sub> = 0  | 100 |            | V    |
| V <sub>CE(sat)</sub>  | Collector-Emitter Saturation Voltage | I <sub>C</sub> = 4A; I <sub>B</sub> = 0.4A   |     | 1.0        | V    |
| V <sub>BE(on)</sub>   | Base-Emitter On Voltage              | I <sub>C</sub> = 4A; V <sub>CE</sub> = 4V  |     | 1.5        | V    |
| I <sub>CEO</sub>      | Collector Cutoff Current             | V <sub>CE</sub> = 50V; I <sub>B</sub> = 0  |     | 1.0        | mA   |
| I <sub>CBO</sub>      | Collector Cutoff Current             | V <sub>CB</sub> = 100V; I <sub>E</sub> = 0<br>V <sub>CB</sub> = 100V; I <sub>E</sub> = 0; T <sub>C</sub> = 150°C |     | 0.1<br>1.0 | mA   |
| I <sub>EBO</sub>      | Emitter Cutoff Current               | V <sub>EB</sub> = 5V; I <sub>C</sub> = 0   |     | 1.0        | mA   |
| h <sub>FE-1</sub>     | DC Current Gain                      | I <sub>C</sub> = 0.5A; V <sub>CE</sub> = 2V  | 40  | 400        |      |
| h <sub>FE-2</sub>     | DC Current Gain                      | I <sub>C</sub> = 2A; V <sub>CE</sub> = 2V  | 30  |            |      |
| h <sub>FE-3</sub>     | DC Current Gain                      | I <sub>C</sub> = 4A; V <sub>CE</sub> = 4V  | 20  | 150        |      |
| h <sub>FE-4</sub>     | DC Current Gain                      | I <sub>C</sub> = 10A; V <sub>CE</sub> = 4V   | 5   |            |      |
| f <sub>T</sub>        | Current-Gain—Bandwidth Product       | I <sub>C</sub> = 0.3A; V <sub>CE</sub> = 3V  | 3   |            | MHz  |

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