

# 2SD1634

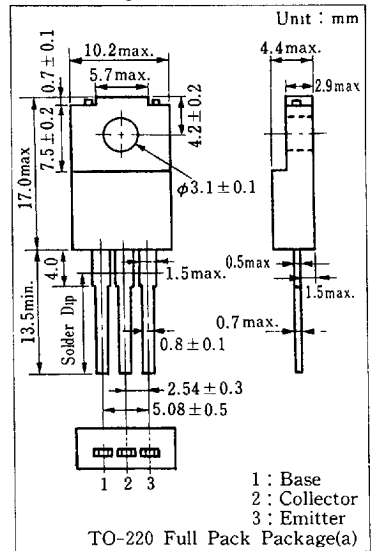
## Silicon PNP Triple-Diffused Planar Darlington Type

### Power Switching

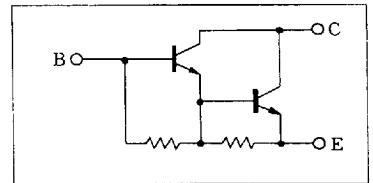
#### ■ Features

- High speed switching
- Good linearity of DC current gain ( $h_{FE}$ )
- "Full Pack" package for simplified mounting on a heat sink with one screw

#### ■ Package Dimensions



#### ■ Inner Circuit



#### ■ Absolute Maximum Ratings ( $T_c=25^\circ\text{C}$ )

| Item                        | Symbol    | Value                  | Unit             |
|-----------------------------|-----------|------------------------|------------------|
| Collector-base voltage      | $V_{CB0}$ | 100                    | V                |
| Collector-emitter voltage   | $V_{CE0}$ | 100                    | V                |
| Emitter-base voltage        | $V_{EB0}$ | 7                      | V                |
| Peak collector current      | $I_{CP}$  | 12                     | A                |
| Collector current           | $I_C$     | 8                      | A                |
| Base current                | $I_B$     | 0.5                    | A                |
| Collector power dissipation | $P_C$     | $T_c=25^\circ\text{C}$ | 50               |
|                             |           | $T_a=25^\circ\text{C}$ | 2                |
| Junction temperature        | $T_j$     | 150                    | $^\circ\text{C}$ |
| Storage temperature         | $T_{stg}$ | -55 ~ +150             | $^\circ\text{C}$ |

#### ■ Electrical Characteristics ( $T_c=25^\circ\text{C}$ )

| Item                                 | Symbol         | Condition   | min. | typ. | max.  | Unit          |
|--------------------------------------|----------------|---|------|------|-------|---------------|
| Collector cutoff current             | $I_{CB0}$      | $V_{CB}=100\text{ V}, I_E=0$  |      |      | 100   | $\mu\text{A}$ |
|                                      | $I_{CE0}$      | $V_{CE}=100\text{ V}, I_B=0$  |      |      | 100   | $\mu\text{A}$ |
| Emitter cutoff current               | $I_{EB0}$      | $V_{EB}=7\text{ V}, I_C=0$  |      |      | 5     | mA            |
| Collector-emitter voltage            | $V_{CE0(sus)}$ | $I_C=0.2\text{ A}$  | 100  |      |       | V             |
| DC current gain                      | $h_{FE}^*$     | $V_{CE}=3\text{ V}, I_C=5\text{ A}$   | 1500 |      | 10000 |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$  | $I_C=5\text{ A}, I_B=5\text{ mA}$   |      |      | 1.5   | V             |
| Base-emitter saturation voltage      | $V_{BE(sat)}$  | $I_C=5\text{ A}, I_B=5\text{ mA}$   |      |      | 2     | V             |
| Transition frequency                 | $f_T$          | $V_{CE}=10\text{ V}, I_C=1\text{ A}, f=1\text{ MHz}$                              |      | 15   |       | MHz           |
| Turn-on time                         | $t_{on}$       | $I_C=8\text{ A}, I_{B1}=8\text{ mA}, I_{B2}=-8\text{ mA}$<br>$V_{CC}=50\text{ V}$ |      |      | 3     | $\mu\text{s}$ |
| Storage time                         | $t_{stg}$      |   |      |      | 5     | $\mu\text{s}$ |
| Fall time                            | $t_f$          |   |      |      | 3     | $\mu\text{s}$ |

#### \* $h_{FE}$ Classifications

| Class    | Q         | P          |
|----------|-----------|------------|
| $h_{FE}$ | 1500~6000 | 5000~10000 |

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