

isc Silicon PNP Power Transistors

BDT82F/84F/86F/88F

DESCRIPTION

- DC Current Gain  $-h_{FE} = 40(\text{Min})@ I_C = -5A$
- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(\text{SUS})} = -60V(\text{Min})$ - BDT82F;  $-80V(\text{Min})$ - BDT84F;  
 $-100V(\text{Min})$ - BDT86F;  $-120V(\text{Min})$ - BDT88F
- Complement to Type BDT81F/83F/85F/87F

APPLICATIONS

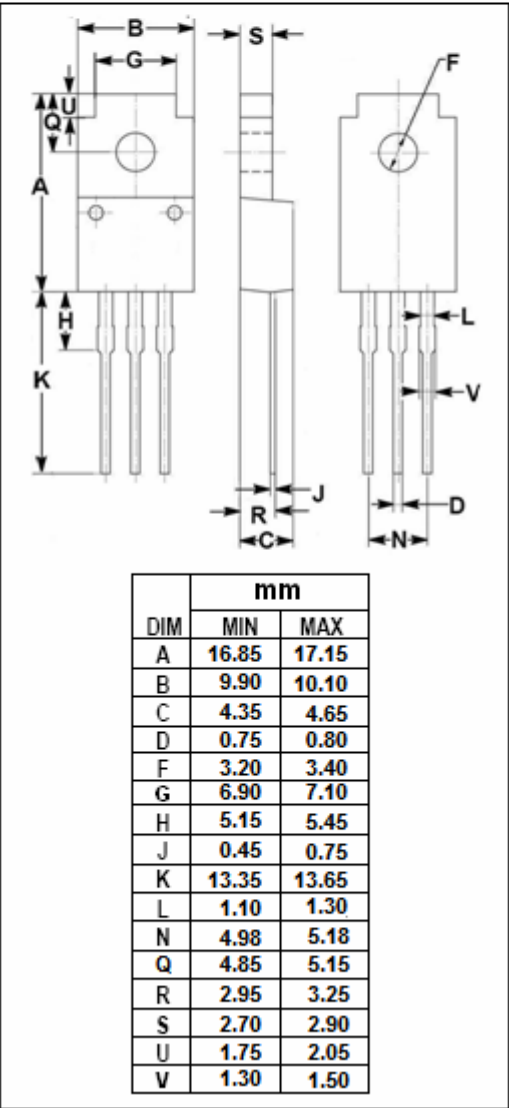
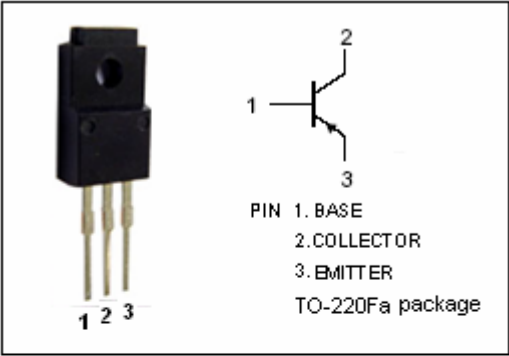
- Designed for use in audio output stages and general amplifier and switching applications

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

| SYMBOL    | PARAMETER                                               | VALUE   | UNIT               |
|-----------|---------------------------------------------------------|---------|--------------------|
| $V_{CBO}$ | Collector-Base Voltage                                  | BDT82F  | -60                |
|           |                                                         | BDT84F  | -80                |
|           |                                                         | BDT86F  | -100               |
|           |                                                         | BDT88F  | -120               |
| $V_{CEO}$ | Collector-Emitter Voltage                               | BDT82F  | -60                |
|           |                                                         | BDT84F  | -80                |
|           |                                                         | BDT86F  | -100               |
|           |                                                         | BDT88F  | -120               |
| $V_{EBO}$ | Emitter-Base Voltage                                    | -7      | V                  |
| $I_C$     | Collector Current-Continuous                            | -15     | A                  |
| $I_{CM}$  | Collector Current-Peak                                  | -20     | A                  |
| $I_B$     | Base Current                                            | -4      | A                  |
| $P_C$     | Collector Power Dissipation<br>$T_C=25^{\circ}\text{C}$ | 36      | 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 | 6   | $^{\circ}\text{C/W}$ |



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## BDT82F/84F/86F/88F

## 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 | BDT82F | $I_C = -30\text{mA}; I_B = 0$              | -60  |      |      | V    |
|                 |                                      | BDT84F |                                            | -80  |      |      |      |
|                 |                                      | BDT86F |                                            | -100 |      |      |      |
|                 |                                      | BDT88F |                                            | -120 |      |      |      |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage |        | $I_C = -5\text{A}; I_B = -0.5\text{A}$     |      |      | -1.0 | V    |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage |        | $I_C = -7\text{A}; I_B = -0.7\text{A}$     |      |      | -1.6 | V    |
| $V_{BE(on)}$    | Base-Emitter On Voltage              |        | $I_C = -5\text{A}; V_{CE} = -4\text{V}$    |      |      | -1.5 | V    |
| $I_{CES}$       | Collector Cutoff Current             |        | $V_{CE} = 0.8V_{CB0max}; V_{BE} = 0$       |      |      | -1   | mA   |
| $I_{CBO}$       | Collector Cutoff Current             |        | $V_{CB} = V_{CB0max}; I_E = 0$             |      |      | -0.2 | mA   |
| $I_{EBO}$       | Emitter Cutoff Current               |        | $V_{EB} = -7\text{V}; I_C = 0$             |      |      | -0.1 | mA   |
| $h_{FE-1}$      | DC Current Gain                      |        | $I_C = -50\text{mA}; V_{CE} = -10\text{V}$ | 40   |      |      |      |
| $h_{FE-2}$      | DC Current Gain                      |        | $I_C = -5\text{A}; V_{CE} = -4\text{V}$    | 40   |      |      |      |
| $f_T$           | Current-Gain—Bandwidth Product       |        | $I_C = -0.5\text{A}; V_{CE} = -10\text{V}$ |      | 20   |      | MHz  |

## Switching Times

|           |               |                                                     |  |  |   |               |
|-----------|---------------|-----------------------------------------------------|--|--|---|---------------|
| $t_{on}$  | Turn-On Time  | $I_C = -7\text{A}; I_{B1} = -I_{B2} = -0.7\text{A}$ |  |  | 1 | $\mu\text{s}$ |
| $t_{off}$ | Turn-Off Time |                                                     |  |  | 2 | $\mu\text{s}$ |