

## isc Silicon PNP Power Transistor

BD788

## DESCRIPTION

- DC Current Gain-  
:  $h_{FE} = 40 \sim 250(\text{Min}) @ I_C = -0.2\text{A}$
- Collector-Emitter Sustaining Voltage -  
:  $V_{CEO(\text{SUS})} = -60\text{V}(\text{Min})$
- Complement to type BD787
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

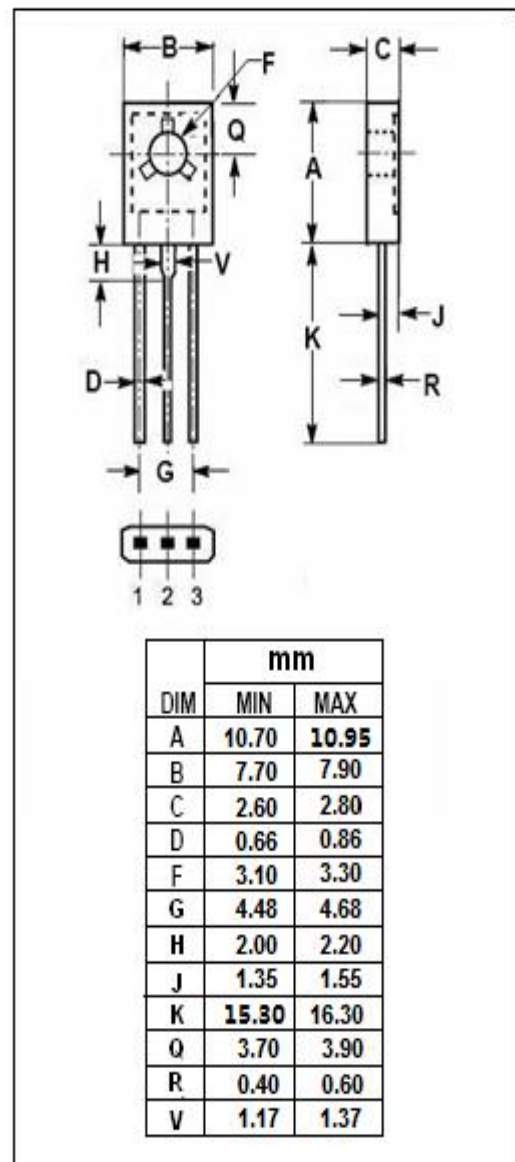
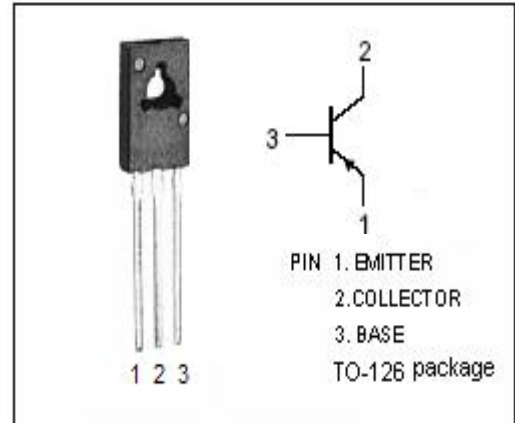
- Designed for low power audio amplifier and low current, high-speed switching applications.

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

| SYMBOL    | PARAMETER                                                 | VALUE   | UNIT             |
|-----------|-----------------------------------------------------------|---------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                                    | -80     | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                                 | -60     | V                |
| $V_{EBO}$ | Emitter-Base Voltage                                      | -6      | V                |
| $I_C$     | Collector Current-Continuous                              | -4      | A                |
| $I_{CM}$  | Collector Current-Peak                                    | -8      | A                |
| $I_B$     | Base Current-Continuous                                   | -1      | A                |
| $P_C$     | Collector Power Dissipation<br>@ $T_C = 25^\circ\text{C}$ | 15      | 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 | 8.34 | $^\circ\text{C/W}$ |



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## ELECTRICAL CHARACTERISTICS

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

| SYMBOL          | PARAMETER                            | CONDITIONS                                                                                                                          | MIN | TYP. | MAX          | UNIT                |
|-----------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----|------|--------------|---------------------|
| $V_{CEO(SUS)}$  | Collector-Emitter Sustaining Voltage | $I_C = -10\text{mA}; I_B = 0$                                                                                                       | -60 |      |              | V                   |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage | $I_C = -0.5\text{A}; I_B = -50\text{mA}$                                                                                            |     |      | -0.4         | V                   |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage | $I_C = -1\text{A}; I_B = -0.1\text{A}$                                                                                              |     |      | -0.6         | V                   |
| $V_{CE(sat)-3}$ | Collector-Emitter Saturation Voltage | $I_C = -2\text{A}; I_B = -0.2\text{A}$                                                                                              |     |      | -0.8         | V                   |
| $V_{CE(sat)-4}$ | Collector-Emitter Saturation Voltage | $I_C = -4\text{A}; I_B = -0.8\text{A}$                                                                                              |     |      | -2.5         | V                   |
| $V_{BE(sat)}$   | Base-Emitter Saturation Voltage      | $I_C = -2\text{A}; I_B = 0.2\text{A}$                                                                                               |     |      | -2.0         | V                   |
| $V_{BE(on)}$    | Base-Emitter On Voltage              | $I_C = -2\text{A}; V_{CE} = -3\text{V}$                                                                                             |     |      | -1.8         | V                   |
| $I_{CEX}$       | Collector Cutoff Current             | $V_{CB} = -80\text{V}; V_{BE(off)} = -1.5\text{V}$<br>$V_{CB} = -40\text{V}; V_{BE(off)} = -1.5\text{V}; T_C = 125^{\circ}\text{C}$ |     |      | -1.0<br>-0.1 | $\mu\text{A}$<br>mA |
| $I_{CEO}$       | Collector Cutoff Current             | $V_{CE} = -30\text{V}; I_B = 0$                                                                                                     |     |      | -0.1         | mA                  |
| $I_{EBO}$       | Emitter Cutoff Current               | $V_{EB} = -6\text{V}; I_C = 0$                                                                                                      |     |      | -1.0         | $\mu\text{A}$       |
| $h_{FE-1}$      | DC Current Gain                      | $I_C = -0.2\text{A}; V_{CE} = -3\text{V}$                                                                                           | 40  |      | 250          |                     |
| $h_{FE-2}$      | DC Current Gain                      | $I_C = -1\text{A}; V_{CE} = -3\text{V}$                                                                                             | 25  |      |              |                     |
| $h_{FE-3}$      | DC Current Gain                      | $I_C = -2\text{A}; V_{CE} = -3\text{V}$                                                                                             | 20  |      |              |                     |
| $h_{FE-4}$      | DC Current Gain                      | $I_C = -4\text{A}; V_{CE} = -3\text{V}$                                                                                             | 5   |      |              |                     |

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