

## isc Silicon PNP Power Transistor

BD712

## DESCRIPTION

- DC Current Gain -  
:  $h_{FE} = 40(\text{Min.}) @ I_C = -0.5A$
- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = -100V(\text{Min.})$
- Complement to Type BD711
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

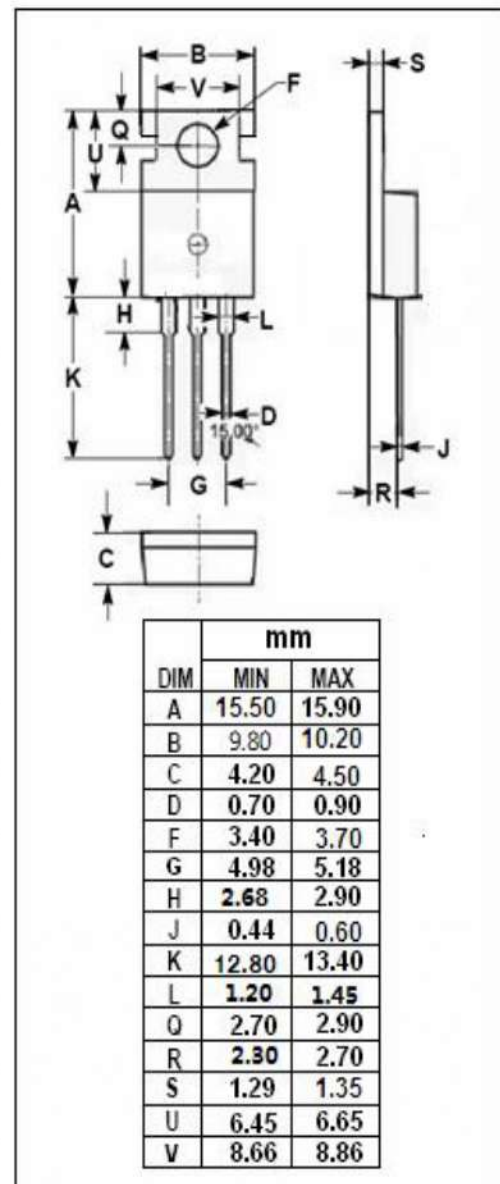
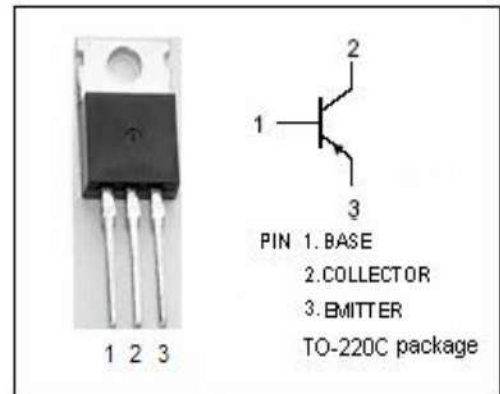
- Designed for use in power linear and switching applications.

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 PNP Power Transistor****BD712****ELECTRICAL CHARACTERISTICS** $T_C=25^{\circ}\text{C}$  unless otherwise specified

| SYMBOL        | PARAMETER                            | CONDITIONS                                                                                      | MIN  | MAX          | UNIT |
|---------------|--------------------------------------|-------------------------------------------------------------------------------------------------|------|--------------|------|
| $V_{CE(sus)}$ | Collector-Emitter Sustaining Voltage | $I_C = -30\text{mA}; I_B = 0$                                                                   | -100 |              | V    |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = -4\text{A}; I_B = -0.4\text{A}$                                                          |      | -1.0         | V    |
| $V_{BE(on)}$  | Base-Emitter On Voltage              | $I_C = -4\text{A}; V_{CE} = -4\text{V}$                                                         |      | -1.5         | V    |
| $I_{CEO}$     | Collector Cutoff Current             | $V_{CE} = -50\text{V}; I_B = 0$                                                                 |      | -1.0         | mA   |
| $I_{CBO}$     | Collector Cutoff Current             | $V_{CB} = -100\text{V}; I_E = 0$<br>$V_{CB} = -100\text{V}; I_E = 0; T_C = 150^{\circ}\text{C}$ |      | -0.1<br>-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                      | $I_C = -0.5\text{A}; V_{CE} = -2\text{V}$                                                       | 40   | 400          |      |
| $h_{FE-2}$    | DC Current Gain                      | $I_C = -2\text{A}; V_{CE} = -2\text{V}$                                                         | 30   |              |      |
| $h_{FE-3}$    | DC Current Gain                      | $I_C = -4\text{A}; V_{CE} = -4\text{V}$                                                         | 20   | 150          |      |
| $h_{FE-4}$    | DC Current Gain                      | $I_C = -10\text{A}; V_{CE} = -4\text{V}$                                                        | 5    |              |      |
| $f_T$         | Current-Gain—Bandwidth Product       | $I_C = -0.3\text{A}; V_{CE} = -3\text{V}$                                                       | 3    |              | MHz  |

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