

isc Silicon NPN Power Transistors

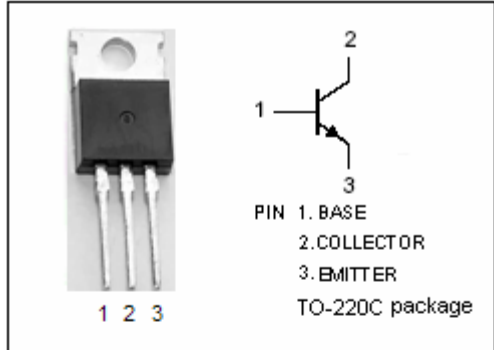
BD501/B

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 50V(\text{Min})$
80V(Min)
- High Power Dissipation

APPLICATIONS

- Designed for use in high power audio amplifiers utilizing complementary or quasi complementary circuits.

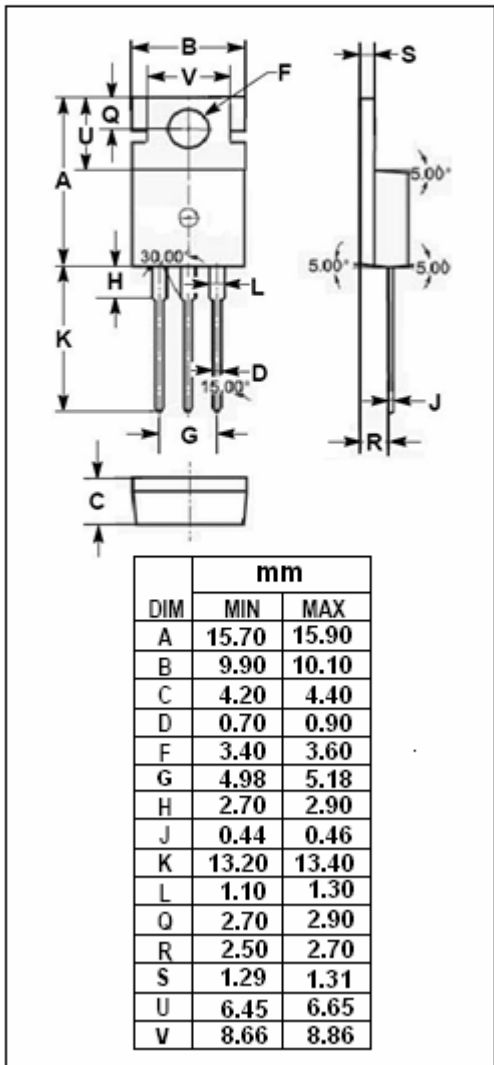


ABSOLUTE MAXIMUM RATINGS($T_a=25^\circ\text{C}$)

| SYMBOL | PARAMETER | VALUE | UNIT | |
|-----------|--|---------|------------------|---|
| V_{CBO} | Collector-Base Voltage | BD501 | 55 | V |
| | | BD501B | 85 | |
| V_{CEO} | Collector-Emitter Voltage | BD501 | 50 | V |
| | | BD501B | 80 | |
| V_{EBO} | Emitter-Base Voltage | 5 | V | |
| I_C | Collector Current-Continuous | 10 | A | |
| P_C | Collector Power Dissipation @ $T_C=25^\circ\text{C}$ | 75 | W | |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ | |
| T_{stg} | Storage Temperature Range | -55~150 | $^\circ\text{C}$ | |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---------------|--------------------------------------|------|---------------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 1.39 | $^\circ\text{C}/\text{W}$ |



isc Silicon NPN Power Transistors

BD501/B

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 | BD501 | $I_C=30\text{mA}; I_B=0$ | 50 | | | V |
| | | BD501B | | 80 | | | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | BD501 | $I_C=5\text{A}; I_B=0.5\text{A}$ | | | 1.0 | V |
| | | BD501B | $I_C=3.5\text{A}; I_B=0.35\text{A}$ | | | | |
| $V_{BE(on)}$ | Base-Emitter On Voltage | BD501 | $I_C=5\text{A}; V_{CE}=4\text{V}$ | | | 1.6 | V |
| | | BD501B | $I_C=3.5\text{A}; V_{CE}=4\text{V}$ | | | | |
| I_{CBO} | Collector Cutoff Current | | $V_{CB}=55\text{V}; I_E=0$ | | | 1.0 | mA |
| | | | $V_{CB}=85\text{V}; I_E=0$ | | | | |
| I_{EBO} | Emitter Cutoff Current | | $V_{EB}=5\text{V}; I_C=0$ | | | 1.0 | mA |
| h_{FE} | DC Current Gain | BD501 | $I_C=5\text{A}; V_{CE}=4\text{V}$ | 15 | | 90 | |
| | | BD501B | $I_C=3.5\text{A}; V_{CE}=4\text{V}$ | | | | |
| f_T | Current-Gain—Bandwidth Product | | $I_C=1.0\text{A}; V_{CE}=10\text{V}$ | | 8 | | MHz |