

isc Silicon PNP Power Transistor
BD176
DESCRIPTION

- DC Current Gain-
: $h_{FE} = 40-250(\text{Min}) @ I_C = -0.15\text{A}$
- Collector-Emitter Sustaining Voltage -
: $V_{CEO(\text{SUS})} = -45\text{V}(\text{Min})$
- Complement to type BD175
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

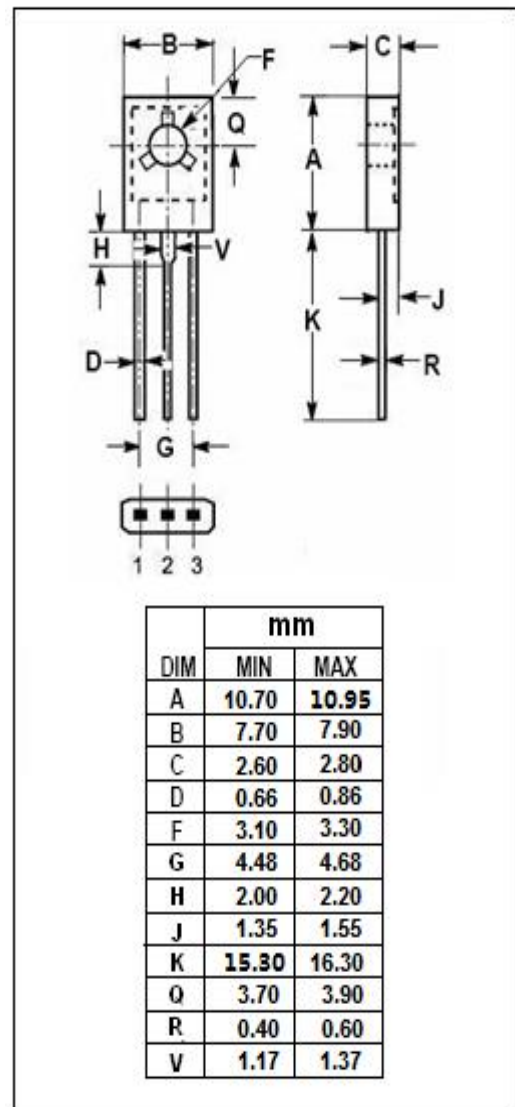
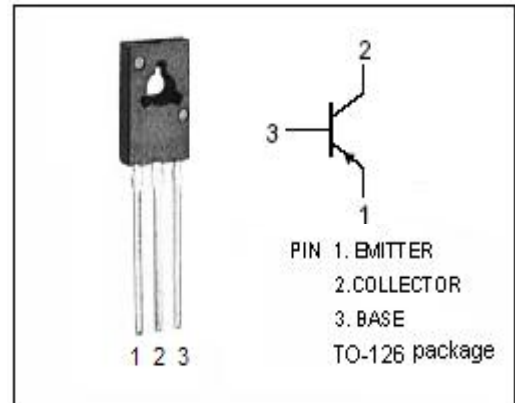
- Designed for medium power linear and switching applications.

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|-----------|---|---------|------------------|
| V_{CBO} | Collector-Base Voltage | -45 | V |
| V_{CEO} | Collector-Emitter Voltage | -45 | V |
| V_{EBO} | Emitter-Base Voltage | -5 | V |
| I_C | Collector Current-Continuous | -3 | A |
| I_{CM} | Collector Current-Pulse | -7 | A |
| P_C | Collector Power Dissipation @ $T_C = 25^\circ\text{C}$ | 30 | 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 | 8.5 | $^\circ\text{C/W}$ |
| $R_{th\ j-a}$ | Thermal Resistance, Junction to Ambient | 70 | $^\circ\text{C/W}$ |



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ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|----------------|--------------------------------------|--|-----|------|------|---------------|
| $V_{CEQ(SUS)}$ | Collector-Emitter Sustaining Voltage | $I_C = -50\text{mA}$; $I_B = 0$ | -45 | | | V |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = -1\text{A}$; $I_B = -0.1\text{A}$ | | | -0.8 | V |
| $V_{BE(on)}$ | Base-Emitter On Voltage | $I_C = -1\text{A}$; $V_{CE} = -2\text{V}$ | | | -1.3 | V |
| I_{CBO} | Collector Cutoff Current | $V_{CB} = -45\text{V}$; $I_E = 0$ | | | -100 | μA |
| I_{EBO} | Emitter Cutoff Current | $V_{EB} = -5\text{V}$; $I_C = 0$ | | | -1 | mA |
| h_{FE-1} | DC Current Gain | $I_C = -150\text{mA}$; $V_{CE} = -2\text{V}$ | 40 | | 250 | |
| h_{FE-2} | DC Current Gain | $I_C = -1\text{A}$; $V_{CE} = -2\text{V}$ | 15 | | | |
| f_T | Current-Gain—Bandwidth Product | $I_C = -0.25\text{A}$; $V_{CE} = -10\text{V}$ | 3 | | | MHz |

◆ h_{FE-1} Classifications

| | | |
|--------|--------|---------|
| 6 | 10 | 16 |
| 40-100 | 63-160 | 100-250 |

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